

AUSTIN ENERGY'S TARIFF PACKAGE: §
2015 COST OF SERVICE § BEFORE THE CITY OF AUSTIN
STUDY AND PROPOSAL TO CHANGE § IMPARTIAL HEARING EXAMINER
BASE ELECTRIC RATES §

**AUSTIN ENERGY'S RESPONSE TO AE LOW INCOME CUSTOMERS'
EIGHTH REQUEST FOR INFORMATION**

Austin Energy ("AE") files this Response to AE Low Income Customers' ("AELIC") Eighth Request for Information submitted on April 6, 2016. Pursuant to the City of Austin Procedural Rules for the Initial Review of Austin Energy's Rates § 7.3(c)(1), this Response is timely filed.

Respectfully submitted,

**LLOYD GOSSELINK ROCHELLE &
TOWNSEND, P.C.**

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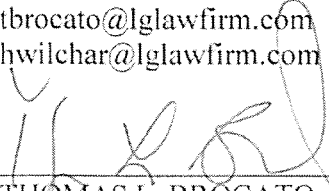
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THOMAS L. BROCATO

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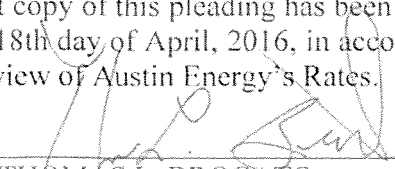
HANNAH M. WILCHAR

State Bar No. 24088631

ATTORNEYS FOR AUSTIN ENERGY

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of this pleading has been served on all parties and the Impartial Hearing Examiner on this 18th day of April, 2016, in accordance with the City of Austin Procedural Rules for the Initial Review of Austin Energy's Rates.



THOMAS L. BROCATO

AUSTIN CITY CLERK
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AELIC 8-1 Please provide a breakdown of the \$5.75 million discount for outside city residential customers by rate and rider (also referred to as "pass throughs") including but not limited to:

- A. Base rates
- B. Street area lighting
- C. Customer assistance program

(Reference: AE's Response to NXP/Samsung RFI No. 1-23, Attachment 1, p. 38 of 238. If \$5.75 million is not the correct numerical value, please provide the correct numerical value and provide the breakdown as requested in this RFI.)

ANSWER:

Per the proposed settlement agreement (Docket No. 40627) AE provides a discount of \$4.3 million in energy charges and \$1.2 million in Community Assistance Program (CAP) and Service Area Lighting (SAL) for outside residential customers. Please refer to Attachment 1 for the residential breakdown and the application of the discounts by rate and rider. The same method used to calculate the residential discount can be applied to the Secondary 2, Secondary 3, Primary 1 and Primary 2 rate classes for their approximately \$325,000 discount.

Prepared by: MM
Sponsored by: Mark Dombroski

WP H-5.1

	Rate Year			
<i>Residential</i>	Inside Rate	Outside Rate	Outside kWh	Discount
0-500 kWh	\$ 0.03300	\$ 0.03800	266,580,622	\$ 1,332,903
500-1000 kWh	\$ 0.05600	\$ 0.05600	204,078,740	\$ -
1000-1500 kWh	\$ 0.07595	\$ 0.07815	136,755,748	\$ 300,863
1500-2500 kWh	\$ 0.09100	\$ 0.07815	144,308,017	\$ (1,854,358)
>2500 kWh	\$ 0.10595	\$ 0.07815	122,726,487	\$ (3,411,796)
			874,449,614	\$ (3,632,389)

	Rate Year			
<i>Residential CAP</i>	Inside Rate	Outside Rate	Outside kWh	Discount
0-500 kWh	\$ 0.02970	\$ 0.03420	20,015,590	\$ 90,070
500-1000 kWh	\$ 0.05040	\$ 0.05040	15,878,157	\$ -
1000-1500 kWh	\$ 0.06836	\$ 0.07034	10,170,672	\$ 20,138
1500-2500 kWh	\$ 0.08190	\$ 0.07034	8,156,452	\$ (94,329)
>2500 kWh	\$ 0.09536	\$ 0.07034	2,643,312	\$ (66,136)
			56,864,183	\$ (50,257)

Total Base Discount	\$ (3,682,646)
Settlement Amount	\$ 4,300,000
Difference	\$ 617,354

	Rate Year			
	Inside Rate	Outside Rate	Outside kWh	Discount
Customer Assistance Program	\$ 0.00172	\$ 0.00118	874,449,615	\$ (472,203)
Customer Assistance Program - CAP	\$ -	\$ -	56,864,183	\$ -
Service Area Lighting	\$ 0.00145	\$ -	874,449,615	\$ (1,264,044)
Service Area Lighting - CAP	\$ 0.00130	\$ -	56,864,183	\$ (73,979)
Total CBC Discount	\$ (1,810,226)			
Settlement Amount	\$ 1,200,000			
Difference	\$ (610,226)			

WP H-5.1

Secondary Voltage ($\geq 10 < 300$ kW)	Rate Year			
	Inside Rate	Outside Rate	Outside kWh	Discount
All kWhs	\$ 0.02421	\$ 0.02356	297,920,200	\$ (193,648)
All kWhs - HOW	\$ 0.02421	\$ 0.02356	5,823,653	\$ (3,785)
All kWhs - S	\$ 0.02421	\$ 0.02356	3,765,769	\$ (2,448)
All kWhs - MIL	\$ 0.01937	\$ 0.01885	-	\$ -
All kWhs - LTC	\$ 0.01110	\$ 0.01110	-	\$ -
All kWhs - ISD	\$ 0.01937	\$ 0.01885	12,950,663	\$ (6,734)
Total Base Discount				\$ (206,616)

WP H-5.4

Secondary Voltage (≥ 300 kW)	Rate Year			
	Inside Rate	Outside Rate	Outside kWh	Discount
All kWhs	\$ 0.01955	\$ 0.01902	169,981,994	\$ (90,090)
All kWhs - HOW	\$ 0.01955	\$ 0.01902	446,535	\$ (237)
All kWhs - S	\$ 0.01955	\$ 0.01902	-	\$ -
All kWhs - MIL	\$ 0.01564	\$ 0.01522	-	\$ -
All kWhs - LTC	\$ 0.01110	\$ 0.01110	-	\$ -
All kWhs - ISD	\$ 0.01564	\$ 0.01522	38,692,062	\$ (16,405)
Total Base Discount				\$ (106,733)

WP H-5.5

Primary Voltage (< 3 MW)	Rate Year			
	Inside Rate	Outside Rate	Outside kWh	Discount
All kWhs	\$ 0.00500	\$ 0.00487	39,156,834	\$ (5,090)
All kWhs - HOW	\$ 0.00500	\$ 0.00487	-	\$ -
All kWhs - S	\$ 0.00500	\$ 0.00487	-	\$ -
All kWhs - MIL	\$ 0.00400	\$ 0.00390	-	\$ -
All kWhs - LTC	\$ 0.01110	\$ 0.01110	-	\$ -
All kWhs - ISD	\$ 0.01110	\$ 0.01110	-	\$ -
Total Base Discount				\$ (5,090)

WP H-5.6

Primary Voltage ($\geq 3 < 20$ MW)	Rate Year			
	Inside Rate	Outside Rate	Outside kWh	Discount
All kWhs	\$ 0.00360	\$ 0.00350	48,990,607	\$ (4,899)
All kWhs - HOW	\$ 0.00360	\$ 0.00350	-	\$ -
All kWhs - S	\$ 0.00360	\$ 0.00350	-	\$ -
All kWhs - MIL	\$ 0.00288	\$ 0.00280	-	\$ -
All kWhs - LTC	\$ 0.01110	\$ 0.01110	-	\$ -
Total Base Discount				\$ (4,899)

	Proposed	Settlement Amount
Total Residential Base Discount	\$3,682,646	\$4,300,000
Total CBC Discount	\$1,810,226	\$1,200,000
Secondary Voltage ($\geq 10 < 300$ kW)	\$206,616	
Secondary Voltage (≥ 300 kW)	\$106,733	
Primary Voltage (< 3 MW)	\$5,090	
Primary Voltage ($\geq 3 < 20$ MW)	\$4,899	
Subtotal Commercial Rate Classes	\$323,338	\$325,000
Grand Total	\$5,816,209	\$5,825,000

AELIC 8-2 Please explain how AE derived/calculated the \$5.75 million discount for outside city residential customers. In your explanation please include the underlying workpapers to your calculations. (Reference: AE's Response to NXP/Samsung RFI No. 1-23, Attachment 1, p. 38 of 238. If this is not the correct numerical value, please provide the correct numerical value and provide the explanation as requested in this RFI).

ANSWER:

Please see AE's Response to AELIC RFI No. 8-1

Prepared by: MM
Sponsored by: Mark Dombroski

AELIC 8-3 Has AE and/or its consultants or agents been discussing rate case issues such as rate design, cost of service, and revenue requirement with members of the Austin City Council and/or their aides in public meetings and/or in private meetings or in communications with member(s) of the city council and/or their aides since the filing of its rate filing package?

ANSWER:

Yes, Austin Energy has met with members of the Austin City Council and/or their aides in private meetings and in public meetings to discuss issues related to the rate case.

Prepared by: HM
Sponsored by: Mark Dreyfus

AELIC 8-4 If the answer to RFI No. 8-3 is yes please list each such contact and for each contact provide the following:

- A. The date of the contact;
- B. The time spent in the contact (such as three hours at a work session; one hour with Councilmember "X".)
- C. The identification of AE employees that attended the meeting or made the contact
- D. The substance of the meeting and/or contact
- E. The name of the council member(s) and/or aide(s) that was contacted;
- F. Copies of any written communications including reports, studies, power point presentations, emails, memos, and such other written information provided to member(s) of the City Council and/or their aides by AE and/or its consultants or agents at that contact or arising from that contact;
- G. The identity of any consultant(s) relied upon by AE, including the consultant's business address and phone number. (Please also include a copy of any contract AE entered into with the consultant as well as the amount AE paid the consultant, including transportation and such other remuneration for the communication with the member(s) of the City Council and/or their aides).

ANSWER:

Private Meetings

- 1. Discussion of work sessions in response to Resolution 20160204-037
 - A. Week of February 8, 2016
 - B. 30 minutes
 - C. Mark Dreyfus, Vice President, Regulatory Affairs and Corporate Communications
 - D. Discussed planning for the three educational City Council work sessions and expectations of what would be covered
 - E. Shannon Halley, aide to Mayor Pro Tem Kathie Tovo
 - F. N/A
 - G. N/A
- 2. Discussion of work sessions in response to Resolution 20160204-037
 - A. February 17, 2016
 - B. 30 minutes
 - C. Mark Dreyfus, Vice President, Regulatory Affairs and Corporate Communications; Hayden Migl, Local Government Affairs Program Manager
 - D. Discussed planning for the three educational City Council work sessions and expectations of what would be covered
 - E. Tina Cannon, aide to Council Member Sheri Gallo
 - F. N/A
 - G. N/A

3. Discussion of constituent involvement with the Independent Consumer Advocate
 - A. February 18, 2016
 - B. 30 minutes
 - C. Barksdale English, AE Utility Strategist; Toye Goodson-Collins, Local Government Affairs Program Manager
 - D. Discussed how to get the Independent Consumer Advocate connected with constituents of Council District 1.
 - E. Beverly Wilson, Christopher Hutchins, Genoveva Rodriguez, and Andre Ewing — all are aides to Council Member Ora Houston
 - F. N/A
 - G. N/A

Public Meetings

1. January 25, 2016 AE Utility Oversight Committee Meeting
 - A. January 25, 2016
 - B. 2 hours
 - C. Mark Dombroski, Austin Energy Interim General Manager; Mark Dreyfus, Austin Energy Vice President, Regulatory Affairs and Corporate Communications
 - D. Discussed rate review process, cost of service study results, and rate design recommendations.
 - E. Chair Sheri Gallo, Vice Chair Leslie Pool, Mayor Steve Adler, Council Member Gregorio Casar, Council Member Delia Garza, Council Member Ora Houston, Council Member Ann Kitchen, Council Member Sabino "Pio" Renteria, Mayor Pro Tem Kathie Tovo, Council Member Ellen Troxclair, Council Member Don Zimmerman
 - F. Please see Attachment 1: Austin Energy Cost of Service and Rate Review - 012516 AEUOC
 - G. N/A
2. March 28, 2016 AE Utility Oversight Committee Meeting
 - A. March 28, 2016
 - B. 5 minutes
 - C. Mark Dreyfus, Austin Energy Vice President, Regulatory Affairs and Corporate Communications
 - D. Update on rate review process and list of those entities that have intervened.
 - E. Vice Chair Leslie Pool, Mayor Steve Adler, Council Member Gregorio Casar, Council Member Ora Houston, Council Member Ann Kitchen, Council Member Sabino "Pio" Renteria, Mayor Pro Tem Kathie Tovo, Council Member Ellen Troxclair, Council Member Don Zimmerman
 - F. N/A
 - G. N/A

Prepared by: HM
Sponsored by: Mark Dreyfus



Austin Energy Cost of Service and Rate Review

January 25, 2016





Current Schedule Highlights

- December 14, 2015—Electric Utility Commission briefing on Revenue Requirement and Cost of Service
- December 15, 2015—City Council Work Session briefing
- January 14, 2016—Pre-hearing conference
- January 25, 2016—Utility Oversight Committee briefing on rate design recommendations
- January 25, 2016—Release of AE's Rates Report to Council
- January 25, 2016—EUC briefing on rate design recommendations
- End January, 2016—Begin proceedings before Impartial Hearings Examiner
- May 6, 2016—Impartial Hearings Examiner recommendations report released
- May & June 2016—**Recommendation:** hold three Council Work Sessions
- June 2016—**Recommendation:** hold two Council public hearings
- June 23, 2016—final Council decision meeting

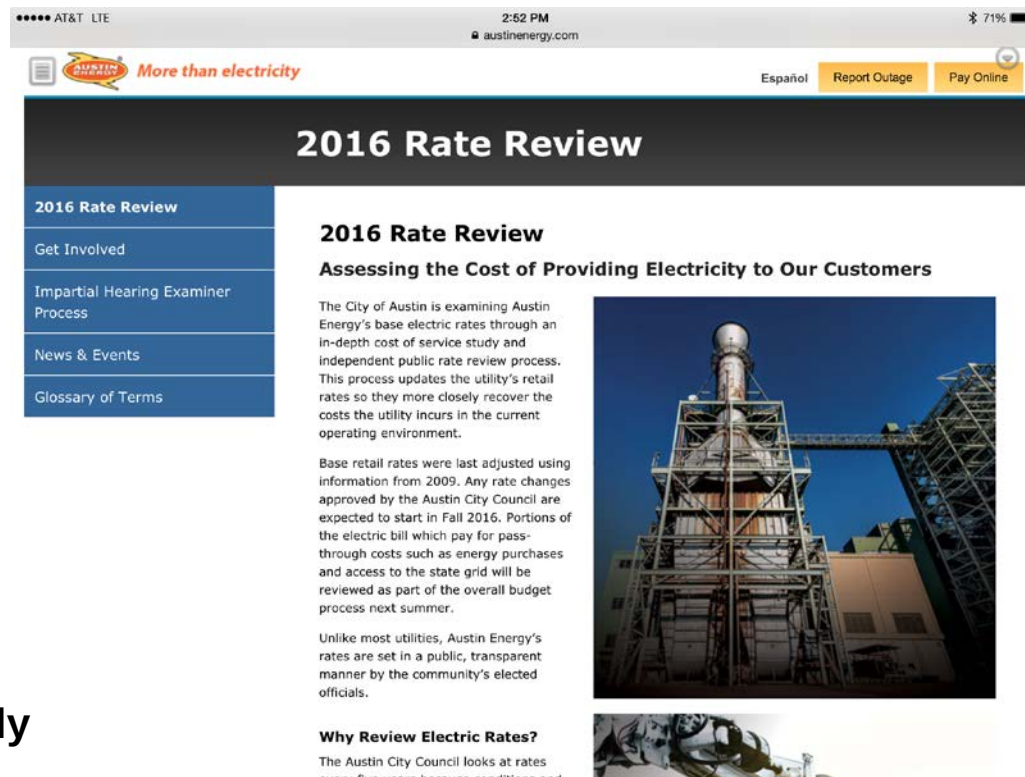
How Customers May Participate

- Informal:**

- **Web Page:** from austinenergy.com select "rates"
- **Sign up for e-mail alerts**
- **Review documents, posted on the web page of the Office of the City Clerk**
- **View hearings to be archived on the City's website**

- Formal:**

- **Participate fully**
- **Accessibility**
- **Forms available for download**
- **Directions available on the web**





Steps in Cost of Service and Rate Setting

- Revenue Requirement
- Cost Allocation
- Rate Design



Guiding Policies and Principles

- Affordability Goals:
 - 2 percent per year
 - Competitiveness
- Austin Energy Strategic Plan
- City of Austin Climate Protection Plan (2007) and Austin Energy Resource Generation Plan to 2025
- Financial Policies of the City of Austin and 2012 Rate Ordinance



Austin Energy's Objectives

- Transparent process
- Fairness for all customers
- Focus on affordability
- Adhere to applicable State and local laws and City policies
- Sustain long-term financial health of the utility



Conclusions from Cost of Service Analysis

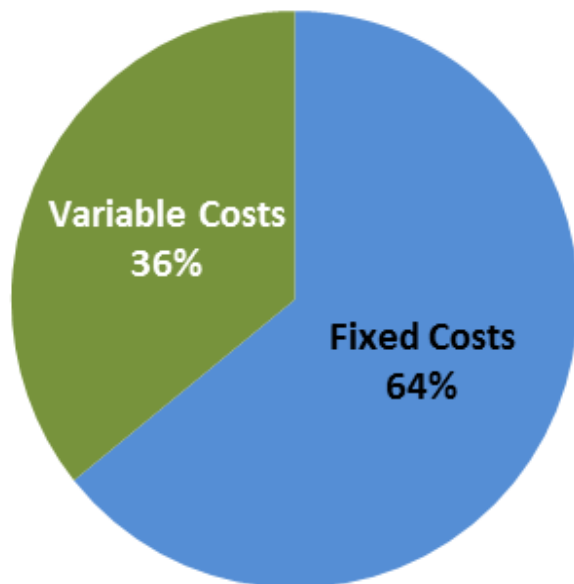
Financial Health

- **Reduce base rates by \$17.4 million.**
 - Additional reductions expected in the Regulatory Charge and Power Supply Adjustment.
 - Regulatory Charge and Power Supply Adjustment to be set in FY 2017 budget process.
- Significant progress since 2012 in restoring the financial health of Austin Energy.
- Continue to face long-run revenue stability challenges.

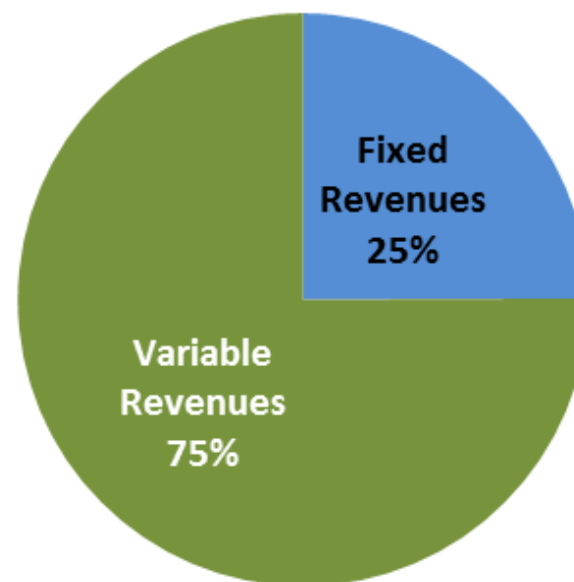


Conclusions from Cost of Service Analysis: Financial Health

TY2014 Expenses



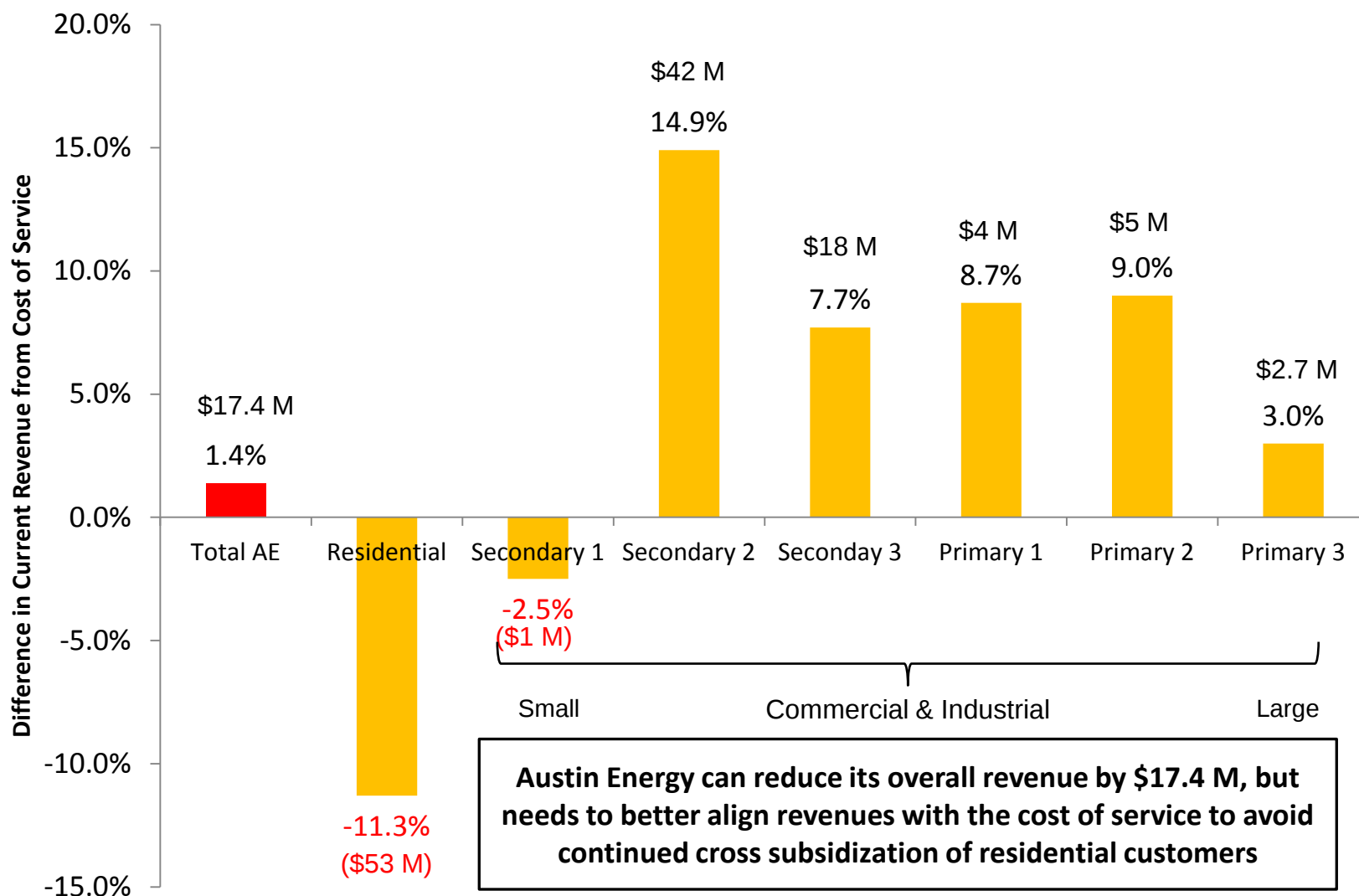
FY2014 Customer Revenues



Low fixed cost recovery contributes to revenue instability.
Declining consumption aggravates long-term stability.



Conclusions from Cost of Service Analysis: Revenue Alignment





Rate Design: Policy Recommendations



Rate Structure Analysis Conclusions

- Rate structure adopted in 2012 remains sound.
- Some needed adjustments identified from:
 - Experience since 2012
 - Community feedback
 - Interim studies
 - Improved Cost of Service data



Key Rate Transformation Steps in 2012

- Consolidated rate classes
- Unbundled charges from base rates
 - Community Benefits Charge
 - Regulatory Charge
- Reformed the Power Supply Adjustment
- Raised the Customer Charge
- Embedded incentives for energy efficiency in base rates
- Tiered the residential rate structure
- Adopted the Value of Solar
- Created discounts for key commercial accounts
- Introduced a low-income (CAP) funding mechanism

Community Benefit Charges

- **Maintain:** current Customer Assistance Program (CAP), energy efficiency services and service area street lighting rate policies.
 - Adopt greater uniformity in calculation of Community Benefit Charge.



Seasonality (summer/winter differential)

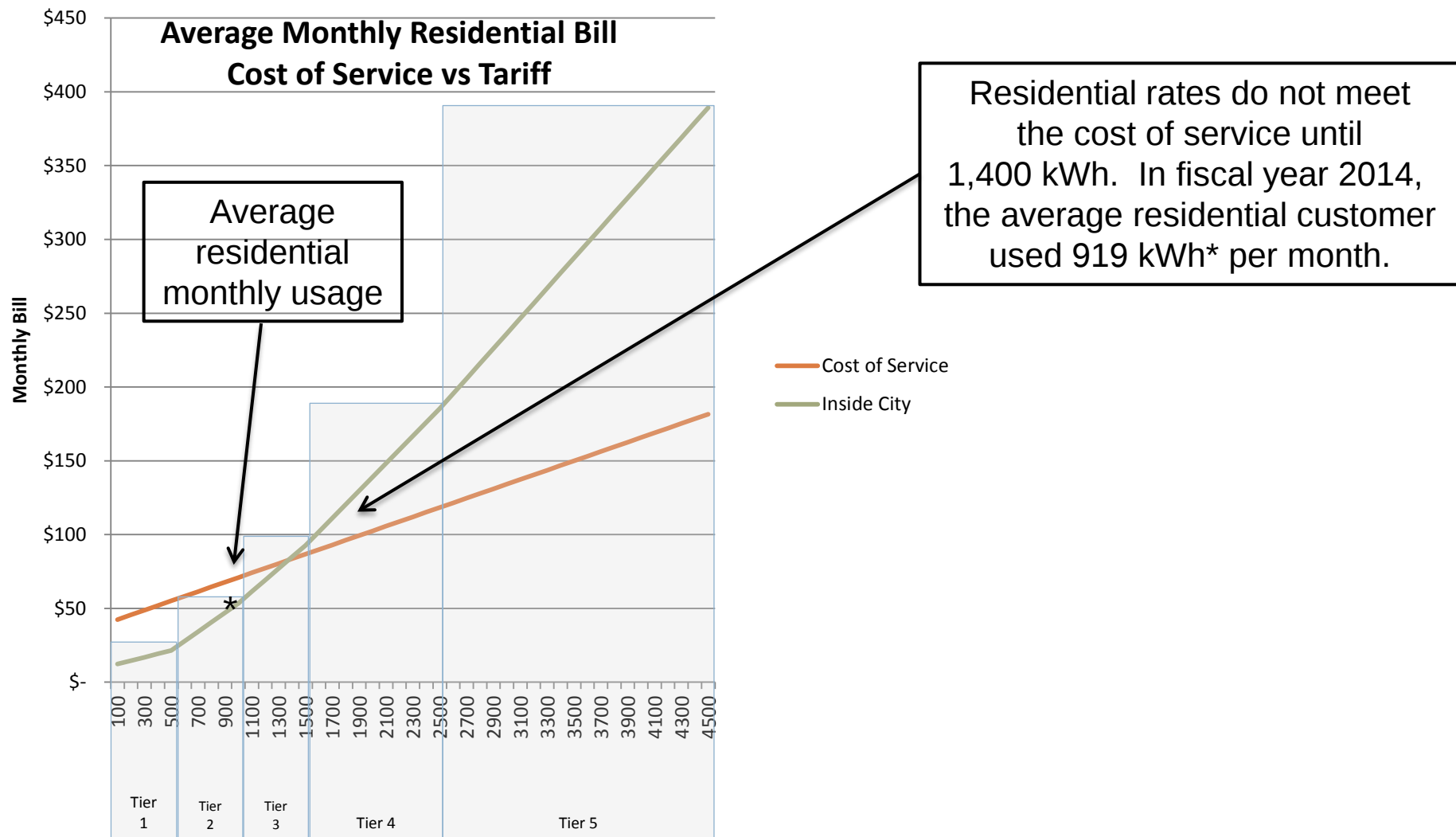
- **Recommendation:** eliminate seasonality factor in base rates
 - Seasonal fluctuation potentially burdensome
 - Limited cost justification supporting seasonal factors
 - Adopt seasonality in Power Supply Adjustment

Residential Rate Tier Adjustments

- Current 5-tier rate design recovers insufficient revenues for most customers.
 - Declining residential usage suggests continued instability in residential cost recovery.
- **Recommendation:** Flatten 5 residential tiers:
 - Better alignment with Cost of Service
 - Improve stability of cost recovery
- Rates will retain a tiered structure providing price signals to encourage conservation and energy efficiency investments.



Nearly 80 Percent of Residential Electricity is Sold Below the Cost of Service



Note: Annual consumption of 903 kWh as reported by EIA is based on 2014 calendar year while the 919 kWh is based on City of Austin's fiscal year 2014.



Proposed Residential Tiers

Residential Base Rates for Inside the City Limits Customers

				Existing Rate	Proposed Rate
<u>Basic Charges (\$/month)</u>					
Customer Charge				10.00	10.00
Delivery Charge				0.00	0.00
<u>Summer Tier Rates (\$/kWh)</u>					
First Tier (0 – 500 kWh)				0.03300	0.03300
Second Tier (501 – 1,000 kWh)				0.08000	0.05600
Third Tier (1,001 – 1,500 kWh)				0.09100	0.07595
Fourth Tier (1,501 – 2,500 kWh)				0.11000	0.09100
Fifth Tier (2,501 kWh and over)				0.11400	0.10595
<u>Non-Summer Tier Rates (\$/kWh)</u>					
First Tier (0 – 500)				0.01800	0.03300
Second Tier (501 – 1,000)				0.05600	0.05600
Third Tier (1,001 – 1,500)				0.07200	0.07595
Fourth Tier (1,501 – 2,500)				0.08400	0.09100
Fifth Tier (2,501 and over)				0.09600	0.10595

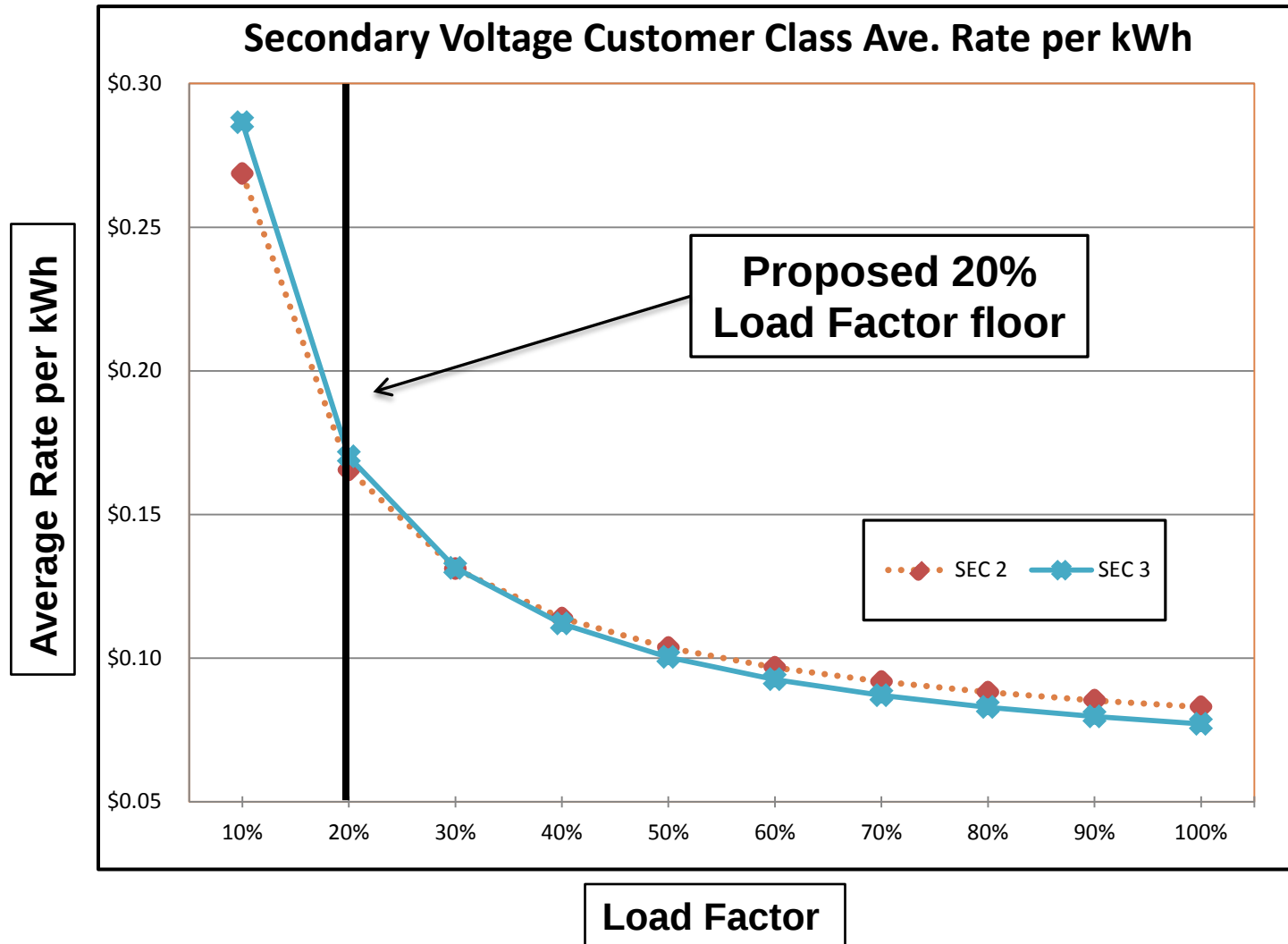


Small Commercial Classes

- **Maintain:** Policy adopted by Council (in FY 2016 budget) assigning customer classes based on 4 month summer peak.
 - Approximately 1,700 customers of 14,000 customers switched from S2 to S1 in January 2016 implementation.
- **Maintain:** 10 kW break point between S1 and S2 classes.
- **Recommendation:** Extend the boundary of S2 and S3 to 300 kW.
- **Recommendation:** Establish a Load Factor floor for secondary customers of 20 percent Load Factor.
 - 3,300 customers in S2
 - 30 customers in S3
 - Shift of \$7 million from low Load Factor secondary customers to higher Load Factor customers.



Secondary Customer Load Factor Floor





Outside City Customers

- **Recommendation:** Maintain \$5.75 million discount for outside city customers adopted in 2013 settlement.



Pass-through Charges Uniformity

- Pass-through charges: Regulatory Charge, Community Benefit Charge, and Power Supply Adjustment Charge.
- Current Power Supply Adjustment policy sets charge as a “uniform rate.”
 - Similar policy/rate calculation for all customer classes.
 - Adjusted by voltage level for line losses.
- Regulatory Charge and some components of the Community Benefit Charge can be volatile from year to year.
- **Recommendation:** recover Regulatory Charge and Community Benefit Charge in a more uniform manner, similar to Power Supply Adjustment.



Commercial Discounts

- **Maintain:** Existing discount for Independent School Districts.
- **Recommendation:** Provide State account discount at conclusion of current contract.
- **Recommendation:** Add discount for military bases.
- **Recommendation:** Conclude transition providing rate discount for house of worship accounts, discontinuing the house of worship rate.
- **Recommendation:** For all commercial customers receiving a discount, set discounts in a uniform manner, at 20 percent off of base rates.

Rate Design: Recommendations for Allocating \$17.4 Million Reduction



Allocation of \$17.4 M Reduction: Residential Customers

- Hold total base revenue collections from Residential constant.
- Implement revenue neutral adjustments within the Residential class to help stabilize revenue collections.
- Forecasted reductions in Power Supply Adjustment and Regulatory Charge anticipated to benefit Residential class.



Allocation of \$17.4 M Reduction: Commercial Customers

- Secondary and Primary Non-residential Classes: No class receive an increase.
 - Account for changes in the Regulatory Charge and PSA anticipated to be adopted in summer budget.
- Small Secondary (S1): Hold constant
 - Currently within 2.5 percent of Cost of Service.
 - Customers shifting from S2 to S1 receiving reductions.
- Medium Secondary (S2 and S3): Direct the majority of reductions to Secondary.
- Primary: Bring as close as feasible to Cost of Service.
- T2: Bring to Cost of Service in accordance with T2 tariff.
 - Three year transition prior to pass through of any increases.
- Assure a rational progression of rates across customer classes as customer load increases.



Proposed Non-residential Rates

Non-Residential Base Rates for Inside the City Limits Customers

	S1	S2	S3	P1	P2	P3	T1
Customer Charge (\$/month)	18.00	27.50	71.50	275.00	2,200.00	2,750.00	2,750.00
Delivery Charge (\$/kW)	0.00	4.00	4.50	3.50	4.00	4.50	0.00
Demand Charge (\$/kW)	0.00	5.75	7.25	8.50	9.50	10.25	12.00
Energy Charge (\$/kWh)	0.05190	0.02421	0.01955	0.00500	0.00360	0.00300	0.00500

Proposed base rates only. Additional adjustments to the structure of the Regulatory Charge and the Community Benefit Charge are proposed to eliminate volatility in those charges.



Issues for Study Prior to Next Cost of Service Assessment

Residential Studies

- Tiered structure of residential rates
- Lifeline study of minimum residential energy uses
- Cost of service of multi-family and single-family residences
- Cost of service of three-phase residential customers

Commercial Studies

- Cost of service of downtown network service
- Rate structure for S1 class
- Demand charges for customers peaking outside AE system peak
- Potential for kilovolt ampere reactive (kvar) billing (alternative to the current power factor correction)



Rate Design: Customer Impacts



Residential Customer Impacts

Change in Average Monthly Bill			Average Monthly kWh	Percent of Similar Customers *
Electric Heat	Tier 1 Customer	\$1.43	416	7.43%
	Tier 2 Customer	-\$0.90	751	9.72%
	Tier 3 Customer	-\$0.56	1,175	5.57%
	Tier 4 Customer	-\$3.41	1,877	1.23%
	Tier 5 Customer	-\$11.85	3,732	0.09%
Gas Heat	Tier 2 Customer	\$0.22	562	9.12%
	Tier 3 Customer	-\$5.26	1,087	6.58%
	Tier 5 Customer	-\$13.16	2,184	0.73%

* Percent of all customers with twelve months of billing data within same block (i.e. 400 - 499). Example customers represent 50.3% of all customers with twelve months of billing data.

Impacts reflect proposed base rate adjustments and forecasted changes to PSA and Regulatory Charge.



S1 Impact—Monthly Bill Comparison

Type of Use	ISD	Restaurant	Utility	Office	Medical	HOW	Service	Retail	HOW
Average Bill									
Existing	\$185	\$156	\$105	\$105	\$103	\$76	\$56	\$51	\$39
Proposed	\$182	\$147	\$102	\$101	\$100	\$77	\$54	\$49	\$47
Variance									
Proposed to Existing	-\$3	-\$9	-\$3	-\$4	-\$3	\$1	-\$1	-\$2	\$9
Percent Change	-2%	-6%	-3%	-4%	-3%	1%	-2%	-4%	23%
Average									
Monthly kWh	1,649	1,297	858	837	820	598	364	309	296
Monthly KW	12.6	6.6	4.8	5.2	5.2	6.3	3.4	4.9	7.7
Peak KW	16.4	7.9	5.5	7.1	6.4	8.9	4.4	6.6	9.7

In/Out COA	Inside	Inside	Outside	Inside	Inside	Inside	Inside	Inside	Inside
Monthly kWh									

Impacts reflect proposed base rate adjustments and forecasted changes to PSA and Regulatory Charge. Calculated from the monthly usage patterns of actual customers.



S2 Impact—Monthly Bill Comparison

Type of Use	Retail	Restaurant	ISD	Utility	Office	Medical	Service	HOW	HOW
Average Bill									
Existing	\$983	\$729	\$838	\$534	\$434	\$405	\$314	\$192	\$136
Proposed	\$932	\$691	\$773	\$498	\$411	\$357	\$296	\$246	\$182
Variance Proposed to Existing	-\$52	-\$38	-\$66	-\$36	-\$23	-\$48	-\$18	\$53	\$47
Percent Change	-5%	-5%	-8%	-7%	-5%	-12%	-6%	28%	34%
Average									
Monthly kWh	7,894	6,503	5,940	4,277	2,971	2,277	2,214	1,475	1,040
Monthly KW	33.1	19.8	28.6	15.0	16.1	17.2	10.8	16.5	17.7
Peak KW	41.4	21.6	40.4	18.9	24.9	28.0	13.8	21.4	24.0
Load Factor	33.5%	44.7%	41.6%	39.1%	26.0%	18.7%	28.8%	12.4%	8.3%

In/Out COA	Inside	Inside	Inside	Outside	Inside	Outside	Inside	Inside	Inside
Monthly kWh									

Impacts reflect proposed base rate adjustments and forecasted changes to PSA and Regulatory Charge. Calculated from the monthly usage patterns of actual customers.



S3 Impact—Monthly Bill Comparison

Type of Use	Utility	ISD	Retail	Medical	Office	Restaurant	Retail	HOW	HOW
Average Bill									
Existing	\$32,868	\$32,634	\$32,310	\$25,181	\$16,432	\$11,765	\$11,818	\$10,530	\$6,594
Proposed	\$31,835	\$31,920	\$31,520	\$24,895	\$16,174	\$11,577	\$11,577	\$10,451	\$8,072
Variance Proposed to Existing	-\$1,032	-\$713	-\$790	-\$285	-\$258	-\$188	-\$241	-\$79	\$1,478
Percent Change	-3%	-2%	-2%	-1%	-2%	-2%	-2%	-1%	22%
Average									
Monthly kWh	316,200	304,167	289,500	279,850	172,650	127,433	116,425	86,550	50,525
Monthly KW	965.0	1000.0	1027.5	619.5	433.0	276.0	337.0	358.3	641.0
Peak KW	1059.0	1160.0	1130.0	663.0	516.0	316.0	405.0	489.0	840.0
Load Factor	44.6%	41.6%	38.5%	62.0%	56.2%	62.7%	47.2%	33.4%	10.9%

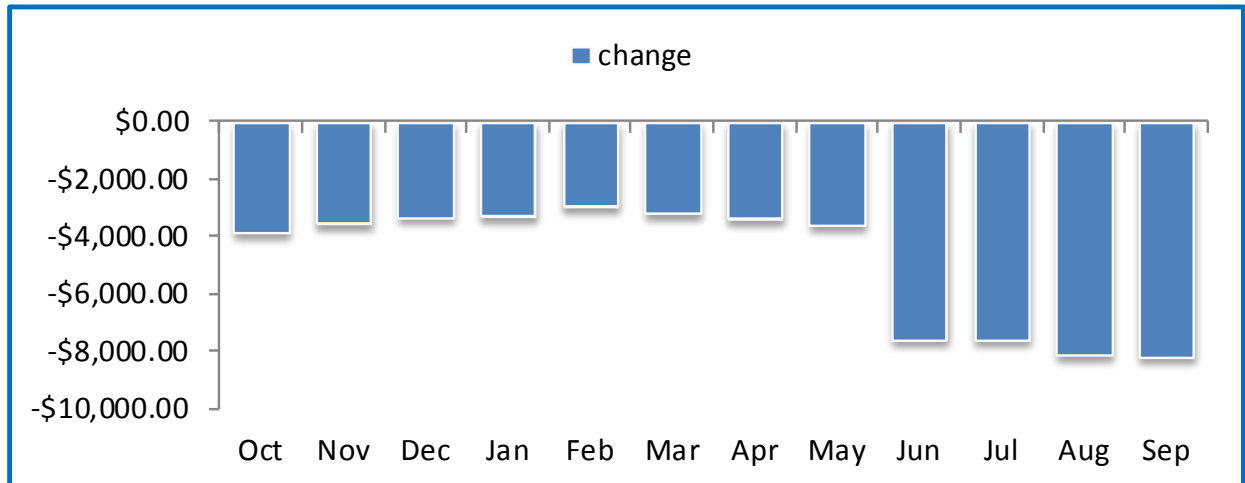
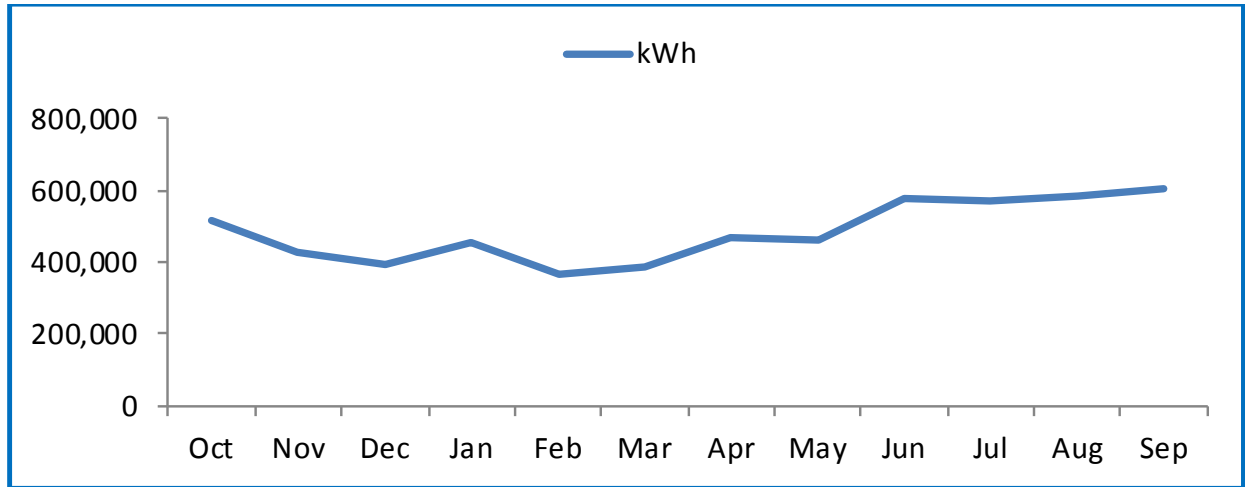
In/Out COA	Inside	Inside	Inside	Outside	Inside	Outside	Inside	Inside	Inside
Monthly kWh									

Impacts reflect proposed base rate adjustments and forecasted changes to PSA and Regulatory Charge.
Calculated from the monthly usage patterns of actual customers.



P1—Sample Monthly Bill Comparison

Type of Use	Retail
Average Bill	
Existing	\$37,750
Proposed	\$32,840
Variance Proposed to Existing	
	-\$4,910
Percent Change	-13%
Average	
Monthly kWh	483,300
Monthly KW	870.0
Peak KW	1020.0
Load Factor	75.8%

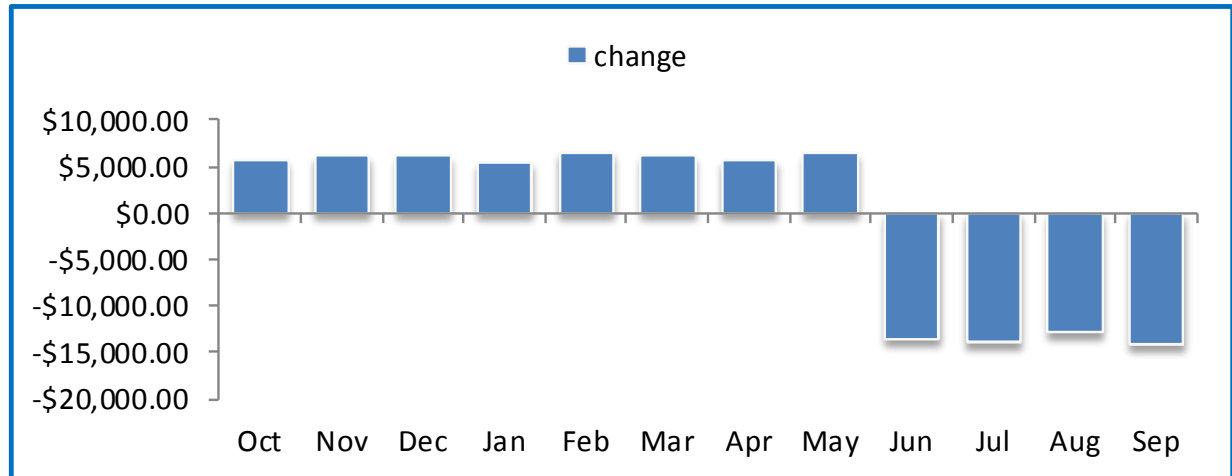
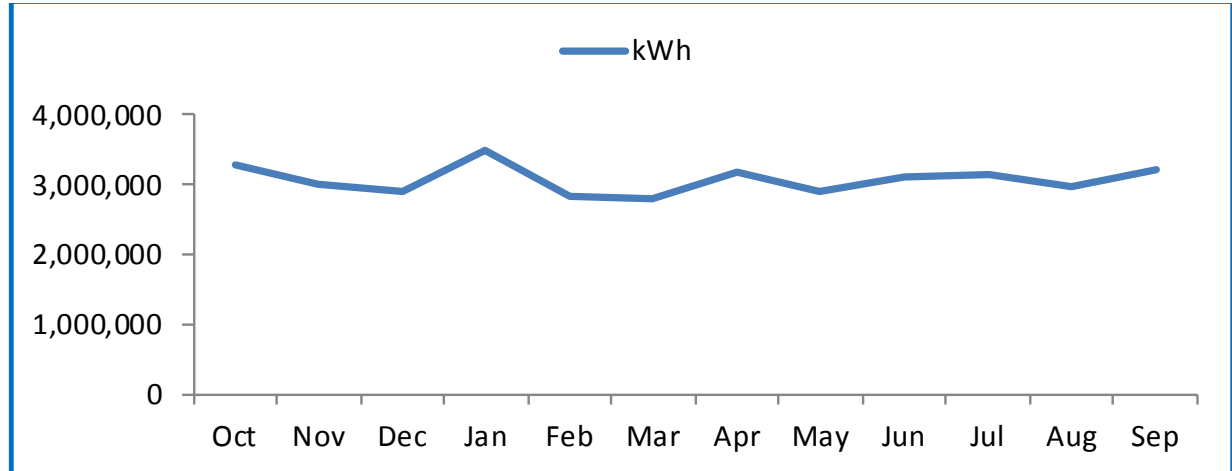


Impacts reflect proposed base rate adjustments and forecasted changes to PSA and Regulatory Charge. Average P1 customer used for illustration.



P2—Sample Monthly Bill Comparison

Type of Use	Industrial
Average Bill	
Existing	\$196,648
Proposed	\$196,152
Variance Proposed to Existing	-\$496
Percent Change	0%
Average	
Monthly kWh	3,065,306
Monthly KW	4525.8
Peak KW	4680.0
Load Factor	92.8%



Impacts reflect proposed base rate adjustments and forecasted changes to PSA and Regulatory Charge. Average P2 customer used for illustration.



Next Steps

- Publish rates report and proposed tariffs
- Publish Cost of Service model
- Finalize procedural rules
- Begin discovery process before Impartial Hearings Examiner
- Outreach to customer groups to encourage participation

AELIC 8-5 Did AE include its coal cars, coal car leases, and/or its coal contracts in its decommissioning cost study(ies) and/or estimates relied upon in its recommended level of funding for decommissioning costs of the Fayette Power Project? If so, please identify in the rate filing package where these items were addressed.

ANSWER:

The decommissioning cost estimate for FPP was developed based on a benchmarking analysis of the cost to dismantle other similar facilities. This analysis was not at the level of detail necessary to individually evaluate coal cars, coal car leases, or coal contracts.

Prepared by: GR/RM
Sponsored by: Elaina Ball

AELIC 8-6 Please provide the number of AE residential customers whose household incomes are at or below 200% Federal Poverty Guidelines. (To the extent, AE does not have the exact demographic data, please use its best estimate(s) that it has relied upon in providing demographic data to the City Council, City Commissions, City Task Forces, other City departments, and/or to the public). In the event AE relied upon some income indicator other than Federal Poverty Guidelines, such as percentages of median household income, AE may utilize the other income indicator and explain how it relates to Federal Poverty Guidelines.

ANSWER:

Austin Energy does not track the Federal Poverty Income Level of its customers. Please see Attachment 1, Texas Health and Human Services Commission: Programs by Federal Poverty Income Level, for information Austin Energy has relied on in providing data to City Council and its boards and commissions. Please also see Attachment 2, Statewide Electric Burden SAS File, for 2013 data comparing relative electric burden in major Texas urban areas.

Prepared by: JG
Sponsored by: Kerry Overton

Texas Health and Human Services Commission
Strategic Decision Support Services Department

Programs by Federal Poverty Income Level (FPIL)
Comparison of March 2012 versus March 2013 Unduplicated Enrollment

Client Eligibility Group Description	Federal Poverty Income Level	March 2012 Unduplicated Enrollment	2012 Running Total Enrollment	March 2013 Unduplicated Enrollment	2013 Running Total Enrollment	Footnote	Enrollment Variance between 2012 and 2013		
TANF Adult	12%	4,771	4,771	4,155	4,155		(616)	Medicaid	47%
TANF Child	12%	15,232	20,003	13,654	17,809		(1,578)	SNAP	24%
SSI @ 74% of FPIL	74%	24,460	44,463	14,634	32,443		(9,826)	CHIP	9%
Travis County/City of Austin Medical Assistance Program (MAP)	100%	40,733	85,196	40,733	73,176	(a)	0	MAP	19%
Medicaid children age 6 – 18 (TP 44: FPIL < 100%)	100%	29,604	114,800	30,538	103,714		934	CEAP	2%
Comprehensive Energy Assistance Program (CEAP)	125%	3,606	118,406	3,606	107,320	(b)	0	Lifeline	
Medicaid children age 1 – 5 (TP 48: FPIL < 133%)	133%	23,455	141,861	22,641	129,961		(814)		100%
SNAP - NOT Medicaid eligible (165%)	165%	35,083	176,944	51,325	181,286		16,242		
Newborns/Infants (TP 43,45: FPIL < 185%)	185%	6,260	183,204	6,188	187,474		(72)		
Pregnant Women (TP 40, 42: FPIL < 185%)	185%	2,659	185,863	2,646	190,120		(13)		
Women's Health Program (TP 41, WHP: FPIL < 185%)	185%	3,363	189,226	3,526	193,646		163		
Medically Needy/BCCP (TP 66, 67: FPIL < 200%)	200%	103	189,329	130	193,776		27		
Children's Health Insurance Program	101-200%		189,329	18,548	212,324				
Refugee	215%	238	189,567	305	212,629		67		
Medicaid Buy-In (TP 02,87,88: FPIL betw 250-300%)	250-300%	36	189,603	23	212,652		(13)		
Foster Care Children	250-300%	2,801	192,404	1,508	214,160		(1,293)		
Total Unduplicated Enrollment		192,404		214,160			3,208		

SNAP Clients as Percentage of Total Unduplicated Medicaid Clients in Travis County	March 2012 Enrollment	% of Total
Distinct Medicaid Clients	112,982	
Distinct SNAP Clients - NOT Medicaid eligible	35,083	
Distinct SNAP Clients also enrolled in Medicaid	77,900	
Distinct SNAP Clients - TOTAL	112,983	

March 2013 Enrollment	% of Total	Variance
99,948		(13,034)
51,325		16,242
79,447		1,547
130,772		17,789

Footnotes:

(a) MAP is based on FY 2010 (36,220), 2011 (41,618) and 2012 (44,362) average.

(b) CEAP is based on FY 2010 (3,788), 2011 (4,417) and 2012 (2,612) average.

The SAS System

1

AREA	Percent Poverty	UNWEIGHTED HOUSEHOLDS	WEIGHTED HOUSEHOLDS	MEDIAN ELECTRIC BILL	MEDIAN HOUSEHOLD INCOME	ELECTRICITY BURDEN
AUS	0-50 Percent	467	17,545	\$110	\$254	43.37%
	51-100 Percent	574	23,386	\$110	\$1,015	10.84%
	101-150 Percent	660	26,470	\$130	\$1,691	7.66%
	151-200 Percent	722	27,809	\$103	\$2,191	4.72%
	201-250 Percent	720	28,699	\$114	\$2,749	4.14%
	251-400 Percent	2,131	79,485	\$110	\$3,804	2.89%
	401-500 Percent	1,170	40,147	\$114	\$5,452	2.09%
	> 500 Percent	4,241	133,121	\$139	\$9,995	1.40%
BVL	0-50 Percent	331	13,255	\$114	\$400	28.46%
	51-100 Percent	594	21,198	\$134	\$1,133	11.87%
	101-150 Percent	522	16,974	\$150	\$1,860	8.06%
	151-200 Percent	344	11,781	\$160	\$2,630	6.08%
	201-250 Percent	278	8,548	\$176	\$3,213	5.47%
	251-400 Percent	600	19,762	\$179	\$4,295	4.17%
	401-500 Percent	213	6,557	\$180	\$5,610	3.21%
	> 500 Percent	491	13,504	\$200	\$9,495	2.11%
CRP	0-50 Percent	194	7,131	\$130	\$391	33.21%
	51-100 Percent	401	14,749	\$155	\$964	16.09%
	101-150 Percent	399	14,223	\$155	\$1,613	9.62%
	151-200 Percent	384	13,709	\$186	\$2,232	8.34%
	201-250 Percent	367	12,496	\$179	\$2,915	6.15%
	251-400 Percent	799	27,033	\$199	\$4,106	4.85%
	401-500 Percent	416	14,206	\$200	\$5,785	3.46%
	> 500 Percent	963	29,222	\$230	\$9,554	2.41%
DFW	0-50 Percent	1,820	67,350	\$145	\$219	66.09%
	51-100 Percent	2,963	112,679	\$145	\$1,083	13.38%
	101-150 Percent	4,039	149,760	\$150	\$1,766	8.49%
	151-200 Percent	3,999	144,349	\$155	\$2,367	6.56%
	201-250 Percent	4,052	143,415	\$155	\$2,980	5.21%
	251-400 Percent	10,853	359,916	\$166	\$4,143	4.00%
	401-500 Percent	6,275	200,942	\$176	\$5,689	3.09%
	> 500 Percent	19,317	576,192	\$199	\$10,045	1.98%
ELP	0-50 Percent	435	16,957	\$60	\$421	14.26%
	51-100 Percent	940	34,007	\$60	\$1,087	5.50%
	101-150 Percent	958	30,918	\$70	\$1,832	3.81%
	151-200 Percent	766	24,615	\$70	\$2,632	2.65%
	201-250 Percent	637	21,570	\$70	\$3,187	2.20%
	251-400 Percent	1,411	45,087	\$80	\$4,396	1.82%
	401-500 Percent	498	16,122	\$83	\$5,977	1.38%
	> 500 Percent	1,090	33,865	\$100	\$9,454	1.05%
HOU	0-50 Percent	1,618	66,645	\$140	\$210	66.55%
	51-100 Percent	2,872	118,330	\$145	\$1,140	12.71%
	101-150 Percent	3,633	145,864	\$149	\$1,759	8.50%
	151-200 Percent	3,361	133,154	\$155	\$2,424	6.40%
	201-250 Percent	3,305	127,093	\$155	\$3,018	5.14%
	251-400 Percent	8,348	308,631	\$166	\$4,313	3.84%
	401-500 Percent	4,589	159,504	\$170	\$5,789	2.94%
	> 500 Percent	15,571	501,210	\$200	\$10,483	1.91%
SAN	0-50 Percent	622	25,813	\$100	\$211	47.50%

The SAS System

2

AREA	Percent Poverty	UNWEIGHTED HOUSEHOLDS	WEIGHTED HOUSEHOLDS	MEDIAN ELECTRIC BILL	MEDIAN HOUSEHOLD INCOME	ELECTRICITY BURDEN
SAN	51-100 Percent	916	31,690	\$103	\$930	11.12%
	101-150 Percent	1,079	37,970	\$110	\$1,599	6.85%
	151-200 Percent	1,069	37,577	\$110	\$2,200	4.98%
	201-250 Percent	1,101	36,651	\$120	\$2,929	4.08%
	251-400 Percent	2,626	87,391	\$120	\$4,102	2.93%
	401-500 Percent	1,394	43,876	\$124	\$5,580	2.22%
	> 500 Percent	3,608	104,097	\$139	\$9,215	1.51%
XBO	0-50 Percent	5,114	178,681	\$130	\$316	41.04%
	51-100 Percent	9,775	312,515	\$130	\$950	13.64%
	101-150 Percent	11,726	351,957	\$134	\$1,595	8.43%
	151-200 Percent	10,944	323,554	\$149	\$2,248	6.65%
	201-250 Percent	10,309	305,571	\$149	\$2,915	5.13%
	251-400 Percent	25,572	730,610	\$159	\$4,207	3.79%
	401-500 Percent	12,130	336,314	\$166	\$5,766	2.87%
	> 500 Percent	29,130	787,533	\$186	\$9,469	1.97%

AELIC 8-7 Please provide a copy of each study, report, memo, and such other communications AE has prepared directly or indirectly through a consultant and/or agent that addresses the demographics of its residential customer base since 2008. (Demographics are to be interpreted in its broadest meaning and include household income and household size, if available).

ANSWER:

Austin Energy prepared an electricity burden report in 2010 using U.S. Census Bureau data from 2006 through 2008. Austin Energy updated the report in 2014 using the same data set but for 2010 through 2012. AE provided copies of that updated report to the Resource Management Commission in 2014 and to the Low Income Consumer Advisory Task Force in 2015. Those memos, which contain the datasets from the original 2010 report and the 2014 update, are attached to this response.

Customer Energy Solutions has not worked with a consultant to study the demographics of its residential customer base.

- Attachment 1 – Memorandum to the Resource Management Commission December 16, 2014
- Attachment 2 – Memorandum to the Low Income Consumer Advisory Task Force January 5, 2015
- Attachment 3 – Memorandum to the Low Income Consumer Advisory Task Force March 24, 2015

Prepared by: JG/LJ
Sponsored by: Overton/Kimberly



MEMORANDUM

TO: RMC

FROM: Debbie Kimberly

DATE: 12/16/2014

SUBJECT: Update of Energy Burden Tables

During the June 2014 Resource Management Commission meeting, members of the Commission requested an update to tables in a 2010 report titled "Residential Electricity Burden" written by Austin Energy staff and a consulting firm hired by Austin Energy. Specifically, members requested that two tables in the report be updated with more recent data to demonstrate any changes in utility burden and poverty levels in Austin and a number of comparable cities throughout Texas. Attached you will find the requested update to the two tables from the 2010 report. The previous study reflected Census data from 2006 through 2008. The updated tables are drawn from data from the 2010 through 2012 Census reports. Other than the years, the data sources used for this update are identical to those of the original 2010 report. For ease of comparison, staff also included the tables from the 2010 report. The ranges of income levels used for all tables align with those commonly used in requests for information from the public, RMC and Low Income Consumer Task Force members.

As Tables 1a and 1b demonstrate, Austin remains at the lower end of electricity burden as compared to other areas across the state. Additionally, the average monthly electric bill has increased at a lesser rate than the median monthly household income, resulting in a decrease in the electricity burden at the median level. Finally, Tables 2a and 2b shows that household incomes at each poverty threshold have increased at a greater rate than utility costs. This means that there is a slight decrease in the electricity burden at each poverty threshold.

As was the case in the original 2010 report, the update of this data concludes that utility costs are a greater burden at the lower income levels. However, Austin is still one of the lower energy burden areas as compared to other areas across Texas.



MEMORANDUM

TABLE 1

Table 1a: Household Income and Electricity Burden Measures by Area (2010-2012)																
Measure	Austin		Brownsville		Corpus Christi		Dallas		El Paso		Houston		San Antonio		Texas	
Total Households	421,129		118,446		152,670		2,047,328		256,149		1,783,863		602,599		8,852,444	
Households Below Poverty	55,841		36,627		24,678		257,433		57,514		248,758		93,035		1,333,625	
% of all Households	13%		31%		16%		13%		22%		14%		15%		15%	
Households by Percent of Poverty	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total
0-100%	55.8	13.3%	36.6	30.9%	24.7	16.2%	257.4	12.6%	57.5	22.4%	248.8	13.9%	93	15.4%	1333.6	15.1%
101-200%	62.4	14.8%	31.4	26.5%	33.9	22.2%	367.4	17.9%	66.8	26.1%	324.1	18.2%	121.3	20.1%	1744.1	19.7%
201-300%	64.0	15.2%	18.2	15.4%	27.0	17.7%	318.6	15.6%	43.6	17.0%	272.8	15.3%	109.1	18.1%	1453.7	16.4%
301-400%	53.9	12.8%	11.8	10.0%	19.7	12.9%	268.5	13.1%	29.3	11.4%	221	12.4%	77.8	12.9%	1142.4	12.9%
401+%	184.9	43.9%	20.4	17.2%	47.4	31.0%	835.3	40.8%	58.9	23.0%	717.2	40.2%	201.4	33.4%	3178.7	35.9%
Median Annual Household Income	\$56,452		\$32,745		\$44,699		\$56,197		\$39,261		\$55,561		\$49,130		\$50,611	
CPPP Income Requirement (Month)	\$3,487		\$3,156		\$3,272		\$3,553		\$3,132		\$3,582		\$3,358		N / A	
% < CPPP Income Requirement	36%		60%		46%		39%		54%		40%		44%		N / A	
Electricity Burden Measures																
Average Monthly Electric Bill	\$151.00		\$169.00		\$193.00		\$187.00		\$92.00		\$181.00		\$152.00		\$176.00	
Median Monthly Electric Bill	\$126.00		\$150.00		\$174.00		\$160.00		\$74.00		\$158.00		\$133.00		\$153.00	
Median Monthly Household Income	\$4,863.00		\$2,772.00		\$3,906.00		\$4,863.00		\$3,367.00		\$4,775.00		\$4,245.00		\$4,331.00	
Electricity Burden (%)	2.60%		5.41%		4.44%		3.29%		2.19%		3.31%		3.13%		3.54%	



MEMORANDUM

Table 1b: Household Income and Electricity Burden Measures by Area (2006-2008)																
Measure	Austin		Brownsville		Corpus Christi		Dallas		El Paso		Houston		San Antonio		Texas	
Total Households	381,300		116,700		140,800		1,828,700		232,900		1,599,800		542,800		8,258,100	
Households Below Poverty	46,400		37,500		24,700		204,900		59,700		199,990		83,200		1,183,600	
% of all Households	12%		32%		18%		11%		26%		13%		15%		14%	
Households by Percent of Poverty	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total
0-100%	46.4	11.0%	37.5	31.7%	24.7	16.2%	204.9	10.0%	59.7	23.3%	199.9	11.2%	83.2	13.8%	1183.6	13.4%
101-200%	56.5	13.4%	30.7	25.9%	31.1	20.4%	315.3	15.4%	57.2	22.3%	292.0	16.4%	109.7	18.2%	1609.2	18.2%
201-300%	57.4	13.6%	17.9	15.1%	23.9	15.7%	283.4	13.8%	40.3	15.7%	253.0	14.2%	94.9	15.7%	1372.4	15.5%
301-400%	52.4	12.4%	11.7	9.9%	17.8	11.7%	247.8	12.1%	26.1	10.2%	196.9	11.0%	72.7	12.1%	1083.2	12.2%
401+%	168.7	40.1%	18.9	16.0%	43.1	28.2%	777.3	38.0%	49.6	19.4%	658.0	36.9%	182.3	30.3%	3009.6	34.0%
Median Annual Household Income	\$54,200		\$30,300		\$42,200		\$54,900		\$35,300		\$54,200		\$46,100		\$48,900	
CPPP Income Requirement (Month)	\$3,000		\$2,500		\$2,800		\$3,100		\$2,900		\$3,100		\$2,900		N / A	
% < CPPP Income Requirement	31%		54%		43%		34%		54%		36%		40%		N / A	
Electricity Burden Measures																
Average Monthly Electric Bill	\$149.00		\$184.00		\$216.00		\$205.00		\$88.00		\$203.00		\$149.00		\$186.00	
Median Monthly Electric Bill	\$125.00		\$160.00		\$197.00		\$180.00		\$75.00		\$180.00		\$125.00		\$160.00	
Median Monthly Household Income	\$4,583.00		\$2,546.00		\$3,590.00		\$4,752.00		\$3,055.00		\$4,663.00		\$4,074.00		\$4,223.00	
Electricity Burden (%)	2.72%		6.29%		5.50%		3.79%		2.45%		3.86%		3.06%		3.79%	

Table 1 of the 2010 Residential Electricity Burden report.

TABLE 2

Table 2a: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2010-2012 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-100	\$ 23,050	55,841	13.3%	13.9%	4.2%	4.6%	4.8%	27.5%
101-200	\$ 47,700	62,400	14.8%	5.9%	1.5%	1.9%	1.3%	10.7%
201-300	\$ 71,550	64,000	15.2%	3.4%	1.0%	1.2%	0.8%	6.4%
301-400	\$ 95,400	53,900	12.8%	2.7%	0.7%	0.8%	0.6%	4.8%
401+	NA	184,900	43.9%	1.6%	0.3%	0.5%	0.3%	2.7%

Table 2b: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2006-2008 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-100	\$ 21,027	46,400	11.0%	14.9%	6.0%	4.3%	2.9%	28.0%
101-200	\$ 42,054	56,500	13.4%	5.6%	2.1%	1.5%	0.8%	10.1%
201-300	\$ 63,081	57,400	13.6%	3.7%	1.4%	1.0%	1.0%	7.1%
301-400	\$ 84,108	52,400	12.4%	2.7%	0.9%	0.7%	0.4%	4.8%
401+	NA	168,700	40.1%	1.5%	0.5%	0.4%	0.3%	2.7%

Table 3 of the 2010 Residential Electricity Burden report.

This table was added per request by REsercue Managmetn Commission. This table delinates the 0-100% group into 0-50% and 51-100% poverty thresholds.

UPDATED Table 2a: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2010-2012 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-50	\$ 23,050	24,921	5.9%	37.7%	11.5%	11.9%	12.8%	73.9%
51-100%		30,920	7.3%	11.3%	3.0%	3.5%	3.4%	21.3%
101-200	\$ 47,700	62,400	14.8%	5.9%	1.5%	1.9%	1.3%	10.7%
201-300	\$ 71,550	64,000	15.2%	3.4%	1.0%	1.2%	0.8%	6.4%
301-400	\$ 95,400	53,900	12.8%	2.7%	0.7%	0.8%	0.6%	4.8%
401+	NA	184,900	43.9%	1.6%	0.3%	0.5%	0.3%	2.7%



MEMORANDUM

TO: Low Income Consumer Advisory Task Force

FROM: Liz Jambor, EdD, Manager

DATE: 01/05/2015

SUBJECT: Update of Energy Burden Tables

During the June 2014 Resource Management Commission meeting, members of the Commission requested an update to tables in a 2010 report titled "Residential Electricity Burden" written by Austin Energy staff and a consulting firm hired by Austin Energy. Specifically, members requested that two tables in the report be updated with more recent data to demonstrate any changes in utility burden and poverty levels in Austin and a number of comparable cities throughout Texas. Attached you will find the requested update to the two tables from the 2010 report. The previous study reflected Census data from 2006 through 2008. The updated tables are drawn from data from the 2010 through 2012 Census reports. Other than the years, the data sources used for this update are identical to those of the original 2010 report. For ease of comparison, staff also included the tables from the 2010 report. The ranges of income levels used for all tables align with those commonly used in requests for information from the public, RMC and Low Income Consumer Task Force members.

As Tables 1a and 1b demonstrate, Austin remains at the lower end of electricity burden as compared to other areas across the state. Additionally, the average monthly electric bill has increased at a lesser rate than the median monthly household income, resulting in a decrease in the electricity burden at the median level. Finally, Tables 2a and 2b shows that household incomes at each poverty threshold have increased at a greater rate than utility costs. This means that there is a slight decrease in the electricity burden at each poverty threshold.

As was the case in the original 2010 report, the update of this data concludes that utility costs are a greater burden at the lower income levels. However, Austin is still one of the lower energy burden areas as compared to other areas across Texas.



MEMORANDUM

TABLE 1

Table 1a: Household Income and Electricity Burden Measures by Area (2010-2012)																
Measure	Austin		Brownsville		Corpus Christi		Dallas		El Paso		Houston		San Antonio		Texas	
Total Households	421,129		118,446		152,670		2,047,328		256,149		1,783,863		602,599		8,852,444	
Households Below Poverty	55,841		36,627		24,678		257,433		57,514		248,758		93,035		1,333,625	
% of all Households	13%		31%		16%		13%		22%		14%		15%		15%	
Households by Percent of Poverty	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total
0-100%	55.8	13.3%	36.6	30.9%	24.7	16.2%	257.4	12.6%	57.5	22.4%	248.8	13.9%	93	15.4%	1333.6	15.1%
101-200%	62.4	14.8%	31.4	26.5%	33.9	22.2%	367.4	17.9%	66.8	26.1%	324.1	18.2%	121.3	20.1%	1744.1	19.7%
201-300%	64.0	15.2%	18.2	15.4%	27.0	17.7%	318.6	15.6%	43.6	17.0%	272.8	15.3%	109.1	18.1%	1453.7	16.4%
301-400%	53.9	12.8%	11.8	10.0%	19.7	12.9%	268.5	13.1%	29.3	11.4%	221	12.4%	77.8	12.9%	1142.4	12.9%
401+%	184.9	43.9%	20.4	17.2%	47.4	31.0%	835.3	40.8%	58.9	23.0%	717.2	40.2%	201.4	33.4%	3178.7	35.9%
Median Annual Household Income	\$56,452		\$32,745		\$44,699		\$56,197		\$39,261		\$55,561		\$49,130		\$50,611	
CPPP Income Requirement (Month)	\$3,487		\$3,156		\$3,272		\$3,553		\$3,132		\$3,582		\$3,358		N / A	
% < CPPP Income Requirement	36%		60%		46%		39%		54%		40%		44%		N / A	
Electricity Burden Measures																
Average Monthly Electric Bill	\$151.00		\$169.00		\$193.00		\$187.00		\$92.00		\$181.00		\$152.00		\$176.00	
Median Monthly Electric Bill	\$126.00		\$150.00		\$174.00		\$160.00		\$74.00		\$158.00		\$133.00		\$153.00	
Median Monthly Household Income	\$4,863.00		\$2,772.00		\$3,906.00		\$4,863.00		\$3,367.00		\$4,775.00		\$4,245.00		\$4,331.00	
Electricity Burden (%)	2.60%		5.41%		4.44%		3.29%		2.19%		3.31%		3.13%		3.54%	



MEMORANDUM

Table 1b: Household Income and Electricity Burden Measures by Area (2006-2008)																
Measure	Austin		Brownsville		Corpus Christi		Dallas		El Paso		Houston		San Antonio		Texas	
Total Households	381,300		116,700		140,800		1,828,700		232,900		1,599,800		542,800		8,258,100	
Households Below Poverty	46,400		37,500		24,700		204,900		59,700		199,990		83,200		1,183,600	
% of all Households	12%		32%		18%		11%		26%		13%		15%		14%	
Households by Percent of Poverty	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total	Num (000s)	Pct of Total
0-100%	46.4	11.0%	37.5	31.7%	24.7	16.2%	204.9	10.0%	59.7	23.3%	199.9	11.2%	83.2	13.8%	1183.6	13.4%
101-200%	56.5	13.4%	30.7	25.9%	31.1	20.4%	315.3	15.4%	57.2	22.3%	292.0	16.4%	109.7	18.2%	1609.2	18.2%
201-300%	57.4	13.6%	17.9	15.1%	23.9	15.7%	283.4	13.8%	40.3	15.7%	253.0	14.2%	94.9	15.7%	1372.4	15.5%
301-400%	52.4	12.4%	11.7	9.9%	17.8	11.7%	247.8	12.1%	26.1	10.2%	196.9	11.0%	72.7	12.1%	1083.2	12.2%
401+%	168.7	40.1%	18.9	16.0%	43.1	28.2%	777.3	38.0%	49.6	19.4%	658.0	36.9%	182.3	30.3%	3009.6	34.0%
Median Annual Household Income	\$54,200		\$30,300		\$42,200		\$54,900		\$35,300		\$54,200		\$46,100		\$48,900	
CPPP Income Requirement (Month)	\$3,000		\$2,500		\$2,800		\$3,100		\$2,900		\$3,100		\$2,900		N / A	
% < CPPP Income Requirement	31%		54%		43%		34%		54%		36%		40%		N / A	
Electricity Burden Measures																
Average Monthly Electric Bill	\$149.00		\$184.00		\$216.00		\$205.00		\$88.00		\$203.00		\$149.00		\$186.00	
Median Monthly Electric Bill	\$125.00		\$160.00		\$197.00		\$180.00		\$75.00		\$180.00		\$125.00		\$160.00	
Median Monthly Household Income	\$4,583.00		\$2,546.00		\$3,590.00		\$4,752.00		\$3,055.00		\$4,663.00		\$4,074.00		\$4,223.00	
Electricity Burden (%)	2.72%		6.29%		5.50%		3.79%		2.45%		3.86%		3.06%		3.79%	

Table 1 of the 2010 Residential Electricity Burden report.

TABLE 2

Table 2a: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2010-2012 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-100	\$ 23,050	55,841	13.3%	13.9%	4.2%	4.6%	4.8%	27.5%
101-200	\$ 47,700	62,400	14.8%	5.9%	1.5%	1.9%	1.3%	10.7%
201-300	\$ 71,550	64,000	15.2%	3.4%	1.0%	1.2%	0.8%	6.4%
301-400	\$ 95,400	53,900	12.8%	2.7%	0.7%	0.8%	0.6%	4.8%
401+	NA	184,900	43.9%	1.6%	0.3%	0.5%	0.3%	2.7%

Table 2b: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2006-2008 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-100	\$ 21,027	46,400	11.0%	14.9%	6.0%	4.3%	2.9%	28.0%
101-200	\$ 42,054	56,500	13.4%	5.6%	2.1%	1.5%	0.8%	10.1%
201-300	\$ 63,081	57,400	13.6%	3.7%	1.4%	1.0%	1.0%	7.1%
301-400	\$ 84,108	52,400	12.4%	2.7%	0.9%	0.7%	0.4%	4.8%
401+	NA	168,700	40.1%	1.5%	0.5%	0.4%	0.3%	2.7%

Table 3 of the 2010 Residential Electricity Burden report.

Table 3a is added per request by Resource Management Commission. This table is an update of Table 2a and delineates the 0-100% group into 0-50% and 51-100% poverty thresholds.

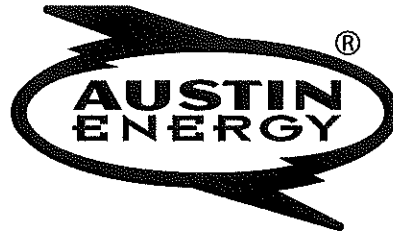
UPDATED Table 3a: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2010-2012 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-50	\$ 11,525	24,921	5.9%	37.7%	11.5%	11.9%	12.8%	73.9%
51-100%	\$ 23,050	30,920	7.3%	11.3%	3.0%	3.5%	3.4%	21.3%
101-200	\$ 47,700	62,400	14.8%	5.9%	1.5%	1.9%	1.3%	10.7%
201-300	\$ 71,550	64,000	15.2%	3.4%	1.0%	1.2%	0.8%	6.4%
301-400	\$ 95,400	53,900	12.8%	2.7%	0.7%	0.8%	0.6%	4.8%
401+	NA	184,900	43.9%	1.6%	0.3%	0.5%	0.3%	2.7%

Because income levels are not provided at the 0-50% and 51-100% levels, the income level at 100% was reduced by half to reflect income levels for a family of 4 under 51% of poverty level.

Table 3b is Table 3 of the 2010 Residential Electricity Burden report. It is provided here for comparison with the above table. Utility burden has not significantly changed from the 2006-2008 data to the 2010-2012 data.

UPDATED Table 3b: Austin (Travis County) Percent of Poverty Threshold by Median Utility Burden (2006-2008 Averages)								
Households				Cost Burden				
Percent of Federal Poverty Threshold	Income Limit (Family of 4)	Number	Percent	Electricity Burden	Gas Burden	Water & Sewer Burden	Other Fuel Burden	Utility Burden
0-50	\$10,514	21,105	5.5%	39.3%	15.2%	10.1%	7.6%	72.2%
51-100%	\$21,027	25,251	6.6%	10.5%	4.2%	3.1%	2.9%	20.7%
101-200	\$31,541	27,680	7.3%	7.2%	2.5%	1.9%	1.0%	12.5%
201-300	\$42,054	28,801	7.6%	4.9%	1.8%	1.3%	0.6%	8.6%
301-400	\$52,568	29,617	7.8%	4.1%	1.5%	1.1%	0.9%	7.5%
401+	\$84,108	80,155	21.0%	2.9%	1.0%	0.8%	0.7%	5.4%

Table 3 of the 2010 Residential Electricity Burden report. Because income levels are not provided at the 0-50% and 51-100% levels, the income level at 100% was reduced by half to reflect income levels for a family of 4 under 51% of poverty level.



MEMORANDUM

TO: Low Income Consumer Advisory Task Force

FROM: Liz Jambor, EdD, Manager, DABI 

DATE: March 24, 2015

SUBJECT: Survey Demographics and Satisfaction Levels

Please find attached demographic data from previously conducted energy efficiency participant surveys. The data consists of surveys from 2009 to 2014. Per the resolution (No. 20140828-158), we "shall conduct a statistically valid survey of customers participating in energy efficiency programs to measure customer satisfaction and collect demographic data such as income, race, and education level." The information provided demonstrates the depth of demographic information collected on the statistically valid surveys we currently conduct.

The surveys included here support those programs with the greatest reach across our customer base, or those programs wanting to develop a baseline for future analysis. A majority of the data represents residential programs. For these surveys, there are some common demographics including education levels of college and beyond, employed, married, age of home over 20 years, and household incomes above \$50,000. The data for the commercial programs consists of surveys for commercial lighting and retrofit programs.

While we have not surveyed our low income weatherization participants, to-date, we have completed surveys with CAP customers. Those demographics are included. Education, marital status, and income levels are dissimilar to the rebate program demographics.

For those surveys where a satisfaction question was asked, that data is also included. Not all surveys pose satisfaction-related questions. Questions are developed based on the needs of the program.

The questions on our current surveys will serve as the template for the survey to meet the resolution requirements. We anticipate completing the survey process prior to September 30, 2015.

Home Performance With Energy Star Surveys Aggregated Demographics

Gender	Frequency	Percent
Male	62	51.7
Female	58	48.3
Total	120	100.0

Age	Frequency	Percent
25 to 30	6	5.0
31 to 35	8	6.7
36 to 40	13	10.8
41 to 45	9	7.5
46 to 50	14	11.7
51 to 55	15	12.5
56 to 60	11	9.2
61 to 65	12	10.0
66 years of age or older	28	23.3
Refused	4	3.3
Total	120	100.0

Ethnicity/Race	Frequency	Percent
Of Hispanic origin, such as Mexican American, Latin American	8	6.7
White	94	78.3
African American	2	1.7
Asian, Pacific Islander	7	5.8
Refused	7	5.8
Mixed	1	.8
All other	1	.8
Total	120	100.0

Education	Frequency	Percent
Some high school	2	1.7
Graduated high school	8	6.7
Some college	20	16.7
Graduated college	47	39.2
Post-graduate work	38	31.7
Refused	5	4.2
Total	120	100.0

Age of Residence	Frequency	Percent
Less than 1 year	1	.8
1 year to 5 years	1	.8
6 to 10 years	2	1.7
11 to 15 years	15	12.5
16 to 20 years	20	16.7
21 to 30 years	29	24.2
31 to 40 years	21	17.5
41 to 50 years	11	9.2
More than 50 years	15	12.5
Refused	5	4.2
Total	120	100.0

Time in Residence	Frequency	Percent
Less than 1 year	14	11.7
1 year to 5 years	27	22.5
6 to 10 years	16	13.3
11 to 15 years	22	18.3
16 to 20 years	11	9.2
21 to 30 years	13	10.8
31 to 40 years	8	6.7
41 to 50 years	2	1.7
More than 50 years	2	1.7
Refused	5	4.2
Total	120	100.0

Employment Status	Frequency	Percent
Employed part-time	5	4.2
Employed full-time	68	56.7
Unemployed	2	1.7
Retired	34	28.3
Homemaker	4	3.3
Refused	7	5.8
Total	120	100.0

Marital Status	Frequency	Percent
Single	27	22.5
Married	73	60.8
Divorced	7	5.8
Widowed	4	3.3
In transition	4	3.3
Refused	5	4.2
Total	120	100.0

Number in Household	Frequency	Percent
One person	20	16.7
Two people	54	45.0
Three people	16	13.3
Four people	17	14.2
Five people	5	4.2
Six people or more	2	1.7
Refused	6	5.0
Total	120	100.0

Family Income	Frequency	Percent
\$10,000 to \$25,000	2	1.7
\$25,001 to \$40,000	6	5.0
\$40,001 to \$50,000	5	4.2
\$50,001 to \$60,000	5	4.2
\$60,001 to \$75,000	10	8.3
\$75,001 to \$100,000	18	15.0
\$100,001 or more	41	34.2
Refused	33	27.5
Total	120	100.0

Satisfaction Rating (1-10 Scale)	Frequency	Percent
4.	1	.8
5.	3	2.5
6.	2	1.7
7.	2	1.7
8.	4	3.3
9.	11	9.2
10 (very satisfied)	19	15.8
Total	42	35.0

**Appliance Efficiency Program Surveys
Aggregated Demographics**

Gender	Frequency	Percent
Male	241	60.1
Female	160	39.9
Total	401	100.0

Age	Frequency	Percent
25 to 30	14	3.5
31 to 35	31	7.7
36 to 40	39	9.7
41 to 45	29	7.2
46 to 50	32	8.0
51 to 55	49	12.2
56 to 60	46	11.5
61 to 65	45	11.2
66 years of age or older	87	21.7
Refused	29	7.2
Total	401	100.0

Ethnicity/Race	Frequency	Percent
White	309	77.1
African American	10	2.5
Asian, Pacific Islander	15	3.7
Aleutian, Eskimo, or American Indian	2	.5
DK/unsure	3	.7
Refused	39	9.7
Hispanic/Latino	5	1.2
Mixed	2	.5
All other	16	4.0
Total	401	100.0

Education	Frequency	Percent
Some high school	1	.2
Graduated high school	24	6.0
Some college	54	13.5
Graduated college	149	37.2
Post-graduate work	136	33.9
Refused	37	9.2
Total	401	100.0

Marital Status	Frequency	Percent
Single	59	14.7
Married	243	60.6
Separated	1	.2
Divorced	28	7.0
Widowed	28	7.0
Refused	42	10.5
Total	401	100.0

Number in Household	Frequency	Percent
One person	63	15.7
Two people	154	38.4
Three people	62	15.5
Four people	58	14.5
Five people	10	2.5
Six people or more	10	2.5
Refused	44	11.0
Total	401	100.0

Age of Residence	Frequency	Percent
Less than 1 year	1	.2
1 year to 5 years	4	1.0
6 to 10 years	16	4.0
11 to 15 years	48	12.0
16 to 20 years	56	14.0
21 to 30 years	86	21.4
31 to 40 years	59	14.7
41 to 50 years	35	8.7
More than 50 years	64	16.0
Refused	32	8.0
Total	401	100.0

Employment Status	Frequency	Percent
Employed part-time	16	4.0
Employed full-time	207	51.6
Unemployed	12	3.0
Student	2	.5
Retired	102	25.4
Homemaker	12	3.0
Refused	50	12.5
Total	401	100.0

Family Income	Frequency	Percent
\$10,000 to \$25,000	2	.5
\$25,001 to \$40,000	16	4.0
\$40,001 to \$50,000	26	6.5
\$50,001 to \$60,000	20	5.0
\$60,001 to \$75,000	26	6.5
\$75,001 to \$100,000	31	7.7
More than \$100,000	102	25.4
Refused	178	44.4
Total	401	100.0

Time at Residence	Frequency	Percent
Less than 1 year	19	4.7
1 year to 5 years	88	21.9
6 to 10 years	70	17.5
11 to 15 years	56	14.0
16 to 20 years	54	13.5
21 to 30 years	41	10.2
31 to 40 years	25	6.2
41 to 50 years	13	3.2
More than 50 years	6	1.5
Refused	29	7.2
Total	401	100.0

**Best Offer Ever Surveys
Aggregated Demographics**

Satisfaction	Frequency	Percent
Fair	2	1.8
Good	37	32.5
Excellent	73	64.0
Total	112	98.2
Don't know	2	1.8
	114	100.0

Age	Frequency	Percent
18 to 24	1	.9
25 to 30	5	4.4
31 to 35	13	11.4
36 to 40	14	12.3
41 to 45	12	10.5
46 to 50	9	7.9
51 to 55	18	15.8
56 to 60	13	11.4
61 to 65	13	11.4
66 years of age or older	13	11.4
Refused	3	2.6
Total	114	100.0

Age of Residence	Frequency	Percent
11 to 15 years	9	7.9
16 to 20 years	9	7.9
21 to 30 years	42	36.8
31 to 40 years	20	17.5
41 to 50 years	13	11.4
More than 50 years	19	16.7
DK/Refused	2	1.8
Total	114	100.0

Time at Residence	Frequency	Percent
Less than 1 year	7	6.1
1 to 5 years	41	36.0
6 to 10 years	19	16.7
11 to 15 years	10	8.8
16 to 20 years	9	7.9
21 to 30 years	16	14.0
31 to 40 years	8	7.0
41 to 50 years	3	2.6
DK/Refused	1	.9
Total	114	100.0

**Single Family ECAD Surveys
Aggregated Demographics**

Satisfaction with Auditor	Frequency	Percent
1 (very dissatisfied)	10	1.4
2	3	.4
3	3	.4
4	1	.1
5	20	2.8
6	11	1.5
7	21	2.9
8	54	7.4
9	33	4.5
10 (very satisfied)	121	16.6
Total	277	38.1
DK	19	2.6
System	431	59.3
Total	450	61.9
	727	100.0

Ethnicity/Race	Frequency	Percent
White, non-Hispanic	585	80.5
Black or African American	11	1.5
Hispanic	76	10.5
Asian	28	3.9
Refused	19	2.6
Mixed	2	.3
All other	6	.8
Total	727	100.0

Marital Status	Frequency	Percent
Single, never married	214	29.4
Married	359	49.4
Separated	8	1.1
Divorced	98	13.5
Widowed	27	3.7
In transition	9	1.2
Refused	12	1.7
Total	727	100.0

Family Income	Frequency	Percent
Under \$10,000	7	1.0
\$10,000 but less than \$15,000	5	.7
\$15,000 but less than \$25,000	15	2.1
\$25,000 but less than \$35,000	32	4.4
\$35,000 but less than \$50,000	75	10.3
\$50,000 but less than \$75,000	137	18.8
\$75,000 but less than \$100,000	110	15.1
\$100,000 but less than \$150,000	98	13.5
\$150,000 or more	80	11.0
Don't know	27	3.7
Refused	141	19.4
Total	727	100.0

Education	Frequency	Percent
Graduated high school or less	33	4.5
Trade or technical school	19	2.6
Some college	89	12.2
Graduated college	333	45.8
Some postgraduate/graduate degree	239	32.9
Refused/Don't know/No answer	14	1.9
Total	727	100.0

Employment Status	Frequency	Percent
Employed full-time	522	71.8
Employed part-time	39	5.4
Unemployed/laid off, looking for work	22	3.0
Unemployed/laid off, not looking for work	10	1.4
Student	14	1.9
Retired	82	11.3
Homemaker	27	3.7
Refused	11	1.5
Total	727	100.0

**Commercial Programs Surveys
Aggregated Demographics**

Expectations met	Frequency	Percent
2	1	.7
3	2	1.4
5	1	.7
7	6	4.2
8	10	7.0
9	8	5.6
10 (all met)	13	9.1
Total	41	28.7
Don't know	5	3.5
System	97	67.8
Total	102	71.3
	143	100.0

Number of Full Time Employees	Frequency	Percent
1-4 employees	36	25.2
5-9 employees	26	18.2
10-19 employees	27	18.9
20-49 employees	23	16.1
50-99 employees	7	4.9
100-249 employees	7	4.9
250-499 employees	4	2.8
500 or more	4	2.8
Don't know/refused	9	6.3
Total	143	100.0

Number of Part Time Employees	Frequency	Percent
1-4 employees	44	30.8
5-9 employees	9	6.3
10-19 employees	7	4.9
20-49 employees	8	5.6
50-99 employees	2	1.4
100-249 employees	3	2.1
250-499 employees	1	.7
500 or more	2	1.4
Don't know/refused	8	5.6
None	59	41.3
Total	143	100.0

Own or Lease Premise	Frequency	Percent
Own	63	44.1
Lease	80	55.9
Total	143	100.0

Other Texas	Frequency	Percent
Yes	47	32.9
No	96	67.1
Total	143	100.0

Title/Position	Frequency	Percent
Assistant	2	1.4
CEO	2	1.4
Facilities Manager	11	7.7
General Manager	21	14.7
Office Manager	16	11.2
Operations	13	9.1
Owner	22	15.4
Plant	3	2.1
President	12	8.4
Vice President	4	2.8
Salesman	3	2.1
Controller	1	.7
Clerk	2	1.4
Director	5	3.5
Pastor	2	1.4
Secretary	5	3.5
Board of	4	2.8
Book keeper	7	4.9
Technologist	1	.7
Cashier	1	.7
Specialist	1	.7
Accountant	3	2.1
Chief engineer	1	.7
Refused	1	.7
Total	143	100.0

Time in Austin	Frequency	Percent
Less than 1 year	6	4.2
1 - 5 years	12	8.4
6 - 10 years	15	10.5
11 - 15 years	16	11.2
16 - 20 years	22	15.4
21 - 30 years	36	25.2
31 - 40 years	13	9.1
More than 40 years	19	13.3
DNK/refused	4	2.8
Total	143	100.0

Annual Revenue	Frequency	Percent
Less than \$100,000	9	6.3
\$100,000 but less than	18	12.6
\$500,000 but less than \$1	7	4.9
\$1 million but less than \$10	36	25.2
\$10 million but less than \$50	9	6.3
\$50 million but less than \$100	1	.7
\$100 million but less than	2	1.4
\$500 million or more	6	4.2
Don't know/refused	55	38.5
Total	143	100.0

**Customer Assistance Program Surveys
Aggregated Demographics**

Satisfaction with Customer Assistance Program	Frequency	Percent
1 (Very Dissatisfied)	6	2.0
2	4	1.3
3	4	1.3
4	2	.7
5	14	4.7
6	10	3.3
7	18	6.0
8	39	13.0
9	26	8.6
10 (Very Satisfied)	171	56.8
Total	294	97.7
Don't know	7	2.3
	301	100.0

Gender	Frequency	Percent
Male head of household	114	37.9
Female head of household	187	62.1
Total	301	100.0

Ethnicity/Race	Frequency	Percent
White, non-Hispanic	80	26.6
Black or African American	86	28.6
Hispanic	109	36.2
Asian	4	1.3
Other	12	4.0
Refused	10	3.3
Total	301	100.0

Marital Status	Frequency	Percent
Single, never married	119	39.5
Married	66	21.9
Separated	13	4.3
Divorced	59	19.6
Widowed	30	10.0
In transition	3	1.0
Refused	11	3.7
Total	301	100.0

Employment	Frequency	Percent
Employed full-time	93	30.9
Employed part-time	31	10.3
Unemployed/laid off looking for work	28	9.3
Unemployed/laid off, not looking for work	50	16.6
Student	12	4.0
Retired	47	15.6
Homemaker	17	5.6
Refused	23	7.6
Total	301	100.0

Age	Frequency	Percent
18-24 years	14	4.7
25-34 years	64	21.3
35-44 years	65	21.6
45-54 years	48	15.9
55-59 years	29	9.6
60-64 years	24	8.0
Over 64 years	44	14.6
Refused	13	4.3
Total	301	100.0

Rent/own	Frequency	Percent
Rent	215	71.4
Own	71	23.6
Refused	15	5.0
Total	301	100.0

Type of Home	Frequency	Percent
Apartment or duplex	160	53.2
Townhome or Condo	11	3.7
Single family home	100	33.2
Other	19	6.3
Refused	11	3.7
Total	301	100.0

Number of People in Household	Frequency	Percent
1 person, only me	75	24.9
2 people	65	21.6
3 people	49	16.3
4 people	55	18.3
5 or more	43	14.3
Refused	14	4.7
Total	301	100.0

Number of People employed	Frequency	Percent
0, no one	55	18.3
1 person	100	33.2
2 people	42	14.0
3 people	13	4.3
4 people	3	1.0
Refused	13	4.3
Total	226	75.1
System	75	24.9
	301	100.0

Household Income	Frequency	Percent
Under \$10,000	67	22.3
\$10,000 but less than \$15,000	53	17.6
\$15,000 but less than \$25,000	53	17.6
\$25,000 but less than \$35,000	35	11.6
\$35,000 but less than \$50,000	22	7.3
\$50,000 but less than 75,000	14	4.7
\$75,000 but less than \$100,000	5	1.7
\$100,000 but less than \$150,000	1	.3
\$150,000 or more	2	.7
Don't know	16	5.3
Refused	33	11.0
Total	301	100.0

Education	Frequency	Percent
Graduated high school or less	126	41.9
Trade or technical school	7	2.3
Some college	82	27.2
Graduated college	45	15.0
Some postgraduate/graduate degree	10	3.3
Refused/Don't know/No answer	31	10.3
Total	301	100.0

Employment at Time of CAP Enrollment	Frequency	Percent
Yes	17	5.6
No	107	35.5
Don't know	4	1.3
Refused	2	.7
Total	130	43.2
System	171	56.8
	301	100.0

Number of years in Home	Frequency	Percent
Less than 1 year	31	10.3
1-5 years	155	51.5
6-10 years	47	15.6
11-15 years	24	8.0
16-20 years	9	3.0
21-25 years	8	2.7
26-30 years	5	1.7
31-40 years	4	1.3
41-50 years	3	1.0
Over 50 years	2	.7
Refused	13	4.3
Total	301	100.0

AELIC 8-8 Please provide the number of AE residential customers whose household incomes are between 201 and 250% Federal Poverty Guidelines. (To the extent, AE does not have the exact demographic data, please use its best estimate(s) that it has relied upon in providing demographic data to the City Council, City Commissions, City Task Forces, other City departments, and/or to the public). In the event AE relied upon some income indicator other than Federal Poverty Guidelines, such as percentages of median household income, AE may utilize the other income indicator and explain how it relates to Federal Poverty Guidelines.

ANSWER:

Please see AE's Response to AELIC RFI No. 8-6.

Prepared by: JG
Sponsored by: Kerry Overton

AELIC 8-9 Please provide the number of AE residential customers whose household incomes are between 251 and 300% Federal Poverty Guidelines. (To the extent, AE does not have the exact demographic data, please use its best estimate(s) that it has relied upon in providing demographic data to the City Council, City Commissions, City Task Forces, other City departments, and/or to the public). In the event AE relied upon some income indicator other than Federal Poverty Guidelines, such as percentages of median household income, AE may utilize the other income indicator and explain how it relates to Federal Poverty Guidelines.

ANSWER:

Please see AE's Response to AELIC RFI No. 8-6.

Prepared by: JG
Sponsored by: Kerry Overton

AELIC 8-10 Please provide the number of AE residential customers whose household incomes are between 301 and 350% Federal Poverty Guidelines. (To the extent, AE does not have the exact demographic data, please use its best estimate(s) that it has relied upon in providing demographic data to the City Council, City Commissions, City Task Forces, other City departments, and/or to the public). In the event AE relied upon some income indicator other than Federal Poverty Guidelines, such as percentages of median household income, AE may utilize the other income indicator and explain how it relates to Federal Poverty Guidelines.

ANSWER:

Please see AE's Response to AELIC RFI No. 8-6.

Prepared by: JG
Sponsored by: Kerry Overton

AELIC 8-11 Please provide the number of AE residential customers whose household incomes are between 351 and 400% Federal Poverty Guidelines. To the extent, AE does not have the exact demographic data, please use its best estimate(s) that it has relied upon in providing demographic data to the City Council, City Commissions, City Task Forces, other City departments, and/or to the public). In the event AE relied upon some income indicator other than Federal Poverty Guidelines, such as percentages of median household income, AE may utilize the other income indicator and explain how it relates to Federal Poverty Guidelines.

ANSWER:

Please see AE's Response to AELIC RFI No. 8-6.

Prepared by: JG
Sponsored by: Kerry Overton

AELIC 8-12 Please provide the following documents:

- A. Memorandum to Low Income Consumer Advisory Task Force from Liz Jambor, EdD, Manager, 01/05/15.
- B. GDS Associates, Inc., "Weatherization Assistance Program Evaluation of Austin Energy's ARRA-supported Weatherization Assistance Program ("WAP") FINAL REPORT, p. 40 (January 30, 2015)("GDS Report").
- C. 2014 Comprehensive Housing Market Analysis City of Austin Final Report, July 31, 2014 Prepared for City of Austin Neighborhood Housing and Community Development, 1000 E 11 St. Memorandum to Low Income Consumer Advisory Task Force from Liz Jambor, EdD, Manager, Austin, TX 78702 by BBC Research and Consulting, 1999 Broadway, Suite 2200, Denver, Colorado 80202-9750.
- D. Memorandum to Low income Consumer Advisory Task force from Liz Jambor, EdD, DABI, March 24, 2015, Survey Demographics and Satisfaction Levels.
- E. AE Weatherization Program job status as of September 1, 2015 provided at September 4, 2015 Low-Income Consumer Advisory Task Force meeting

ANSWER:

- A. Please see Attachment 1 to AE's Response to AELIC RFI No. 8-7.
- B. Please see Attachments 1-3.
- C. Please see Attachments 1- 3.
- D. Please see Attachment 3 to AE's Response to AELIC RFI No. 8-7.
- E. Please see Attachments 1-3.

Prepared by: HM
Sponsored by: Debbie Kimberly



MEMORANDUM

TO: Low Income Consumer Advisory Task Force

FROM: Denise Kuehn, Director Energy Efficiency Services

DATE: March 23, 2015

SUBJECT: Evaluation of Austin Energy's (AE) Weatherization Assistance Program

The following report is the finalized study commissioned by Austin Energy and completed by GDS and Associates providing an update to the 2012 study on weatherization programs.

The main objective of this study was to collect and report information on weatherization programs offered by other municipal utilities and government agencies and to compare their key indicators to AE's program.

The study included comprehensive data on the weatherization programs operated by twenty-nine different utilities and municipal agencies. This report includes key findings and recommendations.

WEATHERIZATION ASSISTANCE PROGRAM

Evaluation of Austin Energy's ARRA-
Supported Weatherization Assistance
Program (WAP)

FINAL REPORT

Prepared for:

AUSTIN ENERGY

January 30, 2015

WEATHERIZATION ASSISTANCE PROGRAM

Evaluation of Austin Energy's ARRA-Supported Weatherization Assistance Program (WAP)

Prepared for



January 30, 2015

On Behalf of



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1 EXECUTIVE SUMMARY

GDS Associates, Inc. (GDS) conducted research and developed best practices for Austin Energy's (AE) Weatherization Assistance Program (WAP). The main objective of this study was to collect and report information on WAP programs offered by other municipal utilities and government agencies and to compare key indicators for those programs to AE's WAP program. The survey and research results highlight the fact that weatherization efforts across the nation have slowed down since the expiration of American Reinvestment and Recovery Act (ARRA) Stimulus Funds. However, Austin Energy's three-year (2010-2012) emphasis on weatherization established good control processes and procedures for use in future AE WAP programs. Additionally, working within the confines of ARRA Federal Guidelines and standards opened the door for future leveraging of funds between utilities and federal, state and local agencies looking to improve communities through home weatherization.

The study team collected comprehensive data on the WAP programs operated by 29 different utilities or municipal agencies, including 9 municipal utilities, 11 municipal government agencies, 6 state government organizations and 4 other electric providers. The tasks performed by GDS and the key findings and recommendations from our research activities are presented in this evaluation report.

Task 1: Conduct Research on Weatherization Programs of Other Utilities and Government Agencies

GDS conducted research on residential weatherization programs using both primary in-depth interviews with program managers and secondary research using an extensive search of available online weatherization program material. Ten in-depth interviews were conducted with the following:

- Joe Guerrero, Austin Energy Low-Income Weatherization Program manager
- One interview with the program administrator for two Texas IOUs
- Two interviews for electric cooperative program managers
- Six representatives from municipal utilities outside of Texas

Secondary research was completed on weatherization programs for 19 other organizations, including nine in Texas. The key findings from the survey and secondary research are discussed below.

Key Findings from Task 1

Eligible Measures

Most programs surveyed offered similar weatherization measures for their members, including: insulation, duct sealing and repair, weather-stripping, water saving measures and CFL lighting.

Program Cost to Participants

All programs (except the program offered by the Orlando Utilities Commission) provided 100% of the funds needed for the low-income weatherization measures installed. The Orlando Utilities Commission provides a sliding scale of reimbursement based upon household income levels.

Annual Weatherization Budgets

The utilities interviewed for the survey ranged from very small to very large with annual budgets ranging from \$30,000 at Bluebonnet Electric Cooperative in Texas to \$12,000,000 per year at the Los Angeles Department of Water and Power (LADWP) in California. Austin Energy's current year annual budget of \$3,700,000 was the third largest overall budget of all 10 programs reviewed.

Program Cost per Participant

The program cost per participant was larger for utilities offering more expensive measures, such as HVAC repair or replacement. Also, the cost per participant varied based upon the measure delivery approach. Two of the surveyed utilities focus on low cost measures in efforts to serve as many homes as possible. The average cost per home for these utilities is between \$506 and \$536. Other programs utilize a longer term process which allows installation of larger projects, such as energy star windows and HVAC repairs or replacement. Austin Energy average cost is \$3,000 per participating home, which is in a similar range to Gainesville Regional Utilities (Florida) average of \$3,800 and Pedernales Electric Cooperative average of \$3,500 per home.

Direct Install or Rebate

All programs surveyed utilized a direct install approach for low-income weatherization measure installation. Most programs used in-house staff for program management and conducting energy audits or assessments. Installation of recommended energy efficiency measures was done exclusively by third party contractors except for LADWP where a staff of 40 employees handled all direct installed measure installations.

Measures of Program Success / Average Energy Saved per Home

According to survey respondents, the top two measures of program success for the programs reviewed were (1) the number of homes served and (2) the full expenditure of program budget.

Several of the program managers noted that the average energy saved per home has become less important in recent program years than when the programs first began. Three of the utilities reviewed do not actively track the annual kWh saved by their programs. For utilities that reported average energy saved per home, the Orlando Utilities Commission had the lowest reported savings of 554 kWh per year per home and Gainesville Regional Utilities had the highest savings of 1,752 kWh per home per year.

Leveraging of Weatherization Funding

All utilities served benefited from the influx of stimulus funds from the American Recovery and Reinvestment Act of 2009 (ARRA). Home weatherization activity and budgets increased greatly during the 2009-2012 time period. Once the ARRA monies expired in 2012, funds for weatherization greatly decreased. As such, several utilities have sought other partners to leverage funding for weatherization programs. Utilities included in this study use a variety of leveraging agencies to support and fund weatherization work, including national, state and local organizations and community action agencies.

Implementation Strategies

Most utilities surveyed are using some type of electronic data collection device and interface to store pre and post characteristics of weatherized homes. Austin Energy's use of Salesforce.com to store data is most likely a practice other utilities may migrate to in the future, as most utilities are using internally developed software to store collected data.

Data collected varies between utilities and while most collect pre and post billing history, there is not consistency among the utilities in collecting pre and post blower door and duct blaster test results.

Most programs reviewed had extensive application processes and income verification guidelines similar to AE. Gainesville Regional Utilities (GRU) has a somewhat unique application, approval and post inspection process that works to build participant ownership in the overall weatherization process. The process involves an application process, a home assessment, work to scheduled and completed and a

final post-inspection like most other programs. After the home assessment, the homeowner is responsible for selecting a vendor and submitting the cost estimates directly to the utility. This aspect of the program gives the participant ownership in the process and has received good feedback from participants.

Task 2: Develop a Benchmarking Analysis for the AE WAP Program

A key objective of this study is to provide a benchmarking analysis that compares the characteristics of AE's WAP Program to similar WAP programs in the region. To benchmark AE's WAP performance, GDS reviewed the AE Weatherization program performance against other programs in Texas and nearby states where metric data were available. GDS also included data from six utilities outside of Texas in the benchmarking analysis, using data obtained from past program impact evaluation studies. The detailed results of the benchmarking analysis can be found in Table 4-3.

Key Findings from Task 2

The currently available benchmarking data comes from several key time periods: (1) projects evaluated in 2009 and earlier were pre-ARRA, (2) programs evaluated from 2010-2011 were ARRA programs and (3) programs listed with a date utilize current data. As more current data for annual energy savings and program cost per participant become available, GDS and AE will have a better database where performance data is all of the same vintage. For ARRA vintage programs (2009 to 2012), the cost and energy savings numbers are higher than data from more recent program activity, as most utilities are not installing the same number of higher cost measures (as they did during the ARRA era), such as HVAC replacement. The benchmarking analysis shows that AE's current program ranked 13 out of 18 with respect to highest program spending per participant (with a rank of "18" being the highest spending per participant) and AE's ARRA spending ranked 16 out of 18. However, Austin returned the fifth highest annual kWh saving out of the seven utilities that reported this metric for the ARRA period. GDS will continue to make follow-up contacts with the utilities where this data is missing in order to provide a more complete benchmarking analysis to AE. Table 1-1 below provides AE's ranking on each metric in the benchmarking analysis:

Table 1-1: Comparison of Program Costs per Participant for Each Utility

Utility	Program Cost per Participant	Ranking
City of Tallahassee Utilities	\$506	1
JEA	\$536	2
Xcel Energy, Colorado (2010)	\$593	3
Thetford, Vermont (2011)	\$863	4
New Hampshire Utilities (2006)	\$1,449	5
Orlando Utilities Commission	\$1,500	6
Sacramento Municipal Utility District (SMUD)	\$1,800	7
Interstate Power and Light Company, Iowa (2011)	\$2,049	8
PECO, Pennsylvania (2008)	\$2,190	9
Black Hills Energy, Iowa (2009)	\$2,299	10
MidAmerican Energy, Iowa (2009)	\$2,931	11
Pedernales Electric Cooperative	\$3,500	12

Utility	Program Cost per Participant	Ranking
Austin Energy - Current¹	\$3,000	13
Gainesville Regional Utilities	\$3,800	14
Los Angeles Department of Water and Power (LADWP)	\$5,000	15
Austin Energy - ARRA	\$5,093	16
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	\$6,000	17
Arkansas WAP	\$6,904	18
Alabama ARRA (2008-2011)	\$7,110	19

Table 1-2: Comparison of Annual Energy Savings per Participant for Each Utility

Utility	Energy Savings per Participant	Ranking
PECO, Pennsylvania (2008)	2,172	1
Gainesville Regional Utilities	1,752	2
Xcel Energy, Colorado (2010)	1,711	3
Pedernales Electric Cooperative	1,331	4
Austin Energy - ARRA	1,200	5
Wisconsin WAP (2011)	1,115	6
Interstate Power and Light Company, Iowa (2011)	1,004	7
Sacramento Municipal Utility District (SMUD)	1,000	8
MidAmerican Energy, Iowa (2009)	998	9
New Hampshire Utilities (2006)	872	10
Orlando Utilities Commission	554	11

Future Benchmarking Analysis: At the present time, no existing comprehensive regional or nationwide database was available to GDS to benchmark AE's WAP against similar programs at other utilities. However, several significant studies and evaluations of Weatherization Programs are currently in process with results expected later in 2015. Specifically, the National Retrospective Evaluation of the WAP and the ARRA Evaluation are both expected to be released in the spring of 2015. Also, the Statewide Evaluation Program of Energy Efficiency Activities report will be released in March of 2015. Finally, the City of Houston Weatherization program is currently being evaluated by the Houston Advanced Research Center and hopefully these results will be public later in 2015. GDS recommends that AE update the benchmarking analysis when these three studies become available later in 2015.

Task 3: Conduct Literature Search of Weatherization Program Best Practices

The ARRA grant provided \$5.0 Billion to fund WAP efforts for numerous states and municipalities from 2008-2012. As a result, over 600,000 homes nationwide were weatherized during this period. This increase in weatherization effort provided opportunity for the weatherization process to be streamlined and for many best practices to be developed. GDS reviewed many National/Statewide Studies to identify current weatherization program best practices.

¹ Includes measure cost and installation only, no administrative cost

Table 5-1, Table 5-2 and Table 5-3 highlights the best practices GDS found in this research.

Key findings relating to WAP best practices include:

- Build quality control into the WAP design and implementation process. The U.S. Department of Energy's (DOE) WAP has introduced a comprehensive Quality Work Plan (QWP) that establishes a benchmark for quality home energy upgrades. DOE is encouraging utilities to follow this, or develop their own QWPs, to better insure quality installations. Austin Energy has already implemented many of these best practices.
- Offer a range of weatherization and insulation measures to program participants. Austin Energy currently offers and installs similar weatherization measures as offered by WAP programs of other utilities. GDS recommends that AE continue to offer this wide variety of measures to ensure that needs of the customers are met and to ensure that the WAP program is comprehensive.
- Partnerships with local and national agencies or businesses help facilitate more home repairs and weatherization participants. GDS recommends that AE continue to seek and maintain look to leverage this type of support going forward to stretch budget funding such that more homes may be weatherized in their service area.

Task 4: Prepare Draft and Final Reports

A summary of findings and recommendations based upon the impact and process evaluations can be found in Section 6 Findings and Recommendations. The most important findings and recommendations are listed below:

Based on the best practices review and specifically other measures that are installed by other weatherization programs, GDS commends AE on running an exemplary program. The following were identified as best practices in the research review of other regional and statewide WAP Program. It is recommended that AE consider each of the practices for possible inclusion in future WAP Program design efforts.

Expand on the current home sealing practices

Perform an air leakage test before and after performing the air sealing measures. Air leaks are capable of costing 10-25% more on home energy heating and cooling bills.

- 1) Caulking all building envelop penetrations – plumbing lines, fans & vents, cooling lines, electrical, fireplaces & chimneys, duct work, recessed lighting fixtures
- 2) Caulking around doors and windows
- 3) Electrical receptacle gaskets to decrease infiltration

Develop process controls and procedures around the DOE Quality Work Plan Framework

- 1) The QWP defines how home energy upgrade work should be done
- 2) It also provides a prescription for communication, training, and the inspection of work throughout the WAP network
- 3) Helps establish more consistent quality installation procedures among many installation partners

Identify Possible Community/Regional/State Levering Partners to Stretch WAP funding

- 1) More homes weatherized

- 2) Less organization vulnerability to reductions in any single Weatherization funding source
- 3) Getting new partners increases the number of stakeholders with a vested interest in the Program who can advocate for the Program

2 PROGRAM OVERVIEW

The City of Austin and AE contracted with the Texas Department of Housing and Community Affairs (TDHCA) on November 19, 2009 to implement a \$2.9 million American Recovery and Reinvestment Act (ARRA) grant to fund a WAP within the city limits of Austin. The contract period spanned September 1, 2009 to August 21, 2011. Because AE's implementation of the program was so successful, the utility received additional funding on three separate occasions in the amounts of \$2.1 million, \$200,000 and \$1 million, for total funds of \$9.2 million. This allowed the utility to nearly double the number of units receiving this enhanced free weatherization.

Under the Federal Weatherization Program which ended April 30, 2012, AE weatherized 1,886 homes, 77% more than the original goal of 1,064 homes. The homes were occupied by 4,529 people of whom 645 (% of Total) were elderly, 572 (% of Total) had disabilities and 758 (% of Total) were children under the age of 5. On average, each of the homes will save about 1,200 kilowatt-hours annually in energy costs due to the improvements.

Table 2-1 below shows the number of customers receiving free weatherization since FY2006.

Table 2-1: Customer Assistance Program Customers Receiving Free Weatherization

Fiscal Year	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Homes Receiving Weatherization	720	632	505	538	*456	*1044	*715
*In FY 2010 127 of the 456 homes received weatherization through the use of ARRA funds. *In FY 2011 all homes received weatherization through the use of ARRA funds. *In FY 2012 the 715 homes used both ARRA and AE funds.							

2.1 OBJECTIVE

The objective of the WAP Program was to reduce the energy burden and energy costs for low-income families, particularly for the elderly, people with disabilities, and children, by improving the energy efficiency of their homes while ensuring their health and safety.

Prior to 2009, Austin Energy's goals were to reach the maximum number of low-income households and to educate and create jobs for local contractors. The goal was to service a minimum of 450 households per year of the contract. Austin Energy sought to partner with 10 individual contractors or companies for the initial assessment to determine the scope of the weatherization work to be performed on each dwelling. The goal was to partner with an additional 24 contractors or companies to perform the actual installation of the materials required to weatherize the dwellings. It was desired that another 10 contractors or companies would conduct the final inspections to verify the scope of the weatherization was satisfactorily performed on each dwelling.

Austin's current goals is to service a minimum of 327 home per year.

2.2 ELIGIBILITY

Austin Energy determined participant eligibility by household income levels and a set of priority provisions to target high-need customers. According to the federal guidelines for WAP programs, eligible

participants must be at or below 200% of the Federal Poverty Income Guidelines. Table 2-2 outlines the household income limits for eligibility.

Table 2-2: Program Year 2014 Income Limits from DOE – Effective November 6, 2013²

Persons in Family	200% of Federal Poverty Income Guidelines
1	≤ \$22,980
2	≤ \$31,020
3	≤ \$39,060
4	≤ \$47,100
5	≤ \$55,140
6	≤ \$63,180
7	≤ \$71,220
8	≤ \$79,260

For the ARRA period, eligibility was established based on household income levels, priority was given to households that met the following criteria:

- Roughly equivalent to extremely low- to very low-income households (i.e., 0-60% of the area median family income).
- Households with small children under the age of 6.
- Households with an elderly resident over the age of 60.
- Households with a disabled resident.
- Households that expend more than 11% of their household income for energy.
- Households with high residential energy use over \$1,000 per year.

Austin Energy prioritized program delivery by:

- Targeting areas based on demographic data.
- Targeting areas of dense poverty populations by zip code.
- Targeting households based on energy consumption.
- Coordinating with existing low-income outreach efforts.
- Prioritizing by zip code.
- Targeting households with higher energy burdens.
- Prioritizing by current applications.
- Setting aside 20% of funds for non-targeted areas.

Current eligibility requirements includes:

Perquisites

- Must be an Austin Energy customer.
- Must meet the income requirement of 200% or less of the United States Department of Health and Human Services poverty guidelines for your household for the current year.

² <http://www.liheapch.acf.hhs.gov/profiles/povertytables/FY2014/popstate.htm>

General Requirements

- Customer must live in the house to be weatherized.
- Customer must live in a single-family home, duplex, triplex, or a building with no more than four residential units.
- Customer home's appraised value must be less than \$200,000 (excluding land value).
- Customer must provide income and disability documentation for everyone 18 years and older in the home.
- Both owners and renters can apply.
- If customers rent, they must provide a copy of your lease/rental agreement.
- Customer must have lived in your rental home for at least three months.
- Customer's landlord must agree to the work and sign an Austin Energy Rental Release form.

2.3 MEASURES

During the ARRA period, the maximum allowed expenditure per home was \$6,500. The current maximum allowed expenditure is \$5,500 per home. Table 2-3 contains a list of the efficiency measures eligible for installation currently being used at AE.

Table 2-3: List of Eligible Measures

ARRA Measures	Current Measures
Insulation – Attic	Insulation – Attic
Insulation – Wall	Insulation – Wall
Insulation – Floor	Insulation – Floor
Duct System – Repair or Replacement	Duct System – Repair or Replacement
weather-stripping / Air Infiltration	Weatherstripping / Air Infiltration
HVAC – Repair or Replacement	Lighting – Installation of CFLs
Refrigerator Replacement – ARRA	Solar Screens
Lighting – Installation of CFLs	Gas Stove Replacement – Texas Gas Services
Solar Screens	Low-Flow Water Saving Devices
Gas Stove Replacement – Texas Gas Services	

3 RESEARCH ON WEATHERIZATION PROGRAMS OF OTHER UTILITIES AND GOVERNMENT AGENCIES

The following sections contain GDS's findings from the following task:

Task 1: Conduct Research on Weatherization Programs of Other Utilities and Government Agencies

GDS conducted research on weatherization programs using both primary interviews with program managers and secondary research using an extensive search of available online weatherization program material. Direct interviews were conducted with Joe Guerrero, AE Low-Income Weatherization Program manager, and 9 representatives from other utilities. Three interviews were conducted with program managers/administrators from Texas utilities and six interviews were conducted with municipal electric organization outside of Texas. In regards to secondary research, weatherization programs from 19 other organization, including 9 in Texas, were reviewed.

3.1 SUMMARY OF FINDINGS AND RECOMMENDATIONS

Through the review of many southwestern, state and national WAPs it became clear that AE's program designers spent a great deal of time identifying measures that best serve the needs of their target market. A summary of practices from secondary research are identified and are presented in this section.

Based on the best practices review and specifically other measures that are installed by other weatherization programs, GDS commends AE on running an exemplary program and recommends that AE continue to include the following individual measures to maintain a best practice WAP Program.

Expand on the Current Home Sealing Practices

Perform an air leakage test before and after performing the air sealing measures. Air leaks are responsible for 10-25% more cost of home energy heating and cooling bills.

- 1) Caulking all building envelop penetrations – plumbing lines, fans & vents, cooling lines, electrical, fireplaces & chimneys, duct work, recessed lighting fixtures.
- 2) Caulking around doors and windows
- 3) Electrical receptacle gaskets to decrease infiltration

Implement a Whole Building Approach Such as Weatherization Plus

Weatherization Plus³ describes the evolution of the WAP from its traditional focus on heating and cooling energy conservation to an expanded focus on whole-house energy usage. The whole-house approach incorporates advanced technologies and addresses the comprehensive energy usage in low-income homes, as well as related health and safety improvements.

The goal of Weatherization Plus is to achieve significantly greater energy cost savings for more low-income households and to increase the program's contribution to the economic and environmental health and sustainability of the nation's communities.⁴

³ <http://www.waptac.org/WAP-Basics/Weatherization-Plus.aspx>

⁴ Loc. cit.

Improving a building's insulation system is one of the fastest and most cost-effective ways to reduce energy waste. Checking insulation to these areas to the home are critical: attic, floors, and walls. The best insulation system will provide maximum thermal performance, and act as a shell to the surrounding weather.

Steps in the Whole House Approach

- Energy audits to evaluate the building envelop to determine the quality of the construction. All possible air leakage areas are examined and documented.
- Perform an infrared scan of the interior walls. The scan will detect hot or cold spots which could point to air infiltration, duct leaks, or poor insulation levels or installation.
- A blower door test will pinpoint areas of infiltration and show a clear picture of what the home needs for energy improvements.
- These steps identify problem areas particularly in older houses. Holes in foundations, gaps in insulation, open chimney runs, lack of insulation around recessed lighting, and other areas needing improvement are commonly discovered.

Improving the home's shell will have additional benefits to inhabitants. These advantages include:

- Decreased drafts
- Increased comfort with a constant temperature throughout the building
- Better indoor air quality
- Reduced infiltration of outside air pollutants
- Reduced moisture condensation within the building walls and roof

Add LED Lighting to the eligible measure list

- Increased saving contribution over CFL bulb distribution

3.2 PRIMARY RESEARCH

GDS conducted a survey with the AE Program Manager for the Low-Income Weatherization Program. Additionally, interviews were conducted with the program managers/administrators of Low-Income Weatherization programs at the following utilities.

- Texas WAPs:
 - Pedernales Electric Cooperative
 - Bluebonnet Electric Cooperative
 - The Texas Association of Community Action Agencies – Program administrator for Oncor and American Electric Power (AEP) Texas
- Other Utility Weatherization Programs
 - Orlando Utilities Commission (Florida)
 - City of Tallahassee Electric Department (Florida)
 - Jacksonville Electric Authority (Florida)
 - Gainesville Regional Utilities (Florida)
 - Sacramento Municipal Utility District (California)
 - Los Angeles Department of Water and Power (California)

3.2.1 Primary Research Findings

Table 3-1 below provides a summary of the key information collected for AE and the nine other utilities that completed the Low-Income Weatherization Survey. A copy of the Program Manager Survey Instrument and a full table of all survey responses can be found in Appendix A. Table 3-1 is a brief summary of the findings for each key item.

AE WAP EVALUATION REPORT

Table 3-1: Key Survey Responses

KEY SURVEY QUESTIONS								
	1	3	4	6	16	33	34	10
Utility	What are the program's Eligible measures?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	Does the program use a direct install or a rebate approach?	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Do you leverage funds for your program with any national, state or local agencies?
AE	Insulation – Attic Insulation – Wall Insulation – Floor Duct System – Repair Duct System – Sealing weather-stripping HVAC – Repair or Replacement Refrigerator Replacement Gas Stove Replacement Lighting – Installation of CFLs	Yes	\$3,700,000M 1,200 homes	\$3,000 per home	Direct Install	Full expenditure of funds	Not Provided	No
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	Must save electricity Air Duct infiltration Insulation Water savings measures Heat Pump Central A/C Window A/C Units Refrigerator	Yes	\$6,000,000 1,000 Homes	\$6,000 for AEP and Oncor	Direct Install	Funds expended corrected Meeting facility goals kWh saved	Utilities - Only get credit for deemed savings,	Federal DOE, Advocacy wise - i.e. - Texas Rate Payer Organization, Texas Legal Services, Nationally - National Community Action Foundation (Energy Spin-off)
Bluebonnet Electric Cooperative	Funds are channeled through Action Committee Boards and Measures decided by Action Boards	Yes	\$30,000 for Community Boards	Not Available	Direct Install	Members Served	Not Tracked	CAB take funds from Bluebonnet and leverage federal funds also.

AE WAP EVALUATION REPORT

KEY SURVEY QUESTIONS								
	1	3	4	6	16	33	34	10
Utility	What are the program's Eligible measures?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	Does the program use a direct install or a rebate approach?	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Do you leverage funds for your program with any national, state or local agencies?
Pedernales Electric Cooperative	Air Infiltration Central A/C 14 SEER or greater HP 14 SEER or greater Window Unit EER 10% greater than standard Duct Improvement Ceiling Insulation Wall Insulation Floor Insulation ES Windows Solar Screens Water Heater Replacement Water Heater Pipe Insulation Water Heater Jacket Faucet Aerators Low-Flow Showerheads CFL ES Refrigerators	Aggregate money coming in through agencies In contract with TCHDA to provide funds 2014 – Max \$4,991 Min \$1590	\$100,000 – 2014 \$203,980 – 2013	\$3,500 per Participant	Direct Install	Participation – number of homes weatherization	1,331 kWh per Home	No

AE WAP EVALUATION REPORT

KEY SURVEY QUESTIONS								
	1	3	4	6	16	33	34	10
Utility	What are the program's Eligible measures?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	Does the program use a direct install or a rebate approach?	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Do you leverage funds for your program with any national, state or local agencies?
Gainesville Regional Utilities	HVAC Improvement Insulation - ceiling attic, floor, not walls Water heaters gas or electric weather-stripping or caulking Duct system repair Thermostats 10 CFLs	Yes	2015 - \$469,050 - 2015 123.5 homes \$456,000 - 2014 133 homes	2015 - \$3,800 average 2014 - \$3,600 average	Direct Install	Energy Reduction Customer Satisfaction kWh reductions in past as focus	Average 1,752 kWh reduction per home	No, but have in past
Orlando Utilities Commission	Ceiling insulation Window foam Duct sealing repair Toilet, plumbing, irrigation repair Health and Safety Measures Showerhead Aerators caulking weather-stripping Air filters Minor plumbing Fix toilets - minor repair Pipe insulation	Income based: Eligibility - \$40,000 or less, 85% of total cost not to exceed \$2000. Mid-Term 40k-60 - 50% Higher > 60K - Rebate applicable to each measure	\$750,000 500 Homes	\$1,500 per home	Direct Install	Energy Savings, In-House M&V, \$0.15 Cost per kWh Saved - Pressure pan test to replace duct blaster	554 kWh saved per household	Grant projects in previous years, i.e. - ARRA, Right now - City Energy Project www.cityenergyproject.org

AE WAP EVALUATION REPORT

KEY SURVEY QUESTIONS								
	1	3	4	6	16	33	34	10
Utility	What are the program's Eligible measures?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	Does the program use a direct install or a rebate approach?	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Do you leverage funds for your program with any national, state or local agencies?
City of Tallahassee Utilities	weather-stripping - Doors, Windows, caulking gaps infiltration areas Health and Safety as needed Change air filter Water efficiency measures - Aerators, Low-Flow Showerheads Water heater temp set-back Water heater insulation CFL Refrigerator Thermometer	Yes	\$712,500 1,425 Homes	\$506 per home	Direct Install	Number of homes served Number of homes taking advantage of all each programs	Not Provided	When opportunity arises, past Fire Prevention Grant
Sacramento Municipal Utility District (SMUD)	Insulation Attic sealing Infiltration weather-stripping sealing Pipe wrap Minor home repair Lighting - ceiling fan, cfl, ceiling fans Refrigerators Water measures - low flow shower , faucets, Water heater wrap HVAC repair and replacement as needed	Yes	\$1,800,000 1000 Homes	\$1,800 per home	Direct Install	Number of customers served MW and GWh # refrigerators installed	1,000 kWh per home	Yes, Local Agencies - Community Based Organization - add Federal dollars - they pay for additional measures + other measures not covered (dishwasher, LI Solar)

AE WAP EVALUATION REPORT

KEY SURVEY QUESTIONS								
	1	3	4	6	16	33	34	10
Utility	What are the program's Eligible measures?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	Does the program use a direct install or a rebate approach?	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Do you leverage funds for your program with any national, state or local agencies?
Los Angeles Department of Water and Power (LADWP)	Home Energy Improvement Program - Most of outreach to low-income customers Eligibility requirements - targeting marketing Measures - weather-stripping, Insulation, Window A/C, CFL, Low-Faucet, Water Heater Blanket, WH Pipe Wrap, attic insulation, Pre-blower door test, smoke and carbon monoxide alarms, toilet replacement, door and window repair and caulking	Yes	\$12,000,000 - 2013/2014 2,400 Homes	\$5,000 per home	Direct Install	Number of homes served	Not Provided	Not currently
JEA⁵	6 CFL LED Night HVAC Filter Low-Flow Showerhead Toilet Flapper Aerator Health and Safety Thermometer Refrigerator Coil Brush 5 feet of pipe insulation weather-stripping Insulation	Yes	\$540,000 1,007 Homes	\$536 per home		Full expenditure of funds Insulation Goals Met	19% savings for insulation only programs No other savings captures	Not now, before with ARRA (900 Insulation jobs with ARRA)

⁵ Jacksonville Electric Authority

3.2.1.1 Eligible Measures

Most programs surveyed offered similar weatherization for their members, including: insulation, duct sealing and repair, weather-stripping, water savings measures and CFL lighting. Fifty percent of the ten programs, including AE, offered more costly repair or replacements of HVAC units. Five of the programs offered water heating improvements including blanket wraps, water pipe insulation and water heater replacement. Some electric utilities partnered with other utility organization to offer gas stove replacement or repair or water system repairs, such as replacing leaking flappers.

3.2.1.2 Program Cost to Participants

All programs except the Orlando Utility Commission provided 100% of the funds needed for the low-income weatherization measures installed. The Orlando Utility Commission provides reimbursement based upon income levels, with household include of \$40,000 or less receiving 85% of total cost not to exceed \$2000, Mid-income of \$40k-\$60k receiving 50% of total cost and incomes higher than 60K receiving any applicable for each measure installed.

3.2.1.3 Annual Weatherization Budgets

The utilities interviewed for the survey ranged from very small to very large with budgets ranging from \$30,000 at Bluebonnet Electric Cooperative in Texas to \$12,000,000 per year at the Los Angeles Department of Power and Light in California. Austin's current year budget of \$3,700,000 was the third largest overall budget of all 10 programs reviewed.

3.2.1.4 Program Cost per Participant

The program cost per participant was larger for utilities offering more expensive measures, such as HVAC repair or replacement. The City of Tallahassee Utilities and JEA focus on low cost measures in efforts to serve as many homes as possible. They limit the measures to basic energy efficiency upgrades and the average home visit is 1 hour for Tallahassee and 2 hours for JEA customers. Both of these utilities use a Neighbor Reach approach and do door to door visits installing energy efficiency measures in as many homes as possible in targeted neighborhood. The average cost per home for Tallahassee is \$506 and \$536 for JEA.

Other programs utilize a longer term process which allows installation of larger projects, such as energy star windows and HVAC repairs or replacement. Austin Energy averages \$3,000 per home, which is in a similar range to Gainesville Regional Utilities average of \$3,800 and Pedernales Electric Cooperative average of \$3,500 per home.

3.2.1.5 Direct Install or Rebate

All programs survey utilized a direct install approach for low-income weatherization measure installation. Most programs used staff for program management possible conducting of energy audits or assessments. Installation of recommended measures was exclusively done by third party contractors in all cases expect for LADWP where a staff of 40 employees handled all direct installed measure installations.

3.2.1.6 Measures of Program Success / Average Energy Saved per Home

The top two measures of program success for the programs reviewed with number of homes served and full expenditure of program budget. The number of homes served was often mentioned as number that held interest to either utility executive management or city commissioners. The number is a directly quantifiable measure of families impacted by the program. The goal of full budget expenditure was

important to many, as most of the utilities allocated funds for low-income program out of either their general funds or through a collected tariff surcharge. Monies designated from a surcharge have to be accounted for completely and, in the case of Oncor and AEP Texas, overages and underspending amounts must be explained and justified.

Several of the program managers noted that the Average Energy Saved per home has become less important in recent program years than when the programs first begun. Three of the utilities review don't actively track the kWh saved by the programs. For utilities that reported average energy saved per home, the Orlando Utilities Commission had the lowest reported savings of 554 kWh per year per home and Gainesville Regional Utilities had the highest savings of 1,752 kWh per year.

3.2.1.7 Leveraging of Weatherization Funding

All utilities served benefited from the influx of stimulus funds from the American Recovery and Reinvestment Act of 2009 (ARRA). Home weatherization increased greatly from 2009-2012. In the case of AE, weatherization prior to ARRA was 500 to 700 homes per year versus 1,044 homes in 2011. Once the ARRA monies expired in 2012, funds for weatherization were greatly decreased. As such, several utilities have sought other partners to leverage funding for weatherization programs. Specifically, the Texas Association of Community Action Agencies which serves as program administrator for the Oncor, AEP Texas and Pedernales Electric Cooperative weatherization programs, utilizes funds from each of these utilities combined with funds from Federal DOE, the Texas Rate Payer Organization, Texas Legal Services and the National Community Action Foundation to weatherize homes in their service territories. Use of leverage funds allows more homes in more communities to received weatherization services. Four out of the 10 programs survey are using some type of leveraging in their current weatherization efforts.

3.2.1.8 Implementation Strategies

Most utilities surveyed are using some type of electronic data collection device and interface to store pre and post characteristics of weatherized homes. One utility noted in the past they took notes on paper and transferred them later to Excel, but recently implemented a system to collect data using mobile tablets. Austin Energy's use of Salesforce.com to store data is most likely a practice other utilities may migrate to in the future, as most utilities are using internally developed software to store collected data.

Data collected varies between utilities and while most collect pre and post billing history, there is not consistency amongst the utilities in collecting pre and post blower door and duct blaster test results. Austin collects post-blower door results. Two utilities, LADWP and Bluebonnet Electric Cooperative only collect pre-blower door results. The Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas and Pedernales Electric Cooperative and SMUD collect both pre and post blower door test results. The Orlando Utilities Board will be adding pre-blower test for all homes and will do post-blower door test on 20% of homes.

Most programs reviewed had extensive application processes and income verification guidelines similar to AE. Gainesville Regional Utilities (GRU) has a somewhat unique application, approval and post inspection that works to build ownership in the overall weatherization process. As with other utilities, a pre-inspection is complete for each applicant's home. The pre-inspection report focuses on measures eligible for cost reimbursement from GRU and recommends measures for the homeowner to consider. The homeowner is provided a list of pre-approved contractors and is then responsible for setting up and getting estimates from these vendors to submit to GRU for approval. GRU customers are actively

engaged in the vendor review and become very involved in the equipment selection process. Once estimates are received and submitted to GRU, work is authorized and the homeowners are issued vouchers to pay the vendor. Once the measures are installed to the satisfaction of the homeowner, the vouchers are given to the contractors for redemption by the utility. Afterwards, a post-inspection is visit is schedule to verify all measures were installed and functioning properly. The overall cycle time is 3 months, with 1 month for initial application and obtaining of estimates, 1 month for getting the actual work done and 1 month for the follow up post inspection.

3.2.2 Texas Weatherization Assistance Programs

The following tables contain general information collected for each Texas Utility that was surveyed based upon information found online. Bluebonnet Electric Cooperative had not information available online.

Pedernales Electric Cooperative	
http://www.pec.coop/Home/LocalInvolvement/HowWereHelping/iqw.aspx	
Program Description	Pedernales Electric Cooperative allocated \$160,000 of unclaimed funds in 2012 to provide weatherization measures for some income-qualified PEC members. The Texas Association of Community Action Agencies (TACAA), which operates weatherization programs in Texas that supplement federal DOE and Health and Human Services weatherization efforts, agreed to partner with PEC to provide these services. After determining PEC members' eligibility based on a household income at or below 200% of the federal poverty guidelines, TACAA will conduct a preliminary energy audit. This audit will review the home's energy efficiency; identify air leaks, inefficient appliances, and other areas that need attention; and determine if the structure will benefit from being weatherized. PEC turns over unredeemed capital credit checks and other uncashed payments to members to the state unclaimed property fund. Under state law, a portion of that money is permitted to be used by PEC for energy efficiency programs, including weatherization measures that will reduce the energy consumption and energy costs for its income-qualified members.
Program Eligibility	Not Listed
Qualifying Measures	Weatherization work may include caulking; weather-stripping; ceiling, wall, and floor insulation; patching holes in the building envelope; duct work; and tune up, repair or replacement of inefficient heating and cooling systems. In addition, TACAA will offer basic on-site energy education to program participants.
Program Steps	Members who are interested in participating in the income qualified weatherization program can contact their local provider.

Oncor – Texas	
http://www.takealoadofftexas.com/index.aspx?id=low-income-home-weatherization#	
Program Description	Oncor provides incentives to Service Providers for implementing energy-saving measures in qualifying homes. Qualified low-income residential consumers have an annual household income at or below 200% above the federal poverty guidelines. This program is designed to help offset energy-saving measures at low or no cost for single-family, mobile and multi-family homes.

Oncor – Texas

Oncor implemented the Targeted Weatherization Low-Income SOP Program to comply with the Public Utility Regulatory Act (PURA) §39.905(f). The act requires that annual expenditures for the targeted low-income energy efficiency programs of each unbundled transmission and distribution utility are not less than 10% of the transmission and distribution utility's energy efficiency budget for the year.

Program Eligibility

- All homes must have Oncor as their [electric delivery provider](#), and consumers who rent their homes can participate provided they have permission from their landlords.
- This program is available to homeowners with an annual household income at or below 200% of the federal poverty guidelines shown here:

Size of Family Unit	Annual Income	Monthly Income	Weekly Income
1	\$23,340	\$1,945	\$449
2	\$31,460	\$2,622	\$605
3	\$39,580	\$3,298	\$761
4	\$47,700	\$3,975	\$917
5	\$55,820	\$4,652	\$1,073
6	\$63,940	\$5,328	\$1,229
7	\$72,060	\$6,005	\$1,385
8	\$80,180	\$6,682	\$1,541

Qualifying Measures

These are the most common weatherization measures provided at low or no cost to the customer:

- Insulation – Installing the appropriate amount of insulation in your home will not only help reduce your cooling and heating costs but also make your home more comfortable.
- Duct Sealing – Properly sealing your air conditioning ducts will reduce the amount of cooling and heating required to keep your home comfortable. This saves energy and lowers cooling and heating costs. Service providers must perform an [air leakage](#) test before and after performing the duct sealing measures.
- Caulking and Weatherstripping – Caulking around windows and other openings and weatherstripping doors in your home can significantly reduce air leakage. This helps cut cooling and heating costs. Service providers must perform an [air leakage test](#) before and after performing the air sealing measures.
- Compact Fluorescent Lighting – Installing compact fluorescent lamp is a quick and easy way to help reduce the amount of energy your home consumes.
- Water-saving Devices – Low-flow showerheads and faucet aerators can reduce the amount of water your home has to heat, which reduces the amount of energy consumed by your water heater.

Other Qualifying Measures

These additional measures may be provided by the Service Provider at a cost to the customer:

- High-efficiency central air conditioner or room air conditioner
- Floor insulation
- Solar screens
- ENERGY STAR® appliances
- Energy-efficient windows

Program Steps

Not Listed

3.2.3 Other Utility Weatherization Assistance Programs

The following tables contain general information collected for the non-Texas utilities that were surveyed based upon information found online.

Orlando Utilities Commission	
http://www.ouc.com/about-ouc/news/2010/05/11/ouc-city-of-orlando-partner-up-for-power	
Program Description The OUC energy audit determines the appropriate measures to be initiated based on the existing condition of the home and the funds available. Services provided may include: 1. Roof Replacement 2. Exterior Window and Door Replacements 3. Attic Insulation 4. Hot Water Heater Replacement 5. Caulk Windows 6. Caulk/Weatherstrip Doors 7. Plumbing Repairs 8. Air Conditioner/Heater Service or Replacement 9. Toilet Replacement (low-flow) 10. Energy Light Bulb Replacement	
Program Eligibility • Property must be located within the City limits of Orlando • The property must be owner-occupied. Owners are required to provide a copy of their deed. Mortgage and property taxes must be current and copies of mortgage statements and proof of paid taxes will be required. • Homeowner must have a current home insurance policy on the residence. • The resident's income must be within the limits specified by HUD. Homeowners will need to provide income information for all members of the household. Self-employed applicants must provide profit and loss statements and/or a signed copy of their last year's tax return.	
Qualifying Measures Not Listed	
Program Steps Not Listed	

City of Tallahassee, Florida					
http://www.needhelp-payingbills.com/html/leon_county_assistance_program.html http://www.floridacommunitydevelopment.org/wap/about.cfm					
Program Description The WAP will provide homeowners with free energy saving updates to their home. There is no cost to the homeowner. For example, applicants can receive additional insulation, cooling system repairs, and more. It is also run by the community action agency.					
Program Eligibility Grants are allocated based on a formula combining population and weather data and average \$2,744 spent on each home. An energy audit and testing must be performed on each home. The house data is entered into a computer program and a printout is provided. The print out must be evaluated to determine the measures that will be provided. Preference is given to owner occupied, elderly, disabled, and families with children 12 and under.					
<table border="1"> <tr> <td>Number of People in Household</td><td>125%</td></tr> <tr> <td>1</td><td>\$11,963</td></tr> </table>		Number of People in Household	125%	1	\$11,963
Number of People in Household	125%				
1	\$11,963				

City of Tallahassee, Florida			
	2	\$16,038	
	3	\$20,113	
	4	\$24,188	
	5	\$28,263	
	6	\$32,338	
	7	\$36,413	
	8	\$40,488	
	Each additional member add	\$4,075	
Qualifying Measures			
The types of measures include insulation, weather stripping, water heater wraps and reduction of air infiltration. Furnaces and air conditioning systems may be repaired			
Program Steps			
Not Listed			

Jacksonville Electric Authority	
http://www.aeafl.com/services/weatherization/	
Program Description	
JEA's weatherization initiative includes adding attic insulation, conducting a full duct seal on a functioning non-metallic duct system as well as several other energy-saving measures. Alternative Energy Applications is the premiere service-provider of insulation and duct seal for this program. The other energy-saving measures mentioned above are conducted by a 3 rd party affiliate.	
Jacksonville Electric Authority has recognized that not everyone may be in the financial position to make energy efficient upgrades to their homes. JEA has established special income-based weatherization programs to help. These programs offer an array of zero-cost energy-reducing solutions for those chosen to participate in their programs. Some of these upgrades include: installation of attic insulation, repairing loose or broken duct work, duct sealing and several other services that effectively reduce the amount of energy lost in a participant's home.	
Program Eligibility	
Eligibility for this program is determined by a 3 rd party affiliate and is income-driven. Residents who live within a selected group of census tracts may be eligible for this program. To find out if you are eligible, residents can contact JEA to ask about their Neighborhood Energy Efficiency Program.	
Qualifying Measures	
Not Listed	
Program Steps	
Not Listed	

Gainesville Regional Utilities Commission	
http://www.utilitybillassistance.com/html/florida_utility_bill_assistanc.html	
Program Description	
This program will provide assistance to Florida residents to help them lower their utility bills. The program will, among other things :	
• Replace and/or repair or old or inefficient heating and cooling units • Address air infiltration by using weather stripping, thresholds, caulking, minor repairs to walls, ceilings and floors, and door and window replacement • Install floor and/or attic	

Gainesville Regional Utilities Commission

- Repair and/or replace inefficient or old water heaters to save energy and assist with lowering utility bills

There are several goals to the program. The weatherization funds are meant to help reduce greenhouse gas emissions while also lowering energy costs and utility bills for low-income families

Program Eligibility

Assistance will be available to families making up to 200% of the federal poverty level, or about \$44,000 a year for a family of four. This is an increase from previous years.

Qualifying Measures

Not Listed

Program Steps

Not Listed

Sacramento Municipal Utility District

<http://www.hud.gov/local/shared/working/r9/cpd/lowincome.pdf>

<https://www.smud.org/en/residential/customer-service/rate-information/low-income-assistance.htm>

Program Description

Sacramento Municipal Utility District provides a no-cost weatherization program for income eligible households. The incomes of all residents in your home must be 175% of federal poverty guidelines as standard program participants and 200% of federal poverty guidelines as seniors over 60 and/or disabled customers.

Qualified, pre-screened contractors make weatherization repairs and improvements to your home. By making a few improvements—adding weather-stripping around doors, insulating attics and repairing furnaces— low-income customers can achieve significant savings and increase the comfort of their homes. Contractors also can also teach you how to lower your overall energy costs and consumption.

Qualified customers that participate in EAPR will have discounts of 38% on all electricity usage, with a maximum discount cap of \$52 per month. The maximum discount includes the reduction to the system infrastructure fixed charge. For customers with wells, the cap is increased to \$64 per month.

Persons in Household	Monthly Income	Annual Income
1 to 2	\$2,622	\$31,460
3	\$3,298	\$39,580
4	\$3,975	\$47,700
5	\$4,652	\$55,820
6	\$5,328	\$63,940
Additional members (each)	\$677	\$8,120

Program Eligibility

Not Listed

Qualifying Measures

Not Listed

Program Steps

Not Listed

Los Angeles Department of Water and Power	
https://www.ladwp.com/cs/idcplg?IdcService=GET_FILE&dDocName=OPLADWP059461&RevisionSelectionMethod=LatestReleased	
Program Description	LADWP's new Home Energy Improvement Program (HEIP) offers free energy efficient upgrades for residential customers and their families, designed to reduce their energy bills by making their homes more energy efficient. Through the program, an assessment of a customer's home will be performed by a trained technician to identify the most appropriate and effective improvements available. The program builds upon the success of a grant-funded home weatherization program, which was instituted by LADWP for a limited period. LADWP is offering residential customers the opportunity to improve the energy and water performance in their homes, which can improve their comfort level and potentially reduce their energy and water cost through the Home Energy Improvement Program (HEIP). The program is free to eligible customers. An assessment of homes is performed by a trained technicians to assist customers in identifying the most appropriate and effective improvements for their home. During the assessment, the trained technicians will identify the areas in a home where cost-effective energy efficient upgrades and repairs should be made. The home report is then forwarded to repair technicians to complete the work. The final step in the process is and after a quality assurance review to ensure that the work has been performed properly.
Program Eligibility	Not Listed
Qualifying Measures	Not Listed
Program Steps	Interested customers must send LADWP a completed Home Energy Improvement Program Application.

3.3 SECONDARY RESEARCH

GDS also did an extensive review of available material for to identify WAP Program best practices at the following utilities:

- Texas WAPs:
 - CPS Energy
 - City of Arlington
 - Alamo Area Council of Governments (AACOG)
 - Dallas County Health & Human Services
 - City of El Paso
 - City of Garland
 - Bryan Texas Utilities
 - A Cooler House Houston (Houston/Dallas/Fort Worth)
- Other Utility Weatherization Programs
 - Arkansas – The WAP
 - Memphis, Light, Gas & Water Division (MLGW)
 - Nashville Electric Service
 - Lafayette (LA) Utilities System
 - Oklahoma Weatherization Program
 - Washington State Low-Income Energy Efficiency Programs
 - California Low-Income Energy Efficiency Programs
 - Seattle City Light
 - Maryland Green & Heathy Homes Initiative

- Bonneville Power Administration (BPA)

3.3.1 Texas Weatherization Assistance Programs

This section contains program information for weatherization programs that was found on publically available web sources. Many of the programs, such as the City of Arlington, the AACOG, the City of Dallas, the City of El Paso and the A Cooler House Houston for Houston/Dallas/Fort Worth are operated as municipal programs and not by a direct electric or gas utility. As such, program budget information and participation data was not available for most of these programs.

CPS Energy																													
http://www.cpsenergysavers.com/start-saving/weatherization-casa-verde																													
Program Description Casa Verde is CPS Energy's residential WAP. It is designed to help families in need to reduce their monthly utility bills. Eligible homeowners or renters may receive FREE weatherization measures designed to improve the energy efficiency of their homes. These weatherization measures can help reduce energy bills, especially during the hot summer months. Casa Verde was introduced in 2009 and was funded primarily by federal and state stimulus grants. That grant-funded program closed in February 2012. During this phase of the program, CPS Energy weatherized 3,320 local homes. The Casa Verde program is now administered by CPS Energy and uses funds from our Save for Tomorrow Energy Plan, or STEP. These energy savings are helping families lower their monthly energy bills while helping CPS Energy reduce the demand for electricity. This helps both control costs and get the most for our energy dollars. Casa Verde uses local energy auditors to determine the energy efficiency needs of a home and local contractors to perform the installations and complete the work.																													
Program Eligibility Participants must meet the financial eligibility requirements outlined in the following chart: <table border="1"> <thead> <tr> <th>Household Size</th><th>Monthly Income</th><th>Annual Income</th></tr> </thead> <tbody> <tr> <td>1</td><td>\$1,945</td><td>\$23,340</td></tr> <tr> <td>2</td><td>\$2,622</td><td>\$31,460</td></tr> <tr> <td>3</td><td>\$3,298</td><td>\$39,580</td></tr> <tr> <td>4</td><td>\$3,975</td><td>\$47,700</td></tr> <tr> <td>5</td><td>\$4,652</td><td>\$55,820</td></tr> <tr> <td>6</td><td>\$5,328</td><td>\$63,940</td></tr> <tr> <td>7</td><td>\$6,005</td><td>\$72,060</td></tr> <tr> <td>8</td><td>\$6,682</td><td>\$80,180</td></tr> </tbody> </table>			Household Size	Monthly Income	Annual Income	1	\$1,945	\$23,340	2	\$2,622	\$31,460	3	\$3,298	\$39,580	4	\$3,975	\$47,700	5	\$4,652	\$55,820	6	\$5,328	\$63,940	7	\$6,005	\$72,060	8	\$6,682	\$80,180
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Participating homes must meet certain requirements regarding structural integrity																													
Qualifying Measures Not Listed																													
Program Steps 1. Income eligibility is determined. 2. A CPS Energy contractor will conduct an energy evaluation of your home. The contractor will be looking to make sure the home is structurally sound and that it would benefit from weatherization measures. They will also be making an assessment of what measure would make the biggest difference toward energy savings. Casa Verde is not a home repair program. 3. Free installation of weatherization measures for qualified homes. Eligible homes may receive any or all of the following energy-saving upgrades: attic insulation, wall insulation, weather-stripping and caulking,																													

CPS Energy

replacement of incandescent light bulbs with CFLs, and duct sealing.

4. Final Inspection: CPS Energy will hold a post-inspection to verify the installation of the weatherization measures and to ensure quality of workmanship. A customer satisfaction survey is conducted at the time of final inspection.
5. Customer must be available throughout the weatherization process. Casa Verde staff and contractors will require scheduled access to the home during normal working hours, and possibly on weekends as required. A customer or designated representative 18 years of age or older must be on the premises at all times while contractors and/or CPS Energy employees are working. This will ensure timely completion of the weatherization and the inspection process.

City of Arlington

www.arlingtonhousing.us

Program Description

The WAP is designed to help low-income households control their energy costs through weatherization of their home and through consumer education.

Program Eligibility

- Energy audits include a review of a home's energy efficiency, identifying where air leaks may be occurring, inefficient appliances, etc.
- Installation of weatherization measures to increase energy efficiency of a home including; Caulking, weather-stripping, adding ceiling, wall, and floor insulation, patching holes in the building envelope, duct work, and tune-up, repair or replacement of energy inefficient heating and cooling systems
- Weatherization measures installed must meet specific energy-saving goals.

Household Size Maximum Income

1
2
3
4
5
6

Maximum Income Limits

\$21,600
\$29,140
\$36,620
\$44,100
\$51,580
\$59,060

Income limits are based upon 200% of the Federal

Poverty Income Guidelines.

Qualifying Measure

Not Listed

Program Steps

Priority is given to:

- Households with children under the age of 6
- Households with an elderly resident
- Households with a disabled resident
- Households with the highest energy cost and lowest income; and
- Households with the highest residential energy use.

Note: These guidelines are fairly consistent across all programs

Alamo Area Council of Governments

<http://www.aacog.com/index.aspx?NID=120>

Program Description

The AACOG WAP is designed to help low-income families, particularly with elderly and handicapped residents, overcome the high cost of energy through the installation of energy conservation measures at no cost to the applicant. Although the program does not address major home repairs, it can help lower the amount of energy used in a home by enhancing the structure's thermal boundary. Like a Styrofoam cup, the house will stay warmer in the winter and cooler in the summer. The less energy it takes to heat or cool the house, the more money is saved.

Qualification for Weatherization Services is a three step process. The applicant's total household income must meet federal income eligibility requirements. The 2014 Federal Poverty Level is used to identify the funding source your household qualifies for. The person completing the application (The Applicant) must be a U.S. Citizen or show proof of eligible Resident Alien Status to receive federal benefits. Lastly, the home itself must qualify in terms of structural soundness (no major roof repairs, plumbing leaks, foundation problems, faulty electrical wiring or similar structural issues).

Program Edibility

Not Listed

Qualifying Measures

- Submitted application packets with required support documents are reviewed and program eligibility is determined.
- Assessment and Energy Audit of the home
- Installation of approved weatherization measures (e.g., attic / wall insulation, replacement or repair of heating and air conditioning equipment, etc.)
- A final inspection to assure work quality completeness and customer satisfaction

Program Steps

Not Listed

Dallas County Health & Human Services

<http://www.dallascounty.org/department/hhs/weatherization.html>

Program Description

Dallas County Health and Human Services' WAP provides assistance to income eligible households by weatherizing their homes, conserving energy and reducing high utility costs in the process. Eligible applications will be considered for assessments.

Program Edibility

Not Listed

Qualifying Measures

- Dwelling assessment and audit before any work begins.
- As part of the WAP Program: DCHHS equips homes with weather stripping, caulking, insulation, repaired or new doors and windows, solar screens, repair or retrofit heating and cooling units and duct work.
- Clients who need rehabilitation services will be referred to another agency that may be able to provide assistance.

Program Steps

Not Listed

City of El Paso
http://www.projectbravo.org/language/english/weatherization-assistance-program
Program Description Project BRAVO, Inc., El Paso's anti-poverty Community Action Program, is now accepting applications from qualified residents for its WAP. This program is funded under the ARRA and the DOE and administered by the State of Texas to provide home weatherization services to the elderly, disabled and low-income families of El Paso. Weatherization of a home permanently reduces utility bills by increasing energy efficiency. The program is being offered free to residents who qualify. Newer properties generally do not qualify for the service. The goal is to help clients realize savings of 25-30% on their energy bills (gas and electric combined) during peak months (winter/summer) after weatherization.
Program Eligibility Not Listed
Qualifying Measures • Home weatherization is based on an energy assessment of properties that qualify under the program, • Eligible homes will be assessed to determine if repairs or replacement of: insulation, weather-stripping, and heating and cooling systems are needed.
Program Steps Not Listed Residents of El Paso are urged to call Project BRAVO at 562-4100 and ask for the Weatherization Hotline to determine if they qualify for the service.

City of Garland
http://www.garlandpower-light.org/pdfs/EEForms/2014-2015%20Wholehouse%20Weatherization%20Application.pdf
Program Description Program provides bill credits for installation of specified energy efficiency measures. The program is not specifically targeted to Low-Income Customers, but can be use by them if warranted.
Program Eligibility Not Listed
Qualifying Measures • Ceiling Insulation (existing and new insulation must be at least R-30) • ENERGY STAR Windows/Doors • Window Solar Screens/Film • Duct Replacement • Duct Sealing • Weather-stripping of doors, caulking windows, sealing plumbing penetrations
Program Steps Not Listed

Bryan Texas Utilities
http://www.btutilities.com/smarthome-programs/
Program Description The purpose of the BTU SmartHOME Program is to educate customers and encourage energy efficiency improvements that help customers reduce their energy cost and improve the comfort of their home while at the same time reducing BTU's need to build or purchase additional generation. Any generation reduced has the added benefit of reducing CO2 emissions. According to the EPA, saving 1,000 kilowatt-hours (kWh) is equivalent to reducing CO2 emissions from 79.1 gallons of gasoline consumed or the carbon sequestered by 18.1 tree

Bryan Texas Utilities

seedlings grown for 10 years.

Program Eligibility

The BTU SmartHOME Program is available to any owner of an existing single- or multi-family dwelling within the BTU service territory which is billed on a residential rate. The program is not specifically target to Low-Income customers. Tenants should contact their landlords about participation in the program. Incentive payments will only be paid to the property owner.

Qualifying Measures

The BTU SmartHOME Program offers incentives to customers adopting any of these three approved energy efficiency measures and meets program guidelines. These measures are intended to improve the building envelope.

- Attic/ Wall Insulation
- Energy Star Windows
- Solar Screens

Program Steps

1. Customer completes the BTU [SmartHOME Application](#) for each energy efficiency measure and submits photos of pre-work condition prior to work being done.
2. BTU contacts customer to acknowledge receipt of application and photos and, if needed, request additional information.
3. Customer has work completed and submits contractor invoice(s) and all improvement specifications to BTU within 60 days of approved application. After 60 days, the customer must reapply for approval.
4. BTU schedules and completes a post-work inspection, if required.
5. BTU calculates incentive payment and submits payment to customer.

Incentive Rates

- The incentive rate for all three measures is based on BTU's cost for new peaking generation. Incentive payments will be a minimum of 10%, not to exceed 25%, of the total installed cost per customer project. The total annual incentive payment to any one customer cannot exceed 20% of BTU's annual program budget. This incentive program is subject to the availability of funds and may be terminated at any time without advance notice.

A Cooler House Houston (Dallas/Fort Worth area also)

<http://acoolerhousehouston.com/weatherization-assistance>

Program Description

The US DOE established a program designed to assist low income home owners increase the energy efficiency of their homes; that program is called the WAP. This program provides funding for the installation of energy efficient equipment and repairs that insure the health and safety of the home owners.

Program Eligibility

- All homes must be in an area served by retail competition (no coops or municipalities.) Consumers who rent their homes can participate provided they have permission from their landlords.
- This program is available to homeowners with an annual household income at or below 200% of the federal poverty guidelines shown here:

Size of Family	Annual Income	Monthly Income	Weekly Income
1	\$21,660	\$1,805	\$417
2	\$29,140	\$2,428	\$560
3	\$36,620	\$3,052	\$704
4	\$44,100	\$3,675	\$848

A Cooler House Houston (Dallas/Fort Worth area also)

5	\$51,580	\$4,298	\$992
6	\$59,060	\$4,921	\$1,136
7	\$66,540	\$5,545	\$1,280
8	\$74,020	\$6,168	\$1,423

Qualifying Measures

These are the most common weatherization measures provided at low or no cost to the customer:

- Insulation – Installing the appropriate amount of insulation in your home will not only help reduce your cooling and heating costs but also make your home more comfortable.
- Duct Sealing – Properly sealing your air conditioning ducts will reduce the amount of cooling and heating required to keep your home comfortable. This saves energy and lowers cooling and heating costs. Service providers must perform an air leakage test before and after performing the duct sealing measures.
- Caulking and weather-stripping – Caulking around windows and other openings and weather-stripping doors in your home can significantly reduce air leakage. This helps cut cooling and heating costs. Service providers must perform an air leakage test before and after performing the air sealing measures.
- Compact Fluorescent Lighting – Installing compact fluorescent lamp is a quick and easy way to help reduce the amount of energy your home consumes.
- Water-saving Devices – Low-flow shower heads and faucet aerators can reduce the amount of water your home has to heat, which reduces the amount of energy consumed by your water heater.

Other Qualifying Measures

These additional measures may be provided by the Service Provider at a cost to the customer:

- High-efficiency central air conditioner or room air conditioner
- Floor insulation
- Solar screens
- ENERGY STAR® appliances
- Energy-efficient windows

Program Steps

Not List

3.3.2 Other Utility Weatherization Assistance Programs

This section contains program information for weatherization programs outside of Texas that was found on publically available web sources

Arkansas – The Weatherization Assistance Program

<http://www.arkansasenergy.org/residential/arkansas-weatherization-assistance-program.aspx>

Program Description

The Arkansas Weatherization Program (AWP) was developed to help reduce energy usage in homes that are severely energy inefficient. The program is available to all Arkansans, regardless of their income or type of home. The program helps customers of participating utility companies find ways to reduce their daily energy usage. Advanced diagnostic technology, such as a computerized energy audit, is used to determine the energy conservation needs of a home.

The WAP annually provides grant funds to community action agencies, local governments, Indian tribes and non-profit agencies to provide specific program services for low-income families of Arkansas. These entities provide program services throughout the state.

The WAP annually provides grant funds to community action agencies, local governments, Indian tribes and non-profit agencies to provide specific program services for low-income families of Arkansas. These entities provide program services throughout the state.

Program Eligibility

Households with incomes that do not exceed 200% of Poverty Guidelines as determined by the DOE may be eligible for the WAP. In addition, those households with a member receiving SSI are categorically eligible.

Due to limited funding, priority points are awarded to households with members who are elderly, handicapped, and children under 7 years of age, or Native Americans.

Qualifying Measures

The actual conservation work completed is dependent on the specific needs of the home. However, typical work includes:

- Air sealing
- Attic and/or sidewall insulation
- Weather-stripping
- Minor repairs associated with the weatherization work

All work receives a thorough Quality Control inspection by the local agency's Quality Assurance Auditor.

Program Steps

Not Listed

Funding and Associated Cost

Weatherization services vary depending on the specific needs of the home and DOE approved conservation measures. An average grant of \$6,904 is awarded for each home for installed energy efficiency measures. No client contribution is required.

In addition to using funds provided by DOE WAP, Office of Community Services (OCS) leverages funds from the Low Income Home Energy Assistance Program (LIHEAP) in order to address all the retrofit needs of the home. Low Income Home Energy Assistance Program is a separate program administered by OCS. Sub grantees are encouraged to leverage with the utility-funded AWP. If the home has both electric and gas utilities an agency could receive an additional \$1,058 to \$2,116 toward retrofitting the home.

Memphis, Light, Gas & Water Division

<http://www.mlgw.com/residential/energysmartmemphis>

Program Description

EnergySmart Memphis is a year-long energy education and home improvement initiative designed to help Memphians save money on their energy costs. EnergySmart Memphis is a partnership between MLGW, City and County government agencies, Community Development Center (CDCs) and non-profit organizations, and the Tennessee Valley Authority. Through this program, an estimated 3000 MLGW customers will receive in-depth energy conservation training. Eligible customers will have weatherization improvements made to their home through this initiative. A series of Energy Education Workshops will be conducted city and county-wide at area libraries. The initiative includes weatherization kits for qualified homeowners to receive minor and major home repairs.

Memphis, Light, Gas & Water Division

Program Eligibility

Not Listed

Qualifying Measures

Not Listed

Program Steps

Not Listed

Nashville Electric Service

http://www.needhelppayingbills.com/html/nashville_electric_service_ass.html

Program Description

The federal government's WAP is paid for by the DOE. The state of Tennessee is provided funds and grants to pay for the weatherization of the homes of low income families, disabled, and the elderly. Weatherization is a free program that will install energy conserving updates to a Nashville Electric Service customer's home. Some examples of the improvements can be, but are not limited to, storm windows, insulation, CFL bulbs, caulking, window sealing, and other related conservation type activities to reduce home energy bills and to also increase home energy efficiency.

Nashville Electric customers can apply for this program by contacting their local community action agency. Those locations accept applications and also organize work crews that will actually improve a customer's home. When you apply, you will need to meet a number of low-income eligibility guidelines, which can be based on established Federal government poverty guidelines. All services and work done from the weatherization program is offered at no cost to qualified families.

Program Eligibility

Not Listed

Qualifying Measures

Not Listed

Program Steps

Not Listed

Lafayette Utilities System

<http://www.icantpaymybill.com/liheap-louisiana>

Program Description

Not Listed

Program Eligibility

If there are more than 6 persons living in your home, you will need to adjust the maximum allowed income to reflect the total number of people living in the home. The state median income for the 2012 LIHEAP season was \$66,109. 60% of \$66,109 is \$39,665. If there are six persons in your household, you can earn 132% of \$39,665 or \$52,358. For each additional family member you are allowed a 3% increase. For instance, a family of seven can earn 135% of \$39,665 or \$53,548.

Before applying for the LIHEAP customers must meet the following income guidelines. Income is reported as gross income before deductions.

Family Size	60% of State Median Income
1	\$20,626
2	\$26,972

Lafayette Utilities System			
	3	\$33,319	
	4	\$39,665	
	5	\$46,012	
	6	\$52,358	
Qualifying Measures			
Not listed			
Program Steps			
Not Listed			

Oklahoma Weatherization Program																			
http://wxprogram.blogspot.com/2007/10/oklahoma-recognizes-weatherization-day.html http://www.benefits.gov/benefits/benefit-details/1875																			
Program Description																			
Weatherization Assistance encompasses a wide variety of cost-effective energy efficiency measures including heating and cooling systems, electrical system, and energy-consuming appliances. Weatherization service providers check major energy systems to ensure occupant safety.																			
Program Eligibility																			
- In order to qualify for this benefit program, you must be a resident of the state of Oklahoma. - In order to qualify, you must have an annual household income (before taxes) that is below the following amounts:																			
	<table> <tr> <th>Household Size</th><th>Maximum Income Level (Per Year)</th></tr> <tr> <td>1</td><td>\$23,340</td></tr> <tr> <td>2</td><td>\$31,460</td></tr> <tr> <td>3</td><td>\$39,580</td></tr> <tr> <td>4</td><td>\$47,700</td></tr> <tr> <td>5</td><td>\$55,820</td></tr> <tr> <td>6</td><td>\$63,940</td></tr> <tr> <td>7</td><td>\$72,060</td></tr> <tr> <td>8</td><td>\$80,180</td></tr> </table>	Household Size	Maximum Income Level (Per Year)	1	\$23,340	2	\$31,460	3	\$39,580	4	\$47,700	5	\$55,820	6	\$63,940	7	\$72,060	8	\$80,180
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7	\$72,060																		
8	\$80,180																		
Qualifying Measures																			
- Specific services include the installation of energy-efficient measures such as: attic insulation, caulking and weather stripping, air sealing and heating and cooling adjustments. - An energy audit is conducted on each home to determine energy conserving measures that will be installed.																			
Program Steps																			
Not Listed																			

Washington State Low-Income Energy Efficiency Programs	
http://www.commerce.wa.gov/Programs/services/weatherization/Pages/default.aspx http://www.needhelp-payingbills.com/html/washington liheap and weatheri.html	
Program Description	
Weatherization is adding insulation, sealing cracks, and making other changes that reduce heat loss, save customers money on heating bills and make homes or apartments healthier. The federal government and Washington State offer weatherization programs, which Commerce runs, for qualified low-income households.	

Washington State Low-Income Energy Efficiency Programs

A federal government grant is offered to Washington every year and the funds are used to help pay heating bills and provide weatherization services across the state. The goal of LIHEAP is to help keep people who are most at risk safe and warm during the winter, and weatherization will try to ensure homes are more energy efficient and help people save money. Weatherization focuses low-income families with young children, elderly members, and individuals with disabilities, as they are considered the most vulnerable to a medical condition or serious health risks associated with improperly heated homes.

Energy conservation measures taken on a home may or may not include weatherization measures such as caulking and sealing cracks and holes in a building structure, weather-stripping of doors and windows, repair, replacement, or tune-up of non-functional heating systems, insulating attics, walls and under floors. Some safety and health issues can be made to, such as incidental repairs necessary to protect the weatherization material.

Program Eligibility

This program focuses on low-income families and the elderly, people with disabilities, and children. Eligibility is also based on total household income levels. Assistance can improve the energy efficiency of homes while ensuring the occupants health and safety. It can help Washington state residents overcome the high cost of energy by making homes more energy efficient.

Qualifying Measures

Not Listed

Program Steps

Not Listed

California Low-Income Energy Efficiency Programs

<http://www.cpuc.ca.gov/PUC/energy/Low+Income/ljee.htm>

<http://www.csd.ca.gov/Services/ResidentialEnergyEfficiencyServices.aspx>

Program Description

The Energy Savings Assistance Program provides no-cost weatherization services to low-income households who meet the California Alternate Rates for Energy (CARE) income guidelines. This program is designed to increase the energy efficiency of homes which are owned or occupied by low-income persons, to reduce their total residential expenditures such as heating and cooling bills, and to improve the health and safety of families. Weatherization services can help a family, struggling to make ends meet, reduce their energy consumption by up to 35%, and save them more than \$400 on their heating and cooling bills in the first year alone.

Program Eligibility

Income limits are effective June 1, 2014, through May 31, 2015.

Household Size	Income Eligibility Upper Limit
1	\$31,460
2	\$31,460
3	\$39,580
4	\$47,700
5	\$55,820
6	\$63,940
7	\$72,060
8	\$80,180
Each Additional Person	\$8,120

California Low-Income Energy Efficiency Programs

Qualifying Measures

Weatherization services can help a family, struggling to make ends meet, reduce their energy consumption by up to 35%, and save them more than \$400 on their heating and cooling bills in the first year alone.

Program Steps

Not Listed

Investor Owned / Program Administrator Utility Programs

Program	Administrator	Description
Low-Income Energy Efficiency Partnership Programs	Investor Owned Utilities: Pacific Gas & Electric Company, Southern California Edison, Southern California Gas, San Diego Gas & Electric	No-cost weatherization program for income eligible (175% of federal poverty guidelines or 200% for seniors over 60 and/or disabled customers) households. Qualified, pre-screened contractors make weatherization repairs and improvements (e.g., adding weather-stripping around doors, insulating attics and repairing furnaces). Contractors also educate customers on ways to lower overall energy costs and consumption.
Community Partnership Programs	Investor owned utilities partnered with cities and counties	Collaborative program designed to enhance local government's economic redevelopment efforts by delivering energy efficiency programs to residents and business owners that have been especially difficult to reach through traditional energy efficiency programs. By using existing energy efficiency programs and local governments' communication channels, the two entities strive to help residents and business owners savings money on energy bills through various services including direct installation of energy efficiency equipment, energy audits, energy efficiency seminars, special financial incentives of energy efficient equipment, etc.
WAP	CA Department of Community Services and Development (Note: Services are delivered by county community service agencies)	Provides funding for energy audits and the direct installation of energy efficiency measures. Measures may include insulation, weather-stripping, caulking or other improvements to increase energy efficiency and lower the resident's fuel bills. Program also includes cost of repair or replacement of heating or cooling equipment to improve health and safety.

Seattle City Light

<http://www.seattle.gov/housing/homewise/>

Program Description

Weatherization grants (and low interest home improvement loans) to insulate single family homes with low-income households as well as apartment buildings that qualify. After an initial energy analysis, an energy conservation package is installed.

Program Eligibility

For owner-occupied homes:

Gas/Oil Heated Homes		Electric Heated Homes	
Number or People	Monthly Household Income	Number or People	Monthly Household Income
1	< \$2164	1	< \$3729
2	< \$2830	2	< \$4263
3	< \$3496	3	< \$4796

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	4	< \$4161	4	< \$5325	
	5+	Call for info	5+	Call for info	
Qualifying Measures Energy audits, insulation in attic, walls, water pipes, floors at crawlspace, and crawlspace (including ground cover); venting of bathrooms/kitchens; pipe wrapping to avoid freezing; air sealing; weather-stripping of exterior doors; window caulking; duct insulation; furnace repair, tune-up/replacement; combustion appliance safety; energy conservation-related repairs; and partial payment for other measures that add value by energy conservation benefits.					
Program Steps Not Listed					

Maryland Green & Healthy Homes Initiative					
http://www.greenandhealthyhomes.org/get-help/maryland-direct-services/energy-efficiency-and-weatherization-services					
Program Description Under grants provided by the US DOE, the State of Maryland Energy Administration and the City of Baltimore, the Hazard Reduction Team will perform the following services: Full scale Energy Audits including but not limited to: • Visual Inspection • A blower door test to determine structural air leakage • Thermographic & Infrared Imaging to determine structural energy loss • Duct testing for forced air HVAC systems where applicable • Carbon Monoxide and combustible gas leakage detection • HVAC system capacity and performance calculations .					
Program Eligibility Services are provided free of charge to qualifying families living in low income neighborhoods					
Qualifying Measures • Insulation – blown and rolled • Weather-stripping • Foam insulation • Caulking to seal structural air leakages • Replacement or installation of gutters/downspouts • Replacement windows (Energy Star) • Cool Roofs					
Energy Retrofit/Energy Efficiency Interventions • Installation of water heater insulation blankets • Insulation of exposed hot water feed pipes • Installation of CFL light bulbs • Mastic to seal leakages found in exposed forced air duct systems • Replacement of air filters for forced air HVAC systems • Installation of programmable thermostat • Furnace cleaning and repair Furnace and hot water heater replacement • Dryer and bathroom venting Installation of low flow showerheads • Plumbing repair • Installation of Energy Star appliances (where applicable) • Furnace and hot water heater replacement (where applicable)					
Program Steps					

Maryland Green & Healthy Homes Initiative

Not Listed

Bonneville Power Administration

http://www.bpa.gov/EE/Policy/IManual/Documents/FINAL_October_2014_Implementation_Manual.pdf

Program Description

Not Listed

Program Eligibility

All weatherization measures must be installed according to the 2014 BPA Residential Weatherization Specifications in the Document Library and follow the Specification, Requirements and Documentation requirements as listed under Weatherization (Standard Income) above.

To be eligible, homes must have an electric heating system as the primary system (see definitions); or homes must have one of the following as an existing heating system:

1. A permanently-installed electric heating system with either (a) no other functioning non-electric heating system or (b) a wood stove, pellet stove, fireplace, fireplace insert (wood or pellet) or wood furnace
2. A electric heat pump system integrated with a non-electric heating system (e.g., natural gas, propane, or wood supplementary/backup system)
3. A wood stove or pellet stove with no other non-electric space heating system, accompanied by the current usage of plug-in electric space
4. A electric heat system and a separate functional or non-functional, non-electric space heating system (i.e. oil, natural gas, or wood furnace) with the entire non-electric space heating system decommissioned, removed, all penetrations sealed, and all fuel (electric, gas, oil) connections to the decommissioned heating system disconnected. System equipment includes furnace, air-handler, fuel lines, fuel tanks (abated in compliance with local code). If, however, construction limitations prevent the removal of the entire non-electric system (or other portions of the space heating equipment), then the remainder of the system must be decommissioned, removed, all penetrations sealed, and all fuel (electric, gas, oil) connections to the decommissioned heating system disconnected.

Low-income household eligibility is defined in the Federal WAP as 200% of the poverty income levels. Approved statewide eligibility definitions substitute for federally established low income levels, if provided.

All low-income weatherization funds must generate reportable, cost-effective savings in the customer's service territory. Customers may run low-income weatherization programs themselves or through contractors, but must, at all times, retain responsibility for and control over the program.

Funds may be used for repair work (i.e. health and safety or to ensure efficacy of measure) directly associated with the installation of cost-effective weatherization measures, but repair costs must be reported separately. Customers may combine funding sources within a residence, but may not combine funding from multiple BPA sources for the same measure.

The table below summarizes eligible measures, which must be individually reported to BPA.

Qualifying Measures

Low-Income Measures eligible for funding include:

Single-Family

- Attic insulation (up to R49)
- Floor insulation (up to R30)
- Wall insulation (up to R11)
- Prime window or patio door replacement*
- Exterior insulated doors
- Whole House Air Sealing and Testing

Bonneville Power Administration

- Prescriptive Air Sealing
- PTCS or Prescriptive duct sealing for heat pumps or electric forced air furnaces
- Ductless Heat Pumps (zonal or EFAF⁶)

Multi-Family

- Attic Insulation (up to R49)
- Floor Insulation (up to R30)
- Wall Insulation (up to R11)
- Prime window (Class 30 only) or patio door replacement (Class 35 only)*Single-Family

Mobile Homes

- Attic insulation (up to R30)
- Floor insulation (up to R22)
- Prime window or patio door replacement* Prime window or patio door replacement*
- Whole House Air Sealing and Testing
- PTCS or Prescriptive duct sealing for homes with heat pumps or electric forced air furnaces
- Ductless Heat Pumps (zonal or EFAF)

Program Steps

Not Listed

⁶ Electric Forced Air Furnaces

4 BENCHMARKING ANALYSIS FOR THE AE WAP PROGRAM

The following section contains GDS's findings from the following task:

Task 2: Develop a Benchmarking Analysis for the AE WAP Program

Historically, benchmarking energy efficiency program performance against similar programs in the nation has been difficult due to non-standard reporting guidelines and uncertain program classification specifications. The Lawrence Berkeley National Laboratory (LBNL) is in the process of developing a common terminology to assist analysis of energy-efficiency programs on a multi-state basis. From an August 2013 report related to this topic, LBNL stated:

In order to compile and analyze information about energy efficiency programs across the country, it is necessary to have a common categorization of program types as well as definitions of the metrics that define program performance and characteristics. As part of an effort to analyze the cost per unit of savings for utility-customer funded, end-use energy efficiency programs, LBNL developed a program typology with standardized program categories, as well as metrics and associated definitions that describe program characteristics, costs and impacts. These definitions and naming conventions facilitate meta-analysis of program results and could simplify the analyses and use of such information by a wide range of entities engaged in reporting and assessing the impacts of energy efficiency.⁷

The process of benchmarking energy efficiency program performance will become much more transparent once a common framework is adopted for energy efficiency program savings and cost reporting is developed.

At the present time, no regional or nationwide database is available to benchmark AE's WAP against other utilities. However, several significant studies and evaluations of Weatherization Programs are currently in process with results expected in 2015. Specifically, the National Retrospective Evaluation of the WAP and the ARRA Evaluation are both expected to be released in spring of 2015.⁸ Also, the Statewide Evaluation Program of Energy Efficiency Activities report will be release in March of 2015. Finally, the City of Houston Weatherization program is currently being evaluated by the Houston Advanced Research Center⁹ and hopefully these results will be public in 2015.

To benchmark AE's WAP performance at this time, GDS reviewed the Weatherization program performance against other Texas programs where metric data was available. Additionally, GDS compared Austin's results against 6 other utilities base upon results from past evaluation studies. AE's WAP program results from the ARRA era and comparisons to other programs are discussed below.

Prior to ARRA funding, Austin Energy offered free weatherization services to qualifying low-income, elderly and physically/mentally disabled customers. The program provides up to \$1,500 in home improvements including installation of attic insulation, sealing and repair of ducts, solar screen installations, weather stripping around entry doors, and minor home repairs necessary to improve the effectiveness of the efficiency improvements.

⁷ Energy Efficiency Program Typology and Data Metrics: Enabling Multi-State Analyses Through the Use of Common Terminology, LBNL-6370E, August 28, 2013, <http://emp.lbl.gov/sites/all/files/lbnl-6370e.pdf>

⁸ Email correspondence with Joel Eisenberg and Bruce Toon – December 2015

⁹ http://www.harc.edu/work/COH_Weatherization_Program_Evaluation

In FY 2010, AE received a grant of nearly \$5.9 million from American Recovery and Reinvestment Act (ARRA) funds that allowed for the weatherization of 1,064 homes and apartments for low-income, elderly, and disabled customers within AE's service area. Under this program, each dwelling received, on average, about \$5,000 worth of improvements including new energy efficient appliances and air conditioning and heating equipment.

Austin Energy's implementation of the program was so successful; the utility received additional funding on three separate occasions in the amounts of \$2.1 million, \$200,000 and \$1 million, for total funds of \$9.2 million. This allowed the utility to nearly double the number of units receiving this enhanced free weatherization.

Under the Federal Weatherization Program which ended April 30, 2012, AE weatherized 1,886 homes, 77% more than the original goal of 1,064 homes. The homes were occupied by 4,529 people of whom 645 were elderly, 572 had disabilities and 758 were children under the age of 5. On average, each of the homes will save about 1,200 kilowatt-hours annually in energy costs due to the improvements.

4.1 TEXAS DEPARTMENT OF HOUSING AND COMMUNITY AFFAIRS PROGRAM DATA

The TDHCA administers a residential WAP which is funded by the U.S. DOE and U.S. Health and Human Services' LIHEAP. These federally-funded programs are administered through TDHCA's Community Affairs Division.

TDHCA administers WAP through a network of Sub-recipients. WAP allocates funding to serve all 254 counties to help households control energy costs through the installation of weatherization measures and its energy conservation education. The sub-recipients consist of Community Action Agencies (CAAs), nonprofit entities and units of local government. Austin Energy manages the WAP allocation for the City of Austin.

The TDHCA filed a Weatherization Report in the State of Texas on March 14, 2014. This report contains state required filings regarding the weatherization efforts within the State of Texas. TDHCA reported program units served, energy savings, energy cost saved and program expenditures for the most complete data available, January 1, 2012 to December 31, 2012. 10

Table 4-1 shows TDHCA reported savings by utility for CY2012.

Table 4-1: TDHCA Reported Savings by Utility for CY2012

Utility	Table 5: Dwellings Weatherized through TDHCA's WAP in CY 2012	Table 9: Energy Saved (kWh) through TDHCA's WAP and ARRA WAP, CY 2012	Table 12: Household Savings through TDHCA's WAP and ARRA WAP, CY 2012
Alamo Area Council of Governments	590	5,274,335	\$585,451
Big Bend Community Action Committee, Inc.	60	536,373	\$59,537
Brazos Valley Community Action Agency, Inc.	198	1,770,031	\$196,473

¹⁰ Weatherization in the State of Texas A Report to Meet the Requirements of Rider 14, Prepared by the Community Affairs Division TDHCA, March 14, 2014

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Utility	Table 5: Dwellings Weatherized through TDHCA's WAP in CY 2012	Table 9: Energy Saved (kWh) through TDHCA's WAP and ARRA WAP, CY 2012	Table 12: Household Savings through TDHCA's WAP and ARRA WAP, CY 2012
Cameron and Willacy Counties Community Projects, Inc.	97	867,136	\$96,252
Combined Community Action, Inc.	199	1,778,970	\$197,466
Community Action Committee of Victoria, Texas	329	2,941,112	\$326,463
Community Action Corporation of South Texas	686	6,132,531	\$680,711
Community Services, Inc.	863	7,714,832	\$856,346
Concho Valley Community Action Agency	172	1,537,603	\$170,674
Dallas County Department of Health and Human Services	677	6,052,075	\$671,780
Economic Opportunities Advancement Corporation of PR XI	262	2,342,162	\$259,980
El Paso Community Action Program, Project Bravo, Inc.	371	3,316,573	\$368,140
Fort Worth, City of, Department of Housing	477	4,264,165	\$473,322
Greater East Texas Community Action Program (GETCAP)	291	2,601,409	\$288,756
Hill Country Community Action Association, Inc.	172	1,537,603	\$170,674
Lubbock, City of	50	446,978	\$49,615
Neighborhood Centers Inc./Sheltering Arms Senior Services	3,030	27,086,837	\$3,006,639
Nueces County Community Action Agency	245	2,190,190	\$243,111
Panhandle Community Services	89	795,620	\$88,314
Programs for Human Services, Inc.	568	5,077,664	\$563,621
Rolling Plains Management Corporation	239	2,136,552	\$237,157
South Plains Community Action Association, Inc.	278	2,485,195	\$275,857
Texoma Council of Governments	168	1,501,844	\$166,705
Travis County	893	7,983,018	\$886,115
Tri-County Community Action, Inc.	76	679,406	\$75,414
West Texas Opportunities, Inc.	173	1,546,542	\$171,666

AE WAP EVALUATION REPORT

Utility	Table 5: Dwellings Weatherized through TDHCA's WAP in CY 2012	Table 9: Energy Saved (kWh) through TDHCA's WAP and ARRA WAP, CY 2012	Table 12: Household Savings through TDHCA's WAP and ARRA WAP, CY 2012
City of Arlington*	66	590,010	\$65,491
City of Austin - AE*	553	4,943,571	\$548,736
City of Beaumont*	0	0	\$0
City of Brownsville*	0	0	\$0
City of Corpus Christi*	0	0	\$0
City of Dallas*	0	0	\$0
City of El Paso*	0	0	\$0
City of Houston*	515	4,603,868	\$511,029
City of Laredo*	23	205,610	\$22,823
City of Odessa*	0	0	\$0
City of San Antonio*	211	1,886,245	\$209,373
Grand Total	12,621	112,826,060	\$12,523,691
*The 11 cities indicated above administered only the ARRA WAP. All other contractors administered both ARRA WAP and WAP. By CY 2012, many of the ARRA contracts had entered the ramp down or closeout process. The total amount of funds expended by the TDHCA WAP programs was \$48,576,311.99. The distribution of the program funds expended by program can be seen in the following table.			

TDHCA estimated 112,826,061 kilowatt hours (kWhs) were saved in 2012. Energy savings were calculated by multiplying the number of dwelling units by the DOE calculation for average energy saved through weatherization per dwelling.¹¹ This equates to heating and cooling saving equivalents of 8,940 kWh per home and is not a verified energy savings figure. This number is much higher than the 1,200 kWh savings estimates from AE, as Austin only includes electricity savings and not energy savings equivalents in its internal reporting.

The TDHCA report contained program specific information for several low-income weatherization programs in the state. Table 4-2 compares AE's performance to these other programs.

¹¹ Calculations are taken from a Weatherization Assistance Technical Memorandum prepared by Oak Ridge National Laboratory. Document Number: ORNL/TM-2010/66.

Table 4-2: Comparison of AE's Performance to Low-Income Weatherization Programs in Other States

Utility	Program	Table 7: Customers Served by Utilities Participating in SB 712, CY 2012	Table 8: Total Program Funds Expended by Utilities Participating in SB 712, CY 2012	Table 10: Energy Saved (kWh) by Utilities Participating in SB 712, CY 2012	Cost per Unit Served	Cost per kWh Saved	Saving per Unit Served
Oncor Electric Company	Targeted Weatherization Low-Income Standard Offer Program	1,267	\$5,482,762	1,103,000	\$4,327	\$4.971	871
Texas - New Mexico Power Company	Low Income Weatherization	111	\$388,070	257,000	\$3,496	\$1.510	2,315
Xcel Energy (SPS)	Low Income Weatherization	149	\$306,000	379,000	\$2,054	\$0.807	2,544
AE	Free Weatherization Program - Complete ARRA Funding Period	1,886	\$9,604,809	2,263,200	\$5,093	\$4.244	1,200

4.2 NATIONWIDE EVALUATION STUDIES

GDS conducted a review of other utility and government weatherization programs, industry studies and other research to collect information to allow comparisons to be made to AE's weatherization programs. GDS will collect the following information (where available) for weatherization programs at other utilities and government agencies:

- Program costs per participant
- Energy savings per participant
- Measures offered
- Average cycle time from program start to finish
- Are education and outreach included in the program?
- Describe the oversight and governance for each program (committees, etc.)
- Is the program mandated by a regulatory authority or is it voluntary?
- How does the program handle structural repairs?
- Describe the program delivery approach (outsourced vs internal staffing and the number of staff)
- Does the program use a direct install or a rebate approach?
- What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year
- What are the total dollar savings to the utility and the participant?
- What is the utility investment in dollars for the latest completed fiscal year?

- Describe partnerships that each program has established

These questions were part of the information collected from the primary research direct surveys with Program Managers. The results below present the information found in other sources found during the secondary research process.

Impact and Evaluation reports provide information on how effective energy efficiency programs are at meeting their goals and targets for performance. GDS reviewed Weatherization Impact Evaluation studies for the following utilities to benchmark AE's WAP performance.

- Massachusetts (2014)
- Thetford, Vermont (2011)
- Xcel Energy, Colorado (2010)
- Interstate Power and Light Company, Iowa (2011)
- MidAmerican Energy, Iowa (2009)
- Black Hills Energy, Iowa (2009)
- PECO, Pennsylvania (2008)
- New Hampshire Utilities (2006)

Table 4-3 and Table 4-4 below contains a comparison of program cost and energy savings per participant for each utility reviewed in the study.

Table 4-3: Comparison of Program Costs per Participant for Each Utility

Utility	Program Cost per Participant	Ranking
City of Tallahassee Utilities	\$506	1
JEA	\$536	2
Xcel Energy, Colorado (2010)	\$593	3
Thetford, Vermont (2011)	\$863	4
New Hampshire Utilities (2006)	\$1,449	5
Orlando Utilities Commission	\$1,500	6
Sacramento Municipal Utility District (SMUD)	\$1,800	7
Interstate Power and Light Company, Iowa (2011)	\$2,049	8
PECO, Pennsylvania (2008)	\$2,190	9
Black Hills Energy, Iowa (2009)	\$2,299	10
MidAmerican Energy, Iowa (2009)	\$2,931	11
Pedernales Electric Cooperative	\$3,500	12
Austin Energy - Current	\$3,000	13
Gainesville Regional Utilities	\$3,800	14
Los Angeles Department of Water and Power (LADWP)	\$5,000	15
Austin Energy - ARRA	\$5,093	16
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	\$6,000	17

Utility	Program Cost per Participant	Ranking
Arkansas WAP	\$6,904	18
Alabama ARRA (2008-2011)	\$7,110	19
Wisconsin WAP (2011)		
Bluebonnet Electric Cooperative		

Table 4-4: Comparison of Energy Savings per Participant for Each Utility

Utility	Energy Savings per Participant	Ranking
PECO, Pennsylvania (2008)	2,172	1
Gainesville Regional Utilities	1,752	2
Xcel Energy, Colorado (2010)	1,711	3
Pedernales Electric Cooperative	1,331	4
Austin Energy - ARRA	1,200	5
Wisconsin WAP (2011)	1,115	6
Interstate Power and Light Company, Iowa (2011)	1,004	7
Sacramento Municipal Utility District (SMUD)	1,000	8
MidAmerican Energy, Iowa (2009)	998	9
New Hampshire Utilities (2006)	872	10
Orlando Utilities Commission	554	11
Thetford, Vermont (2011)		
Black Hills Energy, Iowa (2009)		
Arkansas WAP		
Alabama ARRA (2008-2011)		
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas		
Bluebonnet Electric Cooperative		
City of Tallahassee Utilities		
Los Angeles Department of Water and Power (LADWP)		
JEA		

Below is a sample of the weatherization measures by each program:

- 1) **Austin Energy:** Attic insulation, Solar screens, CFL/LED replacements, Water conservation efforts (aerators/showerhead replacement faucets and commodes), CO/Smoke detectors/alarm, Air infiltration, Duct sealing, repair/replacement, HVAC Replacement (ARRA), Window A/C (Post-ARRA)
- 2) **Rocky Mountain Power (Idaho):** Infiltration controls, pipe insulation, CFLs, double glass window replacement, thermal door replacement, ceiling insulation, attic ventilation, floor insulation, furnace repair, duct sealing and insulation, water heater wrap, water heater replacement, storm windows, wall insulation, furnace replacement, refrigerator replacement, heat exchanger (report includes frequency of measure installations for 2007-09)

- 3) **Washington State:** most frequently installed were insulation and air sealing; also lighting, appliance, and hot water efficiency measures
- 4) **Massachusetts:** Air sealing to reduce infiltration, attic insulation, sidewall insulation, floor insulation, pipe and/or duct insulation, limited energy related repairs
- 5) **Xcel Energy, Colorado:** Ceiling insulation, wall insulation , furnace, refrigerator replacements, CFLs
- 6) **Nevada:** Blower door test, duct sealing, shell sealing, caulking kit, weather-strip kit, CFL retrofit, low-flow shower head, solar screen, refrigerator replacement, attic insulation
- 7) **Arkansas:** Air sealing, attic and/or sidewall insulation, weather-stripping, minor repairs associated with the weatherization work
- 8) **California:** Sealing holes and cracks around windows, doors, and pipes, ensuring proper levels of insulation, fixing or replacing windows, putting an insulated blanket around water heater, making sure heating and air conditioning systems are working properly
- 9) **Pacific Gas & Electric:** CFLs, refrigerator replacement, weather-stripping, low-flow showerheads, caulking, faucet aerators, attic insulation, duct testing and sealing, switch & outlet gaskets, door replacements, glass replacement, window replacement, combustion air ventilation, minor repairs

A comprehensive list of measures offered by the utilities and reviewed in the secondary research section is included in Appendix B.

What is the average cycle time from program start to finish?

- 1) **Washington State:** from energy audit for final project inspection: 140 days

Are education and outreach included in the program?

- 2) **Rocky Mountain Power (Idaho):** The agencies aim to educate their clients about energy use in their homes. The agency staff interviewed explained that most of the energy education occurs during the initial audit. Auditors give residents the Rocky Mountain Power booklet and explain what actions they can take to reduce energy use. When the crew returns to complete the work, crew members discuss their work plan for the home with the resident.
- 3) **Washington State:** Yes, delivers energy conservation education.
- 4) **Thetford, Vermont:** Yes, 50 community volunteers were recruited, educated, and trained on importance of home weatherization. A packet of weatherization information was developed, including energy saving tips, list of energy programs, list of weatherization contractors, a home heating efficiency worksheet, list of Efficiency Vermont incentives for home weatherization, and two case studies. Every home in Thetford received these packets-- some were hand delivered, some were mailed. Also had a day-long energy expo that provided homeowners with an opportunity to meet and learn more from weatherization program directors and contractors, homeowners who had received services, workshops, demonstrations, and skits.
- 5) **Xcel Energy, Colorado:** Yes, program provides customer education, which focuses on ways to reduce energy use in the home. This education consists of client assessment, distribution of conservation education materials, measure-specific energy education, and energy saving tips.

6) **Nevada:** Yes, program aims to increase awareness of low-cost ways to conserve energy.

How does the program handle structural repairs?

7) **Nevada:** The program offers minor home repairs.

8) **Arkansas:** Minor repairs associated with weatherization work are offered.

Describe the program delivery approach (outsourced vs internal staffing and the number of staff).

9) **Massachusetts:** The program is funded by an annual grant from the US DOE, and administered by a network of local agencies.

10) **Washington State:** Some local agencies conduct weatherization work, but 85-90% of the work is performed by local subcontractors.

11) **Arkansas:** A network of Community Action Agencies use crews or local private-sector weatherization contractors to complete work at no cost to occupants.

Does the program use a direct install or a rebate approach?

12) **Rocky Mountain Power:** In the Idaho program, the agencies send invoices directly to Rocky Mountain Power for processing and payment. Rocky Mountain Power does not provide any up-front funding, but pays rebates after the work has been completed and it has received an invoice.

What are the total dollar savings to the utility and the participant?

13) **Washington State:** Program estimated to save weatherized households \$1.4 million per year in energy costs.

14) **Arkansas:** Total annual Energy savings for program participants for PY 2009-10 was \$2,409,458.

Describe partnerships that each program has established.

15) **Washington State:** Agencies cooperated and partnered with utilities, government entities (cities, counties, housing authorities), non-profit housing, elderly, and community organizations

5 WEATHERIZATION PROGRAM BEST PRACTICES

The ARRA grant provided \$5.0 Billion to fund WAP efforts for numerous states and municipalities from 2008-2012. As a result, over 600,000 homes nationwide were weatherized during this period. This increase in weatherization effort provided opportunity for the weatherization process to be streamlined and for many best practices to be developed. GDS reviewed many National and Statewide Studies to identify current weatherization program best practices. Several of these studies were discussed in more detail in the 2012 study. Following are the main points from each of these reports.

5.1 RECENT BEST PRACTICES / EVALUATION FINDINGS

5.1.1 National Weatherization Assistance Program Evaluation – Preliminary Findings

The National WAP Evaluation results and report should be published in the spring 2015. A June 13, 2013 presentation at the National Energy and Utility Affordability Conference (NEUAC)¹² provided some preliminary findings. The key findings are based upon initial data review and feedback from the auditor team and include the following:

Benefits – The WAP program...

- Transforms poorly performing and unsafe homes
- Results in cost-effective energy savings
- Furnishes non-energy benefits to clients
- Delivers non-energy benefits to the rest of society

The WAP program could be improved by...

- Continuing to invest in management tools, quality control, and training
- Findings ways to target homes and services that result in the highest level of benefits to clients

In regards to installation, the report notes the following opportunities for improvement:

- Increased use of blower door when air sealing
- Respect for clients' homes (booties, covering furniture)
- Crew member safety
- Increased assessment of HVAC contractors
- Explain CFLs when installing
- Client education

The report recommends the following regarding final inspection:

- Increased client education
- Explain measures installed
- Reinforce client action plan
- Improved testing quality
- Increased assessment of installation quality

¹² National Weatherization Assistance Program Evaluation, David Carroll and Jackie Berger, APPRISE, NEUAC Conference Presentation, June 10, 2013

- Reduced use of auditor to conduct final inspection – additional perspective

5.1.2 US DOE –WAP Quality Work Plan

The U.S. DOE's WAP has introduced a comprehensive QWP¹³ that establishes a benchmark for quality home energy upgrades. This plan defines what is required when federal dollars are used to purchase weatherization services and leverages the resources developed through the Guidelines for Home Energy Professionals project.

This QWP not only defines how home energy upgrade work should be done, but it also provides a prescription for communication, training, and the inspection of work throughout the WAP network. The plan is aimed to address three critical questions:

- What does quality work look like?
- How should workers be trained?
- How should home energy upgrade work be verified?

The Issues raised by the entire WAP network led to the QWP are as follows:

- Inconsistent expectations at all levels of monitoring
- No way to establish the value of an experienced crews
- No way to place value on high-quality training
- Inconsistent methods of inspection across the network
- No national standards for work quality
- No portable and nationally recognized credentials for experienced WAP workers

The QWP has four requirements to ensure quality installations:

1) Quality Guidelines and Standards

- All WAP measures installed must Meet the minimum outcomes and specifications for work outlined in the Standard Work Specifications for Home Energy Upgrades (SWS).

2) Communication of Guidelines and Standards

- Grantees must provide sub-grantees with technical requirements for field work (audits/testing, installation, inspections), and confirm receipt of those requirements.
- The technical requirements must be clearly communicated and the specifications against which the work will be inspected must be referenced in sub-grantee contracts.
- Contractors hired by the sub-grantee must have contracts that include the same flow---down requirements. The work of the contractor must be consistent with the Grantee standards and field guides.

3) Inspection and Monitoring of Work Against Guidelines and Standards

- Every DOE WAP unit reported as a completed unit must receive a quality control inspection ensuring that all work meets the minimum specifications outlined in the SWS.

4) Provide Training to Implement and Maintain Guidelines/Standards

¹³ http://energy.gov/sites/prod/files/2014/07/f17/QWP%20Update_ACI2014.pdf

- Beginning in Program Year 2014, grantee Training Plans must include comprehensive training for all WAP workers that is aligned with the NREL Job Task Analysis (JTA) for the position in which the worker is employed.

5.1.3 The Changing Landscape of Low-Income Weatherization

At the 2014 Affordable Comfort Inc. (ACI) Conference themed, “Creating a Better America” in Detroit, NASCSP Energy Service Director Bob Scott and EOS Project Coordinator, Madiana Mustapha, presented information on the “Changing Landscape of Low-Income Weatherization.”¹⁴ Upcoming future developments were discussed, including web-based weatherization solutions and process improvements driven by the QWP. Additionally, the trend toward leveraging strategies to take advantage of today’s opportunities for leveraging weatherization resources was reviewed.

The presentation focuses on three upcoming developments for 2015 that should be considered by weatherization program developers.

Development of Web-Based Weatherization Assistant Tools

- Multifamily Tool for Energy Audits (MulTEA)
- Health and Safety Audit Tool
- National Energy Audit Tool (NEAT) – Single-family
- Manufactured Home Energy Audit (MHEA)

Noted Increased Emphasis on Multi-Family Weatherization

- Standard Work Specifications for Multifamily Energy Upgrades
- Multifamily Job Task Analyses (JTA)
- Multifamily Tool for Energy Audits (MulTEA)
- Technical Guidelines for Multifamily Building Energy Audits
 - The Technical Guidelines tell the energy auditor what the data-gathering and energy-auditing process should entail.
 - The guidelines facilitate uniformity in multifamily energy audit methods, to lead to more accurate predictions of energy and cost savings.

Use of DOE QWP Guidelines

- Based on Guidelines for Home Energy Professionals initiative
- Intent to demonstrate quality and accountability of WAP
- Help ensure long term sustainability of WAP as a leader and foundation of the home performance industry

Additionally, the presentation discusses the on-going trend of “Leveraging.” Leveraging is defined as “using the current resources of the program and its organization to attract complementary resources while offering value to partners or investors.”

¹⁴<http://www.affordablecomfort.org/events/2014-aci-national-home-performance-conference-trade-show/session/changing-landscape-low>

Leveraging allows utilities to partner with other organizations, such as non-profits, multifamily property owners and managers, foundations, and mission based lenders to provide weatherization services to more homes in a given community. The benefits of leveraging include:

- More homes weatherized
- Less organization vulnerability to reductions in any single Weatherization funding source
- Increasing the number of stakeholders with a vested interest in the Program who can advocate for the Program

ALMOST HALF OF THE WAP FUNDING FOR 2013 CAME FROM LEVERAGED SOURCES:

- 40 states leveraged utility rate payer programs
- \$332.6 M - utility rate payer programs
- 42 states transferred some LIHEAP
- \$308.6 M - LIHEAP transfers
- States Used State Tax Revenues
- \$710 M Leveraged in 49 States

5.1.4 Weatherization Best Practice Field Guides

As mentioned previously, The U.S. DOE's WAP has introduced a comprehensive QWP (QWP) to be used as guidance for all future WAP installations. Along with the issue of the QWP, many utilities have either created or updated their weatherization field guides to include best practices as collected through the ARRA funding years. Specifically, the follow utilities have recently released new or updated Weatherization Field Guides:

- Bonneville Power Administration - Residential Weatherization Best Practices Field Guide - April 2014 Version 1.0¹⁵
- Minnesota - Weatherization Manual – Updated July 2014¹⁶
- Missouri Weatherization Field Guide – Updated May 2014¹⁷
- Iowa Weatherization Program, Weatherization General Appendix, 2013¹⁸
- 2013-2014 Wisconsin WAP Manual¹⁹

Copies of these Field guides can be found at the links in the footnotes for each program.

5.1.5 Blower Door Test Practices and Guidelines

Several utilities and municipal weatherization programs reviewed by GDS required that service providers perform an air leakage test before and after performing the air sealing measures. Specifically, Oncor and the A Cooler House Programs for Houston, Dallas and Fort Worth area doing both require pre- and post-air leakage tests. A pre and post-blower door test to measure infiltration is seen as a gauge of the effectiveness of the weatherization work done by service providers.

¹⁵ http://www.bpa.gov/EE/Sectors/Residential/Documents/v4FINAL_Wx_Field_Guide_03_31_14.pdf

¹⁶ <http://mn.gov/commerce/energy/service-providers/For-WAP-Providers/Weatherization-Manual.jsp>

¹⁷ http://wx.srmi.biz/mo/MO_SWS_WxFg_052914.pdf

¹⁸ http://www.waptac.org/data/files/website_docs/technical_tools/best_practices_field_guides-standards/2013-appendix-wap_iowa.pdf

¹⁹ <http://homeenergyplus.wi.gov/docview.asp?docid=24606>

5.1.6 Iowa Weatherization Program - Weatherization Cost Limits and Allowances

The Iowa Weatherization Program²⁰ has implemented cost limits and allowances to ensure that implementation partners are aware of upper project costs boundaries before installation begin. The Iowa cost and allowance limits are discussed below.

Average Expenditure per Completed Unit Limit

The Average Expenditure per Unit Limit applies to homes charged as completions to the DOE Contract. The Average Expenditure per Unit Limit does not apply to homes charged as completions to the HEAP Contract. The average limit is updated annually by DOE. The DCAA notifies agencies at the beginning of each program year as to what the updated Expenditure per Unit Limit is.

Total Cost of Home (based on estimated cost using DOE, HEAP, Utility, ECIP funds)

Work on homes requires DCAA prior approval when estimated cost is more than: \$10,000. The estimated cost includes health and safety, energy efficiency, and repair work using DOE, HEAP, Utility, and ECIP funds.

Support Allowance (per home)

- Completed Home: 35% of the sum of DOE, HEAP, Utility, and ECIP expenditures for health and safety, labor, and materials.
- Incomplete Home: \$200

Expenditure Limits

The following expenditure limits are in effect for the current program year. All limits include the costs for labor and materials.

- Heating System Repair - All systems except boilers
 - Limit of \$1,000 (per dwelling, excluding ductwork)
 - Heating System Repair – Boilers and Heat Pumps
 - Limit of \$2,000 (per dwelling)
- ECIP
 - Agencies may use ECIP funds for furnace repair/replacement. The ECIP allowance per furnace repair/replacement is:
 - \$1,500 - When furnace repair/replacement is done in conjunction with weatherization.
 - \$3,000 - When furnace repair/replacement is not done in conjunction with weatherization
- Water Heater Repair
 - Limit of \$300 (includes associated plumbing)

General Health and Safety Repairs

General health and safety repairs are defined as “Repairs necessary (1) for installation of weatherization measures and (2) to eliminate health and safety problems in the home.” General health and safety repairs are limited to: plumbing repairs, electrical repairs, Energy Star-rated dehumidifiers, sump pumps, gutters and downspouts, banking and grading, minor asbestos removal, pest removal, and mold/mildew cleanup. The cost limit for general health and safety repairs is \$1,500 per home.

²⁰ http://www.waptac.org/data/files/website_docs/technical_tools/best_practices_field_guides-standards/2013-appendix-wap_iowa.pdf

5.2 NATIONAL / STATEWIDE WEATHERIZATION ASSISTANCE STUDIES

5.2.1 Modeled Cost-Effectiveness of Weatherization in Low-Income Urban Housing Stock

In this Princeton Engineering thesis paper²¹, weatherization cost-effectiveness was evaluated in six urban areas of the U.S. The central cities of these metropolitan areas were Milwaukee, Detroit, Philadelphia, Orlando, Seattle, and Los Angeles-Long Beach. The Home Energy Saver (HES) energy modeling software, coupled with data from the American Housing Survey, determined the energy use in low-income urban housing stocks in six urban areas in varying climate zones in the U.S. Based on this analysis, the research conclusions were:

- Most weatherization treatments examined are profitable.
 - Almost all treatments in the cities examined were NPV-positive (Net Present Value) over either a 7 or 15 year period.
- Regional variations in energy prices significantly affect the cost-effectiveness of weatherization retrofits.
 - Differences in energy prices can outweigh differences in energy savings in a cost-effectiveness analysis. Although retrofits saved less energy in Orlando than in Detroit, because Orlando had the most expensive and Detroit had the least expensive energy prices, Orlando's low-income housing stock was among the most profitable to retrofit, as measured by NPV, and Detroit's was among the least profitable.
- Weatherization strategies aimed at energy savings, carbon savings, and cost-effectiveness may not lead to the same conclusion.
 - Because average energy consumption, carbon intensity of energy consumed, and energy prices all vary geographically and largely independently, energy savings, carbon savings, and cost-effectiveness are not necessarily aligned. Weatherization strategies that seek to minimize residential energy use may not be the same strategies that seek to minimize residential carbon emissions.
 - There are different ways to consider cost-effectiveness, including net present value or by abatement cost for energy or carbon.
 - Policy-makers need to recognize these differences and decide the priorities of their weatherization programs.

5.2.2 Weatherization Plus Reports

Program Objective: The goal of a Weatherization Plus Program is to achieve significantly greater energy cost savings for more low-income households and to increase the Program's contribution to the economic and environmental health and sustainability of the community.

Measures: Measures typical of a Weatherization Plus Program include:

- Air Sealing and Attic Prep
- Attic Insulation
- Dense-Packed Sidewall Insulation
- Duct Sealing/Duct Repair
- Basements and Crawl Spaces

²¹ http://efm.princeton.edu/pubs/Bradshaw_Thesis%20FINAL.pdf

Program Design: There are three pieces to the overall Weatherization Plus strategy:

- 1) Increase Flexibility
- 2) Advance Technological Capabilities
- 3) Expand Resources

Best Practices: The Weatherization Plus Program is designed as a flexible whole home approach to efficiency retrofits, offering comprehensive improvements and emerging technologies, that leverages resources – contractors, education, training, and funding – from existing programs or activities. <http://www.waptac.org/WAP-Basics/Weatherization-Plus.aspx>

As the Recovery Act comes to an end and the Weatherization moves into the next generation of providing efficiency and renewable energy improvements for millions of families across the country, the time has come to identify a new strategic roadmap to guide Weatherization through 2015 and beyond.

A Weatherization Plus 2015 strategy will:

- Ensure Weatherization is positioned to leverage necessary resources to meet the needs of our clients that are beyond the Weatherization scope.
- Position the Weatherization Grantee and Sub-grantee networks to improve services to the existing market and to expand to markets beyond those income-eligible households.
- Clearly convey the short and long-term benefits of the Weatherization and the impact it makes on the local, regional, state, and national levels.
- Institute consistent delivery of quality Weatherization services to the households we serve.

5.2.3 Itron Study of Electricity Savings from Investor Owned Utilities in Texas

The Public Utility Commission of Texas funded a study performed by Itron, Inc. to estimate energy efficiency potential in Texas in order to answer the Texas Legislature's questions regarding energy efficiency goals and policies. Itron gathered and analyzed utility, ERCOT, and market data on energy and peak consumption, utility-reported program savings, baseline equipment characteristics, energy efficiency measure costs and savings, and the market penetration of energy efficiency measures.

Itron estimated the breakdown of residential consumption by end use for the nine utility areas (AEP Central, AEP North, AEP SWEPCO, CenterPoint, El Paso, Entergy, Oncor, TNMP, Xcel) combined in Texas.²²

Itron noted that consumer groups in Texas believe that direct weatherization programs are the most successful programs because they offer a comprehensive approach and reach the highest percentage of their target market. Partnering with consumer groups is favorable because of this already existing positive view of weatherization programs. It is also of note that environmental groups have a positive view of ENERGY STAR Programs as a means to promote energy efficiency.

Measures reviewed in the study include: central air conditioner upgrades, programmable thermostats, ceiling fans, whole house fans, attic venting, proper refrigerant charging and air flow, high efficiency room air conditioner, variable speed furnace fan, duct repair, window film, solar screens, double pane

²² Itron, Inc. "Assessment of the Feasible and Achievable Levels of Electricity Savings from Investor Owned Utilities in Texas: 2009-2018" December 23, 2008.

and Low-E Windows, ceiling insulation, wall insulation, CFLs, Super T-8 Lamps, heat pump water heating, high efficiency water heater, solar water heater, low-flow showerhead, pipe wrap, faucet aerators, Energy Star Refrigerators, Early replacement refrigerators, high efficiency freezers, energy star dishwashers, energy star clothes washers, high efficiency clothes dryers, high efficiency pool motor and pumps, and in-house home energy displays.

5.2.4 Florida's Weatherization Program reports: Expanding Resources

Two case examples of the successful implementation of efficiency resources in Florida were related to weatherization efforts.

Case Study: In one example, the Weatherization program was able to partner with local and national non-profits to obtain materials for projects. The Framing Hope Program has matched Home Depot with the St. Johns Housing Partnership, which provides home repairs and weatherization services to more than 250 homes each year. The St. Johns Housing Partnership was also able to collaborate with a local business in order to help identify the families in need and get product donations to them. These efforts with local and national charities also help to promote positive marketing throughout the community and increase awareness.²³

Case Study: In the second example, a disabled client was able to receive weatherization even though the case was outside of DOE grant limits. This was possible because of corporate donations by Home Depot, Jeldwyn Mfg., and the ADRC (AGING & DISABILITY RESOURCE CENTER) Home Touch Program. Again, the outreach and collaboration with additional programs and businesses led to positive awareness and publicity in the community.²⁴

Best Practices: Partnering with community agencies helps to identify potential participants while partnering with local businesses provides an opportunity for leveraging available resources (e.g., materials, services, and donations) to meet the needs of the community. The partnership with local entities helps to promote the program and the benefits of efficiency improvements in general.

5.2.5 National Weatherization Training and Technical Assistance Plan

Skills & Training: At a Weatherization Plus conference, a Senior Policy Advisor for the Office of Energy Efficiency and Renewable Energy (DOE) stressed the importance of a skilled and properly trained workforce in implementing the best weatherization measures. The training and skill set of workers are key to sustainable building practices, and resources should be appropriately used to improve worker quality.

The American Recovery and Reinvestment Act (ARRA) used 20% of funds to increase the WAP training program. Investing in training is a key factor in weatherization programs because:

- Demonstrating high quality work is important to customers and to stakeholders.
- After ARRA are expended, the investment in high quality workers will allow the continuation of Weatherization Programs and will allow workers to transition into other work fields.²⁵

²³ "Weatherization Assistance Available at Pie in the Sky." The Newsletter of the St. Johns Housing Partnership. Vo 7, No. 2. Fall 2010.

²⁴ Kent, Christine. "A Story of Survival" October 21, 2009. Retrieved from:

http://www.waptac.org/data/files/website_docs/recovery_act/success_stories/fl/christine%20kent.pdf

²⁵ Hughes, Julie. "Opening Ceremony". Weatherization Plus Health Regional Conference. September 13, 2011

In order to improve the quality of work, a program must aim to

- Create solid work specifications,
- Define worker tasks
- Train and certify workers.²⁶

The U.S. DOE's WAP for Low-Income Persons tasked the Weatherization Trainers Consortium to develop a set of core competencies for the various staff positions of the Weatherization Program. By defining and setting expectations for various roles, a program will be better able to execute program tasks and accomplish goals. Core competencies include:

- Identify specialized skills and knowledge that are required to run an effective weatherization program
- Assist state and local weatherization agencies to hire staff with a strong potential to perform well and prosper in the program
- Serve as a foundation in establishing standardized curricula to ensure the consistent delivery of high-quality weatherization services nationwide
- Put upward pressure on salaries to reduce staff turnover

Best Practices: Training is essential to a successful weatherization program as it ensures that quality work is conducted as part of the program and promotes better building practices outside of the program. It is recommended that to achieve high quality in work a program must **(1)** create solid work expectations, **(2)** define worker tasks, and **(3)** train and certify workers.

5.2.6 National Energy Efficiency Best Practices Report

Quantum Consulting completed December 2004 *National Energy Efficiency Best Practices Study*, aiming to develop a comprehensive and comparative understanding of energy efficiency program efforts throughout the United States. According to a single-family program review conducted as part of this study, a strong weatherization program can be achieved by implementing and considering the following best practices:

Program Management – Quality Control and Verification:

- Use a verification method capable of confirming measure and installation quality.
- Select an appropriate percentage of properties for inspection and verification.
- Write clear specifications for measure installation using “contractor-friendly” language and train contractors on what is expected.
- Pre-screen installers who have been trained for and are committed to high-quality installation.
- Create processes for tracking complaints and failure by measure and by contractor.
- Require that installers honor the warranties that come from product manufacturers.

Program Implementation – Participation Process:

- Develop a network of local installers who are committed to high-quality standards.

²⁶ Johnson, Claire. US DOE “National Weatherization Training and Technical Assistance Plan” Weatherization Assistance Program. December 2009.

- Balance simplicity and risk management through offering “one-stop-shopping” for customers.
- Establish systems that fund loans and issue rebates in shortest possible time.
- Control for free-ridership through periodic market studies, consumer surveys and by tying popular measures to those more cost-effective measures that are less likely to be installed.
- Offer a mix of services and measures attractive to homeowners.
- Provide low-interest loans or financing as an additional, high leverage tool.

Program Design:

- Offer an attractive mix of eligible measures and integrated program services that include potential program drivers, but tie rebates for the most popular measures to those less likely to be considered and installed.
- Use a whole-building approach to achieve maximum energy savings.²⁷

5.2.7 US Department of Energy Weatherization Best Practices²⁸

Program Design: The U.S. DOE Weatherization Program targets low-income families and emphasizes improving both energy efficiency and safety. For typical low-income homes, weatherization programs are able to generate energy savings of approximately 35% of total electric and gas consumption and improve health and safety by eliminating energy-related hazards. Their process involves matching professionally trained crews with advanced technology in order to best determine which measures are appropriate for families.²⁹

Measures: Typical measures include:

- Installing insulation.
- Sealing ducts.
- Tuning and repairing heating and cooling systems.
- Mitigating air infiltration.
- Reducing electric base load consumption.

The professionally trained crews also perform health and safety tests, such as:

- Testing heating units and appliances for combustion safety, carbon monoxide, and gas leaks; assessing moisture damage;
- Checking electrical system safety;
- Replacing unsafe heating and cooling systems; and
- Installing smoke and carbon monoxide detectors.

Best Practices: Successful weatherization programs focus not only on typical measures but offer other home-safety improvements as well. Additionally, successful programs ensure that well qualified and trained professionals are available to install the most appropriate and advanced technologies to improve the efficiency of the home.

²⁷ National Energy Efficiency Best Practices Study . “Volume R4 – Residential Single-Family Comprehensive Weatherization Best Practices Report” Quantum Consulting, December 2004.

²⁸ <http://www.waptac.org/WAP-Basics/Weatherization-Plus.aspx>

²⁹ EERE Information Center. “Weatherization and Intergovernmental Program” DOE/GO-102010-3060. June 2010.

5.2.8 Recommendations Based on Best Practice Reviews

Economic Opportunity Studies, Inc. established a collection of recommended tasks which will allow for the successful integration of Energy Efficiency and WAPs. These tasks were determined by evaluation practices used by local and regional utilities in Massachusetts, Washington State, Wisconsin, Kentucky, New York City, Texas, New Hampshire, West Virginia, and California. A summary of the lessons learned – with recommended “Do’s” and “Do Not’s” – is provided in the following tables. Where GDS felt the recommendation applied to AE, either in support of current practices or as new practices to implement, GDS include an “AE” in the right hand column next to the recommendation.

GDS also compiled a table based on the studies summarized in the previous sections. For AE specific recommendations based on these findings, please see Table 5-4, Table 5-5, and Table 5-6 on the following pages.

AE WAP EVALUATION REPORT

Table 5-1: Weatherization Best Practices Recommendations – Program “Do’s”³⁰

Do's	What?	Why?	Where?
Structure			
	Choose a single model of utility-to-agency and programs statewide.		MA, WA, TX
	Consider one of three success models: - Utility \$ to one lead local agency w/ subcontracts - Utilities \$ to each local w/ identical program and state agency oversight - Utilities to state WAP agency		MA, NYC TX, OH TX, OH
Audit & Diagnostics			
AE	Adopt unified, statewide audit for government & utility that standardizes most measures and tests.	High cost of performing multiple tasks/or different audits in one home; multiple testing or cost standards.	MA
AE	Make that standardized audit broader than NEAT for measures and similar cost/benefit or ROI.	Confusion and differences in PUC registration or legislation. Multiple tests inhibit smart mix of funds.	WA
	Ensure discretion for some crew investment decisions.	Need choice of investments in various sources or DOE, also choice of various standard audits to adapt to buildings, conditions.	WA, MA
AE	Allow groupings of buildings to be eligible and all units to get treatment if ROI is positive for all together (i.e., not only unit-by-unit).	Indirect cost savings and or group efficiencies are a legitimate goal; community scale impact.	MA, NY
Goals & Results Measurement			
AE	Make all utility investments “fuel-blind.”		MA, WA, MV, KY, TX
AE	Include as program goals: 1) Sustainability/affordability/safety and protection (i.e., goals of client, not just those of utility). 2) The positive consumer added to the energy benefits. 3) The positive community impacts added to the energy benefits.	Fits WAP & LIHEAP goals and allowable expenditures. Reduces system's collection, bad debt and customer service costs.	WA, MA
Costs			
	Use (at least) expected retail costs as the standard.		WI
	Assure information-sharing with utility on program cost and customer fuel costs and bills.		MA, TX
	Include competitive salaries for crews and managers – and/or performance incentives (may be difference from CAA Pay system). Consider a salary survey.		WI, MA, TX
Management & Quality			
	Have a plan for managing growth & checking quality. Ensure utility information sharing on costs, important data on effectiveness, and value. Do not allow the utility investment, costs, or benefits to be a utility “trade	Partners must agree on changed rules and on form of reports, evaluation studies.	MA, WV, WA, VA

³⁰ Power, Meg. “Introduction to: Best Practices in WAP/ Utility Energy Efficiency Programs or: Lessons Learned the Long Way” Economic Opportunity Studies. December 2002.

AE WAP EVALUATION REPORT

Do's	What?	Why?	Where?
	secret.”		
AE	Build Quality Control into WAP control. Use program and utility procedures together.		MA, WA
AE	State program involvement builds support in WAP network and outside.		TX, IL, OH
	In implementation phase, include frequent, close communication among locals. Meet, write, include an attorney in the group, make adjustments as needed.		MA, NY
AE	Ensure regulators are involved in oversight/enforcement.		MA, TX, OH
AE	Conduct training for and provide follow-up contacts for multi-family building management staff. Cost effective element of utility programs.		TX, NY
Eligibility			
AE	Consider usage level as a factor along with income.	High usage closely related to high burden and high savings. Allowances for family special needs, provides authentic estimate of burden. Targeting most “in need” of investment requires significant sample size – i.e., large pool of possible homes.	IN, ME, OH
AE	Have flexible method of calculating incomes. Use deductions (Rx?, child care?). Use at least max federal eligibility level.		MA, ME, NY
AE	Allow groups/blocks/neighborhoods not just individual unit.	Economy of scale, overall higher benefit-to-cost ratio.	NY
Timing/Schedules			
	Include ramp-up period.	Training, hiring & equipment – utilities cannot anticipate as well as the WAP partner. You need time – plan for it. Get goals low enough for start-up of utility program; raise.	MA, WA, IN
AE	Use (and train) contractors for faster build-up.	Make adjustments simpler, deploys energy technology to private sector.	MA, PA
	Establish a bonus payment system for crew/contractor managers who meet or exceed goals.	Use utility funds.	TX
Installed Measures-Utility Programs			
AE	Be sure utility program is fuel blind.		MA, WI
AE	Include appliance replacement.	Major source of savings of gas and/or electricity.	All
AE	Include combustion air safety tests & repairs.	If not done, liability or walk-away policies are problems. DOE cannot cover these alone.	CA
	Include administration and direct costs in plan.	Utility partners must see “real” cost; an honest comparison to their own overhead will demonstrate the efficiencies in local agencies.	MA, WV, WA, VA

AE WAP EVALUATION REPORT

Table 5-2: Weatherization Best Practices Recommendations – Program “Do Nots”³¹

Do Not's	What?	Why?	Where?
Costs, Benefits/Results			
AE	Accept measures and/or expenditure ceilings per unit.	Short term cost orientation will yield poor results on energy savings test. Also, it skews DOE investments to accommodate utility accounting.	KY, WV, TX, WA
AE	Agree to traditional utility cost test of success (TRC, avoided costs, performance-based, etc.)	Low usage, like that of most of the poor, obviously predicts lower savings potential in plus and money. Residential sector savings are marginal anyway in utility programs. Many benefits accrue to the client, utility and community. All are a return on the investment.	All
	Allow inclusion of utility costs for “soft” elements of their work.	When calculating costs, utilities will allocate a portion of their PR, billing, and mailing costs if they can.	MA, NH, WA
	Accept utility reports of any costs without an agreed method of audited, shared accounts.	Your costs/investments will be documented. Require similar standards for all items included in utility reports to PUC/stockholders.	MA
	Forget cost of appliance disposal.	Utility must help cover.	TX
Measures			
AE	Require sharing with WAP per each unit.	Limits utility funds overall and by unit. Needs vary – some may need one utility measure. (WAP-Plus may permit/support only units).	KY, WA, OR
	Exempt utility from administrative cost share.	It's false costing; public money would have to support private – could be political issue too as well as DOE rules issue.	KY
	Require customer lease or payment on appliances.	High cost of collection information/billing even if customer can pay eventually is not cost-effective.	TX
AE	Use only NEAT or a checklist.	Added modules or selection tools are essential for mobile homes, large multi-family, appliance replacement.	WA, TX, OH
AE	Limit to heating and cooling measures.	Baseload offers big savings. Audit all options and then choose.	CA, TX, MA, OH, KY
Eligibility			
	Prioritize payment-troubled customers.	Use payment record as a warning sign weatherization may be needed. But just because these are the source of a problem the utility cares about does not assure they will be the best WAP candidate. Also, this will exclude those who sacrifice to make payments.	NY
AE	Forget high users as priority.	Utility collections problems clients may not be related to max energy savings.	MA, NY, ME, PA
AE	Promise too many completions.	Utilities fuel the need to serve the max. numbers of customers even if that limits savings per home. Could be it uses many contractors and gets low return.	CA, KY
AE	Restrict to DOE eligibility or to individual units only. Allow whole building or block.	Big efficiencies in administrative overhead, etc. covers the near-poor better, just assure ROI of whole project.	NY
Management			

³¹ Power, Meg. “Introduction to: Best Practices in WAP/ Utility Energy Efficiency Programs or: Lessons Learned the Long Way” Economic Opportunity Studies. December 2002.

AE WAP EVALUATION REPORT

Do Not's	What?	Why?	Where?
	Start a new state governing entity to new programs.	Big delays, long-lead times can mean failure.	CA, WA
AE	Sunset the program.	There's no incentive for utility to get it right.	MA
Information			
	Allow limits on shared utility data regarding all program costs (marketing, collections, purchases, etc.) and all benefits (customer service, etc.)	The expectation is that many more will be served; high users, LIHEAP participants, not only payment troubled should be provided by utility to agency for outreach along with stepped-up utility communications to these customers.	WA, MA
	Allow limits on shared utility data regarding participants.	The more restrictions on utility money, the more they should help outreach. Info-sharing/privacy policies should be in the Act, Order and/or rules, this avoids excuses.	MA
	Do not provide all other agency leveraging & other federal reports to utility.	They may not understand your program constraints and rules and/or decide how to run your job better.	WA, KY
	Do not take all the responsibility for getting info & doing outreach to find homes; utility info & communications work must be built in and paid for.		KY, WV, CO, WI

Table 5-3: Recommendations Based on Best Practice Reviews

Category	Details	GDS Recommendation	Source
Measures	The following measures are installed in WAP Programs: • Arlington: caulking; weather-stripping; insulation & repairs – ceiling, wall, floor; duct work; HVAC tune-up or repair • Dallas: caulking, weather-stripping, insulation, repair/new doors & windows, solar screens, duct repair, HVAC tune-up or retrofit • Oncor/Cooler House: insulation, duct sealing, caulking & weather-stripping, CFLs, water-saving devices, HVAC upgrades, solar screens, ENERGY STAR® appliances, window replacement • Princeton Study: Programmable Thermostats	AE currently installs most, if not all, of these recommend measures. GDS recommends that AE continue to offer this wide variety of weatherization measures to ensure that the needs of their customers are met.	Arlington, Dallas, Oncor, Cooler House, Princeton
Eligibility Preferences	The following households are given priority for participation: • With children under 6 • With elderly residents • With disabled residents • With highest energy cost & lowest income • With highest residential energy use	AE currently has a similar framework in place for targeting WAP participants. GDS recommends that AE continue to service these low-income households with the greatest need first.	Arlington, AACOG
Program Processes	The typical program follows the following procedures: home audit, installation of measures, final inspection.	GDS recommends AE continue to follow these three simple steps of program implementation.	AACOG
Program Goals	Project goal for participants to realize savings of 25-30% on their energy bills (gas & electric) during peak months.	GDS recommends that AE adopt this type of program goal that focuses on achieving a set level of energy savings per home weatherized. This will help to leverage the fixed costs of weatherizing each home by maximizing the savings for each project.	El Paso
Partnerships	Partner with local and/or national business (e.g., Home Depot) to help facilitate home repairs and weatherization services to WAP participants.	GDS recommends that AE look to leverage this type of support going forward as a way to help subsidize the costs of the WAP Program in the absence of DOE ARRA funds.	Florida
Training	Training is essential to a successful weatherization program as it ensures that quality work is conducted as part of the program and promotes better building practices outside of the program as well. It is recommended that to achieve high quality in work a program must (a) create solid work expectations, (2) define worker tasks, and (3) train and certify workers.	GDS recommends that AE work with their contractors to establish clear program guidelines and expectations – especially if program goals shift in the next iteration of AE's WAP Program. GDS also recommends that AE conduct regular training sessions to ensure that their partnering contractors are up to date on the latest in weatherization best practices.	National Plan

6 FINDINGS AND RECOMMENDATIONS

Based on the best practices review and specifically other measures that are installed by other weatherization programs, GDS commends AE on running an exemplary program. The following were identified as best practices in the research review of other regional and statewide WAP Program. It is recommended that AE consider each of the practices for possible inclusion in future WAP Program design efforts.

Expand on the current home sealing practices

Perform an air leakage test before and after performing the air sealing measures. Air leaks are capable of costing 10-25% more on home energy heating and cooling bills.

- 1) Caulking all building envelop penetrations – plumbing lines, fans & vents, cooling lines, electrical, fireplaces & chimneys, duct work, recessed lighting fixtures
- 2) Caulking around doors and windows
- 3) Electrical receptacle gaskets to decrease infiltration

Develop process controls and procedures around the DOE QWP Framework

- 1) The QWP defines how home energy upgrade work should be done
- 2) It also provides a prescription for communication, training, and the inspection of work throughout the WAP network
- 3) Helps establish more consistent quality installation procedures among many installation partners

Identify Possible Community/Regional/State Levering Partners to Stretch WAP funding

- 1) More homes weatherized
- 2) Less organization vulnerability to reductions in any single Weatherization funding source
- 3) Getting new partners increases the number of stakeholders with a vested interest in the Program who can advocate for the Program

APPENDIX A: PROGRAM MANAGER SURVEY INSTRUMENT AND SURVEY RESPONSES

Austin Energy Low-Income Weatherization Survey

Name of Electric Utility: _____

Date: _____

Interviewers: _____

Name: _____

Program: _____

Title: _____

Phone: _____

Email: _____

Hello, my name is Jeff Davis and I am working on a survey of residential low-income energy efficiency programs for Austin Energy in Austin Texas. My firm, GDS Associates, has been retained by Austin Energy to conduct this survey. Austin Energy is primarily interested in the program design and funding sources for Low-Income Energy Efficiency (Weatherization / Insulation) Programs conducted by other utilities. Austin Energy is interested in the program you are running currently. Let me start by asking about your program scope.

I. Program Scope and Goals

1. What is the program's scope (e.g., eligible measures, eligible participants)?
2. What are the program incentives?
3. Does your utility pay all costs for program participants? Please explain.
4. What is the program's annual budget for 2015 or the current fiscal period?
5. What is the utility investment in dollars for the latest completed fiscal year?
6. What is the program cost per participant for the latest historical year?
7. How would you describe the major goals of the program? (Short, Intermediate, and Long Term)
8. Is the program mandated by a regulatory authority or is it voluntary?
9. What are the funding sources for your program?
10. Do you leverage funds for your program with any national, state, or local agencies?
11. Does your program piggy-back in any way on any other program?
12. What percent of the program budget for the latest fiscal year was spent? (need to collect budget as well as actual spending for latest completed fiscal year)
13. What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)

II. Program Implementation

14. Describe the program delivery approach (outsourced vs. internal staffing) and the number of staff?
15. What is the average cycle time from start to finish for a project?
16. Does the program use a direct install or a rebate approach?
17. Describe any partnerships that each program has established.
18. Can you identify any specific program barriers and bottlenecks?
19. What have been the most successful aspects of the program to date?

III. Data Tracking & Reporting

20. What data is currently collected?
21. Pre-/Post-installation billing history
22. Baseline – blower door test results, etc.
23. Measures installed
24. Home characteristics (building envelope, appliance saturations, heating and cooling fuels, etc.)
25. Number of people in home?
26. Where is the data stored?
27. Do you use software from a vendor for data storage? If so, who?
28. How is the data used?
29. Are there any current QA/QC procedures in place? If so, please describe.

IV. Program Progress

30. Describe the oversight and governance for each program (committees, etc.).
31. What are your metrics of success for this program?
32. What is the energy saved per participant average you are seeing in the program?
33. Have the total dollars saving for the utility and participants been determined? If so, what are the total dollar savings to the utility and the participant?
34. How is the program performing given these metrics?

V. Program Marketing and Resource

35. Please describe the marketing efforts.
36. How many touch-points/interactions with customers does your program have?
37. Please describe the education and outreach efforts of this program.
38. Are these efforts productive (please site examples)?

VI. Conclusions

39. What do you think are the greatest strengths of the program Initiative?
40. What are the major weaknesses?
41. What improvements can be made to address these weaknesses?

AE WAP EVALUATION REPORT

Program Delivery Survey Questions: Numbers 1 – 12

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
UTILITY	What is the program's scope (e.g., eligible measures, eligible participants)?	What are the program incentives?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	How would you describe the major goals of the program? (Short, Intermediate and Long Term)	Is the program mandated by a regulatory authority or is it voluntary?	What are the funding sources for your program?	Do you leverage funds for your program with any national, state or local agencies?	Does your program piggy-back in anyway on any other program.	What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year.	What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)
Austin Energy	Must be at or below 200% of poverty guidelines Cannot exceed 2000 sq. ft., less than \$250k value of home Not doing Multi-family and mobile homes at this time, but have done in the past	100% free program to the customer – LI, Non LI goes through Home Performance	Yes	Budget of \$3.7M, 1200 homes, \$3000 per home	Budget of \$3.7M, 1200 homes, \$3000 per home	Intermediate – Budget of \$3.7M, 1200 homes, \$3000 per home Removal of ARRA – no refrigerator, no HVAC, limited minor repairs (infiltration related) Health and Safety – Texas Gas Service for Gas issues to repair AE will do minor work with resemble cost				Texas Gas Services – Partner on Gas issues Cooperative agreement with Austin Water Utility - faucet replacement issues, showerheads, aerators, commode repair and replacement, minor plumbing 6 member collation – All non-profit, Austin Urban League, Meals on Wheels, Habitat for Humanity – HRC Austin Based – Housing Repair Coalition, recipients of Rehab funds, refer homes beyond scope to HRC.		Texas Gas Services – Partner on Gas issues Cooperative agreement with Austin Water Utility - faucet replacement issues, showerheads, aerators, commode repair and replacement, minor plumbing 6 member collation – All non-profit, Austin Urban League, Meals on Wheels, Habitat for Humanity – HRC Austin Based – Housing Repair Coalition, recipients of Rehab funds, refer homes beyond scope to HRC.

AE WAP EVALUATION REPORT

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
UTILITY	What is the program's scope (e.g., eligible measures, eligible participants)?	What are the program incentives?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	How would you describe the major goals of the program? (Short, Intermediate and Long Term)	Is the program mandated by a regulatory authority or is it voluntary?	What are the funding sources for your program?	Do you leverage funds for your program with any national, state or local agencies?	Does your program piggy-back in anyway on any other program.	What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year.	What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	Membership made up of Community Service Block grant awardees. DOE Weatherization fund recipient. Work with approximately 38 out of 42 agencies who receive block grants. In the past 30 weatherization agencies, see TCHCA website. They work with 14 out of the 30. Run Oncor's Low-Income Weatherization Program and Texas AEP. Worked in past with Entergy. Serve as Program Administrator for WAP in Texas. Standards are set by PUC energy efficiency guidelines. Eligibility 200% of federal poverty guide, as specified by DOE. Piggy Back with LIEEP (125%). Measures - must save electricity, air duct infiltration, insulation, water savings measures, Heat Pump, Central A/C, Window Units, Refrigerator. Do dishwasher, clothes dryer.	Customers do not pay for any measures	All cost paid by TACAA	\$6,000,000 across all different agencies. Homes to weatherize - 1000	\$6500 for AEP and Oncor, PEC \$4000 limits (less appliances), \$344 Savings per Power Point	Short Term - Bring down utility spending, intermediate - energy saving habits, long - community service block goal self sufficiency	For IOUs - Mandated, 10% of EE budget on Low-Income Program; voluntary for other utilities	Utility Companies, Designated Federal Funds in State	Federal DOE, Advocacy wise - i.e. - Texas Rate Payer Organization, Texas Legal Services, Nationally - National Community Action Foundation (Energy Spin-off)	None	97-99% spent on IOU programs, 100% expected for PEC	

AE WAP EVALUATION REPORT

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
UTILITY	What is the program's scope (e.g., eligible measures, eligible participants)?	What are the program incentives?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	How would you describe the major goals of the program? (Short, Intermediate and Long Term)	Is the program mandated by a regulatory authority or is it voluntary?	What are the funding sources for your program?	Do you leverage funds for your program with any national, state or local agencies?	Does your program piggy-back in anyway on any other program.	What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year.	What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)
Bluebonnet Electric Cooperative	Support Action Committee Boards, Commit money to them. Measures decided by Action Boards	\$35,000 per year Energy Audit (90% commercial) Residential use less now because of online billing consumption data available, Mobile Apps, Online Tools, audits done by designated auditor for 3rd Party verification, meets USDA Funding requirements	Depends upon Action Board.	\$35,000 per year for Energy Auditors, \$30,000 for Community Boards	??	Community Boards - One stop shop, they are known in the community, Council of Governments - Burleson, County	Volunteer	Received funding from SHEAT Funds, unpaid capital credit, unpaid collections, refunds- Econ Development , Energy Efficiency. \$10,000	CAB take funds from Bluebonnet and leverage federal funds also.	See above. Texas Weatherization Program - referrals	Require reports from CABs that include number of members	
Pedernales Electric Cooperative	Low-Income – 200% below federal poverty level Measures – Air Infiltration, Central A/C 14 SEER or greater, HP 14 SEER or greater, Window Unit EER 10% greater than standard, Duct Improvement, Ceiling Insulation, Wall Insulation, Floor Insulation, ES Windows, Solar Screens, Water Heater Replacement, Water Heater Pipe Insulation, Water Heater Jacket, Faucet Aerators, Low-Flow Showerheads, CFL, ES Refrigerators	Aggregate money coming in through agencies In contract with TCHDA to provide funds 2014 – Max \$4,991 Min \$1590	Participant does not pay anything	\$100,000 – 2014, \$203,980 – 2013, remaining \$180,049 \$100,000 – Admin 33%, material and labor, program support cost	13 – 2014 average - \$3500 per participant	EE Program Goal – 20% of growth off-set by EE and DSM	Voluntary	Funded by unclaimed funds	No	TACAA – Texas Associate Community Action Agency	100% in 2014	State - TACAA

AE WAP EVALUATION REPORT

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
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Gainesville Regional Utilities	LEEP - Low-Income Energy Efficiency Program Making improvement to LI homes - lower energy consumption, not only electric Eligibility- Res Electric Customer, own and live in home, single family dwelling 1997 or newer or mobile home, originally 1993 because those home were saturated and when energy code was created. Receive assistance one time. HUD Low Income, 80% of median income - established by HUD (family income, average income) - family of 4 - 49,450 verified by 3rd party assistance authority Measures - HVAC Improvement, replace, repair or service, install insulation - ceiling attic, floor, not walls; water heaters gas or electric, weatherstripping or caulking, duct system repair, thermostats, 10 CFLs	Free to participant, estimates from various contractors - know guidelines, submit estimates to GRU, voucher authorized for each voucher, voucher is given to vendor is complete and then sent to GRU for payment. Contractors know average and bid accordingly. Contractors bid against each other.		2015 - \$469,050, 123.5 homes, \$3800 average, 2014 \$456,000 133 homes, \$3600	\$3800 on average	See Above - providing safe reliable homes with energy reduction, rehab low-income homes	Voluntary	General Budget, No surcharge	No. 2009 EWC ECB Budget	No. Last year offered incentive rebates through other EE programs. Borrowed money from other programs to stretch budget.	Spent more than budgeted, \$486k vs \$456	

AE WAP EVALUATION REPORT

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
UTILITY	What is the program's scope (e.g., eligible measures, eligible participants)?	What are the program incentives?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	How would you describe the major goals of the program? (Short, Intermediate and Long Term)	Is the program mandated by a regulatory authority or is it voluntary?	What are the funding sources for your program?	Do you leverage funds for your program with any national, state or local agencies?	Does your program piggy-back in anyway on any other program.	What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year.	What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)
Orlando Utilities Commission	Edibility - \$40,000 or less, 85% of total not to exceed \$2000. Mid-Term 40k-60 - 50%, Higher > 60K - Rebate applicable to each measure, access to utility contractor. Measures - Ceiling insulation, window foam, duct sealing repair, toilet, plumbing, irrigation repair, H & S, Electric and Water Utility, Showerhead, Aerators, caulking, weather-stripping, air filters, minor plumbing, fix toilets - minor repair, pipe insulation	See	See	500 Homes, \$750,000	2014 - \$705 per participant, 1/2 of 2015 budget, 209 participants, 90 lower income	Make available to any customer a turn-key retro-fit program for weatherization to lower utility cost	Volunteer	Ratepayer - come through general funds	Grant projects year, i.e. - ARRA, Right now - City Energy Project www.cityenergyproject.org	None	Last years - 24% lower than budget, spent 76%	
City of Tallahassee Utilities	Neighborhood Reach program - Small team imbedded in neighborhood, 3 installers - contractors, 3 utility employees (2 auditors, 1 Coordinator), set very specific arrival appointments. First energy auditor does audit. Doing this for 4 years. 6-7 house per day. 1 hour per home. Measures - weather-stripping - Doors, Windows, caulking gaps infiltration areas; Health and Safety as needed, change air filter, water efficiency measures - aerators, Low-Flow Showerheads, water heater temperature, water heater insulation, CFL, REACH Customers - Direct Install. Refrigerator Thermometer	All cost covered by utility		\$400,000 for installation service +	Participants - 6/7 homes per day, 5 days a week. 5700 homes since 2011, 1425 per year; \$500 per home all-in cost, don't manage towards cost per home	6300 MWh Savings per year, Customer Satisfaction, Networking with other department services	Voluntary	General Revenue from Utility	When opportunity arises, past Fire Prevention Grant	Works with other City Services groups to help revitalize neighborhoods, i.e. street lights, road repair	100%	See above

AE WAP EVALUATION REPORT

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
UTILITY	What is the program's scope (e.g., eligible measures, eligible participants)?	What are the program incentives?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	How would you describe the major goals of the program? (Short, Intermediate and Long Term)	Is the program mandated by a regulatory authority or is it voluntary?	What are the funding sources for your program?	Do you leverage funds for your program with any national, state or local agencies?	Does your program piggy-back in anyway on any other program.	What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year.	What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)
Sacramento Municipal Utility District (SMUD)	Eligibility - SMUD, 200% of Federal Poverty Guides, EAPR - Energy Assist Program Rate, Measures - insulation, attic sealing, infiltration, weather-strip sealing, pipe wrap, minor home repair, lighting - fan, CFL, ceiling fans, refrigerators, water measures - water heater wrap, low flow shower , faucets, HVAC repair and replacement as needed	No cost to customers		\$1,800,000 - Weatherization, Total Customers - 550,000 residential	1000 per year, Average Cost - \$1400 per customers	Reduce energy burden on LI customers, Measures with Energy Savings, Bills more affordable, reduce energy, house more comfortable	Voluntary	Built into rates, general funds	Yes, Local Agencies - Community Based Organization - add Federal dollars - they pay for additional measures + other measures not covered (dishwasher, LI Solar)	CAP, Other District Budget - mainly outreach / marketing	105%	See above
Los Angeles Department of Water and Power (LADWP)	Home Energy Improvement Program - Most of outreach to low-income customers Eligibility requirements - targeting marketing Measures - weather-stripping, Insulation, Window A/C, CFL, Low-Faucet, Water Heater Blanket, WH Pipe Wrap, attic insulation, Pre-blower door test, smoke and carbon monoxide alarms, toilet replacement, door and window repair and caulking	No Cost to customers		2013/2014 - \$12,000,000	Participant - 200 per month average; \$1000 on average, No Max, Insulation jobs \$2500	To serve residential customer - education to be more efficient, lower bills	Voluntary	Part of Energy Efficiency Budget, Surcharge on Customer Bills	Not currently	None	Can't answer	

AE WAP EVALUATION REPORT

Question #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
UTILITY	What is the program's scope (e.g., eligible measures, eligible participants)?	What are the program incentives?	Does your utility pay all costs for program participants?	What is the program's annual budget for 2015 or the current fiscal period?	What is the program cost per participant for the latest historical year?	How would you describe the major goals of the program? (Short, Intermediate and Long Term)	Is the program mandated by a regulatory authority or is it voluntary?	What are the funding sources for your program?	Do you leverage funds for your program with any national, state or local agencies?	Does your program piggy-back in anyway on any other program.	What percent of the program budget for the latest fiscal year was spent? Need to collect budget as well as actual spending for latest completed fiscal year.	What ties does your program have to other energy efficiency programs offered by federal, state or local government agencies (US EPA Energy Star Programs, Federal WAP, local CAPs, etc.)
JEA	Door to Door Direct install, education: measures - 6 CFLs, LED Night, HVAC Filter, Low-Flow SH, Toilet Flapper, Aerator, Health and Safety Thermometer, RF Coil Brass, 5 feet of pipe insulation, up to 2 tube of caulk for weather-stripping, two exterior door weather-stripping. Separate component for insulation - Choose neighborhood by consumption high winter peak consumption, must be consumption eligible, if no insulation or less than 4 inches - if meet both criteria they are legible for free attic insulation, budget for 125 homes; Eligibility - program since 2008 - partner with City Neighborhood and Housing to determine which neighborhoods would, income criteria 150% of poverty guidelines in ARRA era, 21 census tracks with 50% of population below poverty. Focus in on these communities. Do everyone in neighborhood if they are in census range. Door to door everyone eligible. 7th year - 16 of 21 census tracks complete. Need new way to identify customers. - Possible Census Block information from US Census.	All free to customer. Also have other programs with Rebate, which are open to Low-Income programs.	Conservation Fee on rates - all fee goes back to community for energy efficiency programs	\$540,000, \$125,000 for insulation included	1007 participants per year, \$450 per home, labor and material \$125,000 for insulation	Help customer to become more aware of how to manage utility bills. Really an educational program.	Voluntary	Conservation Fund	Not now, before with ARRA (900 Insulation jobs with ARRA)	Partner with Local CAP, Past partner with DuPont Foundation	100%	

AE WAP EVALUATION REPORT

Program Implementation Survey Questions: Numbers 13 - 18

Question #	#13	#14	#15	#16	#17	#18
UTILITY	Describe the program delivery approach (outsourced vs internal staffing) and the number of staff?	What is the average cycle time from start to finish for a project?	Does the program use a direct install or a rebate approach?	Describe any other partnerships that each program has established.	Can you identify any specific program barriers and bottlenecks?	What have been the most successful aspects of the program to date?
Austin Energy	Austin Energy manages the program, 3 FT and 2 temps Contract out weatherization work and final inspection Process to get service a. Submit application – mailed to customer b. Referral from HRC partner c. Utility Assistant Program – AE CAP – 43,000 eligible customers Next Steps Verify Income, Assign to a contractor, Joint Assessment between AE and Contractor to determine SOW, Contractor perform work, 3rd party contractor to validate work done properly, if done properly contractor paid and marked as complete		Direct Install	See Above	Number of contractors are HVAC companies, during peak HVAC time they push jobs to back of heap, as they are not as profitable. This causes delays in completion of work. Contractual requirement – complete work in 10 working days. Unrealized in 2014. Contract now changes to 20 working days. Refining process to transferring clients from CAP database to the AE Waiting list, new process	Ability to install attic insulation that previously had little or no insulation. Good customer feedback on this measure. 3-4 – Transition from previous program an effort \$1.5M collected from Customer Benefit Fund – Surcharge on bills Other money from AE operating budget
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	1 Program Manager (75%), 1 additional staff (75%), sometimes assistant (50%), most agencies hire subcontractors - agency staff does audit and works with sub-contractors to install measures	Application to Complete - many are complete within a month. up to 1 year, lengthily waiting list, agencies have significant service territory, ARRA cycle time much faster	Direct Install		Rural areas have trouble getting ES equipment, windows transported, equipment delays; changing rules on program	
Bluebonnet Electric Cooperative	Wesley - Program Manager Energy Programs, Alternative Energy; Action Grants - Econ Development Department, work shared		Direct Install - Most		Started this process with CAB two years ago, as efforts were being duplicated between Bluebonnet and CAB, seems to be working well thus far	
Pedernales Electric Cooperative	Outsources to TACAA, receive invoice form TACAA 1 employee at Coop only	No Idea	Direct Install	TACAA	TACAA – Can't proceed in 2015, not enough participation Reach out to another consultant to implement program in 2015	Weak performance, not much participation, not good link from TACCA back to Weatherization Member System Program

AE WAP EVALUATION REPORT

Question #	#13	#14	#15	#16	#17	#18
UTILITY	Describe the program delivery approach (outsourced vs internal staffing) and the number of staff?	What is the average cycle time from start to finish for a project?	Does the program use a direct install or a rebate approach?	Describe any other partnerships that each program has established.	Can you identify any specific program barriers and bottlenecks?	What have been the most successful aspects of the program to date?
Gainesville Regional Utilities	All internal except for installing measurement. 3 on staff, 4 during ARRA, now 3 FT. Pre and Post inspection. Schedule pre-inspection - document all equipment, age, size, provide list of recommendation, post inspection - go back out do a customer walk-through with education about all new equipment. They do a post blower door test as a requirement for all home. Require duct system 25cfm airtightness test, 15 Pascal.	3-4 months, once pre-inspection is complete, it takes 30 days to get estimates, 30 days to complete work, 30 days for post inspection.	Direct Install	Licenses HVAC contractors, Contractors, Handy man, Insulators, Assistance Agencies, Duct Testers	Ensuring applicants meet income requirements, provide all documentation needed, home ownership, applicants don't produce estimates in timely manner. Reaching applicants with disconnected phone numbers. Trying to schedule post-inspection. Leave customer with dignity, they are making most of decision.	Helping customer that really need services. Send cards and food. Helps renovate community
Orlando Utilities Commission	Internally Management, work done by contractor (5 auditors (internal) 2 staff (internal), 1 contractor (external)	2-3 weeks	Direct Install	No	Income documentation difficult and time consuming, auditors have mobile office for copies	Good customer feedback
City of Tallahassee Utilities	See above - 3 contractors, 3 staff, 1 office support - management	45 - 60 minutes	Direct Install	See above	Would be great to get more homes per day, but there are tradeoffs, i.e. - can't do as much in home, 6 homes per day vs 8 homes per day, guarantee appointment, operational inefficiencies	High Customer Satisfaction, less by material, more by professionalism of field staff
Sacramento Municipal Utility District (SMUD)	All internal except for installation of measure, Staff - 3 FT auditors, 1 Office Support, 1 PM, Contractors - Minimum of 3	6-8 weeks - Customer first contact - invoices	Direct Install	No	Demand far outweighs what is able to supply, always run out of funds by end of the year	Achieving energy savings and making difference in people's life
Los Angeles Department of Water and Power (LADWP)	Submit application that was targeted to low-income customers in mail, enter info into LADPW database, contacted by schedulers, energy audit complete focusing on offering, auditors work for DWP, Staff - 4 office staff, 40 people, everything done by DWP staff.	4 months	Direct Install		Language barriers, trust issues, don't remember they replied	Good response from mailings, high customer satisfaction and response from customers, training for union members
JEA	Door to Door, Out Sourced - Implementation Contractor - 1 internal , 3.5 outsourced	2 hours visit in home	Direct Install		Trust in low-income areas because of past bill delinquencies in the beginning. Doing better now. Now partnering with Community Development Block programs.	

AE WAP EVALUATION REPORT

Data Tracking Survey Questions: Numbers 19 – 28

Question #	#19	#20	#21	#22	#23	#24	#25	#26	#27	#28
UTILITY	What data is currently collected?	Pre-/post installation billing history	Baseline – Blower Door test results , etc.	Measures installed	Home characteristics (building envelope, appliance saturations, heating and cooling fuels, etc.)	Number of people in home	Where is this data stored?	Do you use software from a vendor for data storage? If so, who?	How is this data used?	Are there any current QA/QC procedures in place? If so, please describe.
Austin Energy	Joint-assessment Attic insulation, orientation of home for solar screen, carbon-monoxide and gas leak testing, No longer do pre blower door or duct blaster test		Post Blower Door only				Goes into the assessment form and then scanned into Salesforce.com		Determine scope and measures to be installed	3rd Party final inspector who reviews work done by contractors – inspects every home Internal QA/QC – random sample, contractors need some improvement, don't know goal of how many homes to check
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas		Agencies get pre-billing history to determine energy burden for waiting list ranking	Pre- and Post-Blower Door and Duct Blaster Test	Energy Audit for every unit, Central A/C - Run Manual J, follow ASHRE 62.2 Air-flow - sometimes have to install extra fans, Historical Commission - pre-1974 send information to Historical Society for approval	Audit - National Energy Audit Tool - NEAT, Mobile Home Energy Audit		Data Storage requirements - Report Homes weatherized to TDCHA			Yes, Federal Program, 1 person doing final expectation - Quality Control Inspection Certification (QCI) THCDA has not incorporated Quality Work Standards in Rules
Bluebonnet Electric Cooperative			Previous process included at least Pre blower door test							Texas Weatherization Program - Certified Contactor List, QC procedure from Texas WAP

AE WAP EVALUATION REPORT

Question #	#19	#20	#21	#22	#23	#24	#25	#26	#27	#28
UTILITY	What data is currently collected?	Pre-/post installation billing history	Baseline – Blower Door test results , etc.	Measures installed	Home characteristics (building envelope, appliance saturations, heating and cooling fuels, etc.)	Number of people in home	Where is this data stored?	Do you use software from a vendor for data storage? If so, who?	How is this data used?	Are there any current QA/QC procedures in place? If so, please describe.
Pedernales Electric Cooperative	NEAT Audit, kWh and kW reduction on Invoice	pre-/post-installation billing history –	Baseline – Blower Door test results , etc.	measures installed	home characteristics (building envelope, appliance saturations, heating and cooling fuels, etc.)	number of people in home	N/A	N/A	N/A	TACAA procedure – inspect 10% of weatherized homes
Gainesville Regional Utilities	See above	Pre and post billing collected	Post duct testing, no blower door test	Measures recommend	Yes, during pre-inspection		Paper collection and then enter in spreadsheet. Using Tablets to collect data now.	Internally design	Determine if there are any barriers, future changes in needed, any value in reduction in energy, review billing history	See Above
Orlando Utilities Commission	Automated tool	Collected Toilet GPFlush, R-values, Stripping condition, aerators or not, a/c coil condition	Will be adding pre-blower door, will check 20% blower door				Oracle Database - Managed Internally, just procured automated vendor to store information on the cloud			20% random selection verification - now, sliding scale for new contractors, 100% , 50, 20%, right vendor in place is key
City of Tallahassee Utilities	Don't collect measures				Demographics in Utility Database.		IPADs and Tablets for Contractors linked back to office			Previously - 5%, now 100% because of team in home at same time, QC from Supervisor, Weather-strip creating a solid seal
Sacramento Municipal Utility District (SMUD)	Too much	Pre and post billing	Pre and post required for Attic Seal last couple of year, safely test for gas homes	Dates installed, paid, etc.	Housing ownership		Internal Database and 10 year paper trail			10% checked by internal auditors

AE WAP EVALUATION REPORT

Question #	#19	#20	#21	#22	#23	#24	#25	#26	#27	#28
UTILITY	What data is currently collected?	Pre-/post installation billing history	Baseline – Blower Door test results , etc.	Measures installed	Home characteristics (building envelope, appliance saturations, heating and cooling fuels, etc.)	Number of people in home	Where is this data stored?	Do you use software from a vendor for data storage? If so, who?	How is this data used?	Are there any current QA/QC procedures in place? If so, please describe.
Los Angeles Department of Water and Power (LADWP)	Checklist of measures offered - review list, Hazard Standards	Billing History not collected	Pre-blower door test results				Database Updated, Use IPADs to enter data	Internal, one external		Crews have a lead to ensure that things checks all measures where installed correctly. No quality guide that they know of.
JEA		Don't track savings, measures not major energy savers. Do review pre and post	Insulation - 19% savings - 20-23% Savings, no blower door testing Insulation, inoperable HVAC, not thermostat, duct sealing				Stored in an Excel spread			Crew supervisor personally goes to home after work is done to review work for 12% of homes, JEA field inspector goes to different home additional 5-10% of homes, Annual invoicing review by program manager, telephone survey to determine customer satisfaction; insulation - done by one contractor and all checked by crew supervisor

Program Progress Questions: Numbers 29 –33

Question #	#29	#30	#31	#32	#33
UTILITY	Describe the oversight and governance for each program (committees, etc.).	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Have the total dollars saving for the utility and participant been determined? If so, what are the total dollar savings to the utility and the participant?	How is the program performing given these metrics?
Austin Energy	In need of improvement. Heavy political overtones associated with program. Seven city oversight committees involved in WAP. Low-income advisory task force.	See Below	Goals of program – Full expenditure of funds.		Number of homes weatherized Full Expenditure of the Funds Cost per home, Averaging (\$4000) Maximum of \$5500 per home Initially struggles – 4Q14, but first part of 15 and last month of 14 was stronger Increase expenditures – extra repairs not expected Almost all homes get same measures- \$1500 insulation job in 2012 now \$2300
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	Governed by Board of Directors, as agencies are. Governing Entity for Muni	Funds expended corrected, meeting faculty goals - kWh saved	Utilities - Only get credit for deemed savings,	\$1.65 benefits for every \$1.00 spent	
Bluebonnet Electric Cooperative		Metrics - Members served (better now with CAB), 70,000 members	Not Tracked		
Pedernales Electric Cooperative	Staff oversight, Manager, Manager VP	Participation – number of homes weatherization	2014 – 38,042 kWh through November Deemed Energy Savings 23.96 kW reduction	Not done for 2014, every year do cost effective analysis 2013 – Participant - Utility – Levelized Cost of energy savings – \$0.17 2013	Participant Test BCR – 1.92, PACT - .54 , Rate Payer Impact - .33, TRC - .54, Societal – 0.55
Gainesville Regional Utilities	All internal, take results to city commission for budget purposes, show results to council for more funds, also executive of GRU	Energy Reduction, Customer Satisfaction, kWh reductions in past as focus	average 1,752 kWh reduction per home	No, not getting any for utility, but customer is seeing \$263 per year savings	Yes, meeting expectation of executive staff and commission
Orlando Utilities Commission	Board of Commissioner to improve program and budget. Regular Annual update. Now in year 3. Mayor oversight.	Energy Savings, In-House M&V, \$0.15 Cost per kWh Saved - Pressure pan test to replace duct blaster	115,786 kWh Saved, 209 Participants, 554 kWh saved per household		Cost per kWh Saved, trying to go lower

AE WAP EVALUATION REPORT

Question #	#29	#30	#31	#32	#33
UTILITY	Describe the oversight and governance for each program (committees, etc.).	What are your metrics of success for this program?	What is the energy saved per participant average you are seeing in the program?	Have the total dollars saving for the utility and participant been determined? If so, what are the total dollar savings to the utility and the participant?	How is the program performing given these metrics?
City of Tallahassee Utilities	Internal Director, City Manager, Commissioner - Now less governance from City	Number of homes served, number of homes taking advantage of all each programs, weatherization is foot in the door, enrollment and participation		Not completed	
Sacramento Municipal Utility District (SMUD)	Approved by management, independent of city, state review	number of customers served, MW and GWh, # refrigerator installed	1000 per year homes, Refrigerator - 600, Overall Goal GWh - 1 MW - 0.5, 1000 kWh per home	No, doing impact and evaluation study this year	Always succeed
Los Angeles Department of Water and Power (LADWP)	Overall - Hipe Team to oversee process, issues, clarifications; Board of Water and Power Commissioners for funding and program management	Number of homes served - 250 per month, portfolio business plan - efficiency solution group for metrics	not readily available		Would like to ramp up more.
JEA	Steering committee over Customer Solutions	Do we spent 100% and 1007 jobs, 125 insulation jobs, customer satisfaction goals	Insulation - 19% for insulation only programs		100% for 6 years

Program Marketing Questions: Numbers 34 – 37

Question #	#34	#35	#36	#37
UTILITY	Please describe the marketing efforts.	How many touch-points / interactions with customer does your program have?	Please describe the education and outreach efforts of this program?	Are these efforts productive (please site examples)?
Austin Energy	ARRA – No marketing Going Forward - Focus and targeted to high-poverty density areas		Being developed	With exception of staffing levels. Most likely need to add temp staffing to meet PY15 goals. Meeting more to clarify own position. Documentation of work flows shared with internal and external stakeholders. Being received well.
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	Marketing done by local agencies, most are working with waiting list, 80-90% get recommendation from Utility bill assistance program		None	
Bluebonnet Electric Cooperative	Website, Education online, bill stuffers, use own energy data for review purposes - 1/2 of members using web presence	Monthly Energy Magazine, Texas Co-op Power , Social Media		Mobile Apps in low-income communities, only access mobile and not internet in some low-income communities
Pedernales Electric Cooperative	Website	Only Website, MAP agency	No education, some counties make person require energy audit classes to receive funds from county	Nope
Gainesville Regional Utilities	Direct mail, radio, community events, signage, news story Targeted mail - marketing company to identify low-income		Required to participate in walk-through of home during pre-inspection, educational material including Q&A, refrigerator tips, filter whistle	Yes. Program does not slow-down.
Orlando Utilities Commission	Evolving process - Marketing group reviews tracking reports and identifies measures behind target and markets to underperforming measures. Working on Segmentation scheme.	Multi-Channel, News Letter, Web-Site, Customer choose how they want to be communicated with online, bill insert, text messaging coming notification coming. Alerts and analytic test - Data Rapper.		Yes, they have been successful. Have piloted targeting marketing efforts. Will use targeting marketing in future.
City of Tallahassee Utilities	Truck wrapped in Neighborhood Reach program. Targeting Marketing to a specific neighborhood, not mass marketing. Kick-off event in community. Stay in community for 1 month. Preps the Buzz. Trying to get Buzz going.			

AE WAP EVALUATION REPORT

Question #	#34	#35	#36	#37
UTILITY	Please describe the marketing efforts.	How many touch-points / interactions with customer does your program have?	Please describe the education and outreach efforts of this program?	Are these efforts productive (please site examples)?
Sacramento Municipal Utility District (SMUD)	Don't do marketing because demand is too great, before - direct mail, outreach in community, community based organizations market program for SMUD			Yes
Los Angeles Department of Water and Power (LADWP)	Customer targeting - Low-Income Rate (household income) , Lifeline Senior Citizen Rate (age, disabled) Direct Mail Targeting marketing , 10,000 at a time, Website, Public Group Education, Word of Mouth, Bill Inserts		Bill Inserts, Bulk of outreach in mailers	Yes, good response to mailer, 10,000 3 or 4 per year
JEA	Not marketed because of Census Target neighborhoods.	Post Card and 2 door hangers	Schools, Community Groups Education, 2 hours in home for installation	3 -6 months in one neighborhood, 48-50% participation, 50% not covered

Conclusion Questions: Numbers 38 – 40

Question #	#38	#39	#40
UTILITY	What do you think are the greatest strengths of the program Initiative?	What are the major weaknesses?	What improvements can be made to address these weaknesses?
Austin Energy	Ability to provide EE measures to LI households that otherwise could not afford it.	Lack of functioning database to track progress, cost factors, communication between all parties, reminders, integration of forms into each step.	Full Implementation of Salesforce.com. Ability to track projects and measures installed.
Texas Association of Community Action Agencies, Program Administrator for Oncor and AEP Texas	Really helps save energy for those that need it the most. Touching stories - buy prescriptions because of lower bill		
Bluebonnet Electric Cooperative	Using Existing Avenues, Not recreating the wheel		
Pedernales Electric Cooperative	People reached benefit greatly, but not many reached	Not enough participation, agency bottlenecks	Reduced red tape associated with program
Gainesville Regional Utilities	Able to help LI customers, reduce in number of disconnects, less collectables, home up to safety	LI Renters - How to capture	
Orlando Utilities Commission			
City of Tallahassee Utilities			
Sacramento Municipal Utility District (SMUD)			
Los Angeles Department of Water and Power (LADWP)	Offer at no-cost to customers, provide service to all level of Residential Customers		
JEA		Lack of funds, How to expand program to cover all of service program	

APPENDIX B: WEATHERIZATION MEASURES USED BY DIFFERENT UTILITIES

AE WAP EVALUATION REPORT

WEATHERIZATION MEASURES INSTALLED - DECEMBER 2014

	Dallas County															Gainesville		
			City of	Alamor Area	Health &			Bryan Texas		A Cooler House	Pedernales	Oklahoma	Sacramento	Jacksonville	City of	Regional	Orlando	W
Measure	Austin Energy	CPS Energy	Arlington	Council of	Human	City of El Paso	City of Garland	Utilities	Oncor- Texas	Houston	Electric	Weatherizatio	Municipal	Electric	Tallahasee,	Utilities	Utilities	
				Governments	Services						Cooperative	n Program	Utility District	Authority	Florida	Commission	Commission	
Attic Insulation	X	X		X	X	X		X	X	X		X	X	X	X	X	X	
Wall Insulation		X	X	X	X	X		X	X	X	X				X			
Ceiling Insulation			X		X	X	X		X	X	X				X			
Floor Insulation			X		X	X			X	X	X				X	X		
Solar Screens	X				X		X	X	X	X								
CFL Replacements	X	X							X	X							X	
LED Replacements	X																X	
Faucet Aerators	X								X	X								
Showerhead Replacement Faucets	X								X	X								
Commode Conservation	X																X	
CO/Smoke Detectors/Alarms	X																	
Air Infiltration	X																	
Duct Sealing Repair/Replacement	X	X	X		X		X		X	X	X	X		X	X			
Window A/C	X																	
Weather-Stripping		X	X		X	X	X		X	X	X	X	X		X	X	X	
Caulking		X	X		X		X		X	X	X	X				X	X	
Patching Holes in Building Envelope			X								X					X		
Tune-up/Repair/Replacement of Inefficient Heating/Cooling Systems			X	X	X	X			X	X	X	X	X		X	X	X	
Repair/Replace Windows					X		X	X	X	X						X	X	
Repair/Replace Doors					X		X									X	X	
Sealing Plumbing Penetrations							X											
Energy Star Appliances									X	X								
Water Heater Wraps															X			
Repair/Replace Water Heater																X	X	
Roof Replacement																	X	
Plumbing Repairs																	X	
Pipe Insulation																		

2014 Comprehensive Housing Market Analysis

City of Austin

Final Report

Final Report

July 31, 2014

2014 Comprehensive Housing Market Analysis

Prepared for

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Appendix A. Housing Reports by ZIP Code

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Background

In early 2014, BBC Research & Consulting (BBC) was contracted by the City of Austin's Neighborhood Housing and Community Development Department to update the comprehensive housing market study conducted in 2008. The 2014 update grew out of an interest to provide a current assessment of needs in Austin's rapidly changing housing market—as well as to examine needs at a smaller geographic level.

The 2014 Housing Market Study (HMS) and the 2008 study share many elements: an identification of the greatest housing needs in Austin now and in the future; a quantification of needs; and a review of existing and potential policies, programs and strategies. The 2014 HMS also incorporates a ZIP code level housing model that provides indicators of housing supply and affordability.

The 2014 study was informed by a significant amount of work conducted by the city's Community Development Commission (CDC) Affordable Housing Siting Policy Working Group ("Working Group"). The goal of the Working Group—comprised of representatives from neighborhood associations, community housing organizations and the CDC—was to develop recommendations to help achieve the common vision of creating and preserving affordable housing throughout Austin to meet the needs of extremely low and moderate income residents.

Many members of the Working Group recommended that in its next Comprehensive Housing Market Analysis and Analysis of Impediments to Fair Housing Choice (AI), the city establish geographic goals for affordable housing. To that end, the 2014 HMS includes development of a ZIP code level (proxy for neighborhood level) model for the needs analysis.

Relationship to *Imagine Austin*

One of the goals in *Imagine Austin*—the city's recently adopted comprehensive plan for land use and growth—is to develop and maintain household affordability throughout Austin. *Imagine Austin* includes many strategies for implementing this goal, from encouraging compact development to reducing housing barriers for people with special needs to promoting affordable housing.

The 2014 HMS can be used to inform the city's continued land development code reform efforts by providing both a quantitative estimate of housing needs, as well as resident-driven information on housing preferences and challenges. Altogether, this information should be used in future phases of code reform to promote and advance the conversation around affordability.

Methodology

The primary data and information sources used in the 2014 HMS include the following:

- Population and household levels and projections from the city demographer;

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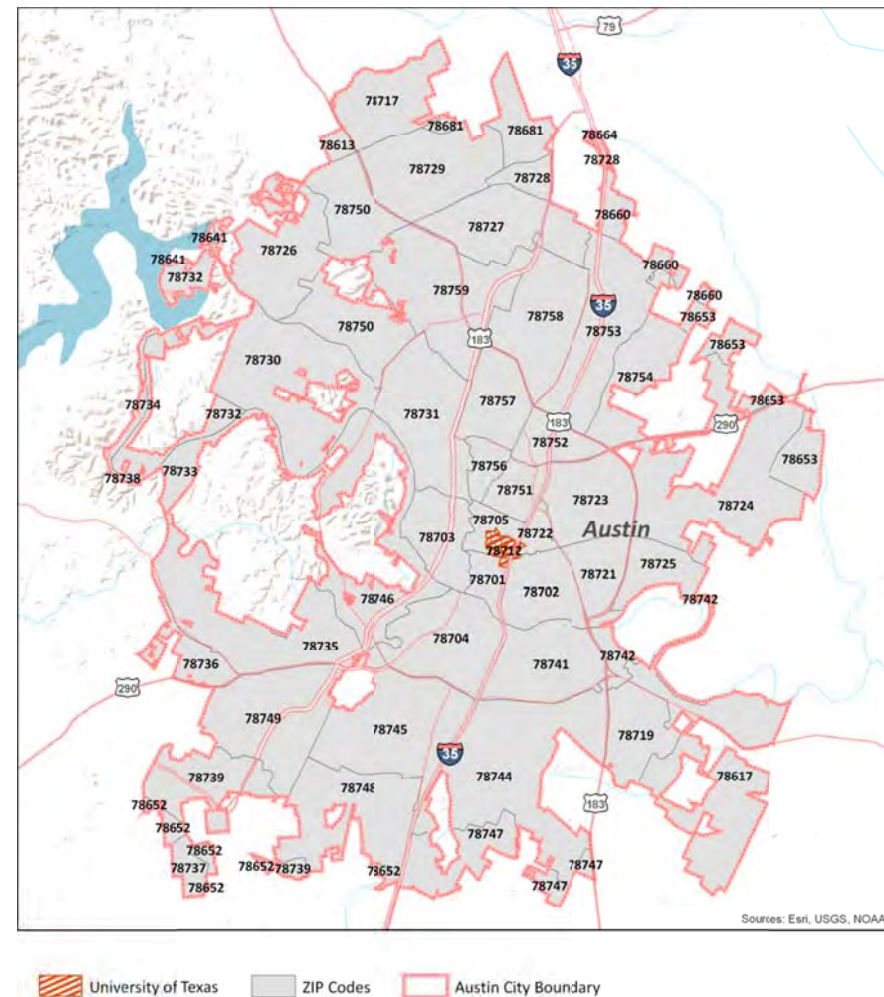
- Social and economic information from the U.S. Bureau of the Census' 2010 decennial survey and 2012 American Community Survey (ACS);
- Employment data from the Bureau of Labor Statistics and Creative Austin report;
- Rental data from Austin Investor Interests;
- Data on subsidized rental units from the City of Austin and the Housing Authority of the City of Austin (HACA);
- Data on home resales—2013 and historical listings—from the Austin Board of Realtors (ABOR); and
- A significant public input process that included a survey of more than 5,000 residents, and in-commuters; focus groups with 57 low income residents; and interviews and meetings with more than 70 stakeholders and residents.

Geographic Level of Analysis

This study focuses on trends and needs within the boundaries of the City of Austin. Where data were readily available, Austin's demographic and housing trends are compared with surrounding communities'.

Demographic and housing market data are presented and analyzed at several geographic levels: 1) For the city overall, 2) by ZIP code, and 3) by Census tract. The housing model developed for this HMS shows data and trends at the ZIP code level.

Figure ES-1.
City of Austin by ZIP Code



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Use in Policy Making

A top level goal of the HMS was to provide a quantitatively-sound approach for setting numerical targets for the city, specific geographic areas and for targeted populations. This HMS achieves these goals through:

- An updated rental housing gaps analysis, based on current data that compares the supply and demand of rental housing and identifies the current shortage of affordable rentals. This analysis can be found in Section II, beginning on page 24.
- The ZIP code level housing supply and affordability model in Appendix A shows how well each ZIP code provides housing opportunities for low income renters, low to moderate income homeowners, workers in key professions and housing near transportation. The model uses a combination of current housing market data, surveys of residents and Census data to create a comprehensive picture of housing options by ZIP code.

The ZIP code level model will be an important tool to inform siting policy strategies and geographic dispersion goals. Both the gaps model and ZIP code level affordability data should be used to inform and monitor affordable housing targets.

- The housing needs of targeted populations were primarily identified through a robust community survey and focus group participation process, the results of which are presented in Section III and IV.

Acknowledgements

BBC would like to thank the following generous contributors to the study, who provided data, information and time toward completion of the study:

- City of Austin Neighborhood Housing and Community Development Department;
- Austin Board of Realtors (ABOR);
- Ryan Robinson, city demographer; and
- The many participants in the focus groups and public meetings held throughout the study (names withheld for privacy) and the more than 5,000 residents who completed the survey.

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Report Outline

The next section of the Executive Summary reports the primary findings from the 2014 HMS. The balance of the full report is made up of the following sections:

- **Section I. Demographic Context.** This section provides information on population growth, household characteristics, income and poverty and employment.
- **Section II. Housing Market Gaps.** This section provides an overview of how the city's housing market has changed since 2007. It includes current data on housing prices and a recalculation of the housing gap, or shortage, in affordable units.
- **Section III. Housing Choice.** This section explores the housing choices made by Austin residents and in-commuters. It is based on the results of the resident survey, public meetings and interviews.
- **Section IV. Housing Needs.** This section discusses the needs of resident groups that typically face challenges finding housing or have specific housing needs. These include low income renters and homeowners, seniors, persons with disabilities, persons experiencing homelessness and large families, as well as students.

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Summary of Needs: 2014 Housing Market Study

Since 2008, when the last comprehensive housing market study was conducted, Austin has grown by 100,000 residents, experienced a housing market downturn and is in the midst of a housing market revival, particularly for rental housing.

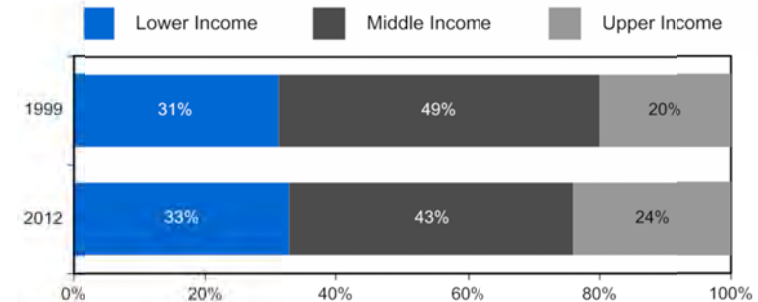
This activity has led to a changed city in many ways—and, somewhat surprisingly, an unchanged city in others.

City residents are older overall, due to the shifting of the Baby Boomers into older age cohorts and growth in Baby Boomers and seniors. There are proportionately fewer married couples with children in the city. And, although Austin became a “majority minority” city due to the growth of Hispanic residents, it experienced a numerical loss of its African American residents.

The most prominent shifts in Austin the past decade have been income-based. The city gained both upper income households and persons living in poverty. Poverty rose overall and for all age groups except for seniors. Child poverty increased substantially, from 17 percent in 2000 to 30 percent in 2012.

As shown in Figure ES-2, the proportion of middle income households declines between 1999 and 2012 by 6 percentage points.

Figure ES-2.
Proportion of Households Lower, Middle and Upper Income, City of Austin, 1999 and 2012



Note: Lower income roughly approximates less than two-thirds of the national median income and upper income roughly approximates twice the national median income. These income thresholds are consistent with the way that Americans self-identify as members of socio-economic classes. (See Pew Research report, "The Rise of Residential Segregation by Income.")

Source: U.S. Census, 2000, 2012 ACS and BBC Research & Consulting.

The increase in poverty has been recently countered by very strong growth in high income renters earning more than \$75,000 per year. Between 2007 and 2012, high income renters grew by 15,000—compared to about 1,000 low income renters, earning less than \$25,000 per year. The income distribution of Austin’s homeowners changed little.

The strongest employment growth during the past decade has mostly occurred in moderate to low paying jobs. Of the 100,000 new jobs in the Austin MSA, 36,000 were in the Education and Health Services industries, which pay about \$44,000 per year. Another 26,000 jobs were in the low paying leisure and hospitality industries, paying less than \$20,000 per year. Workers in these professions struggle to find homes to buy and rent in Austin, as discussed below.

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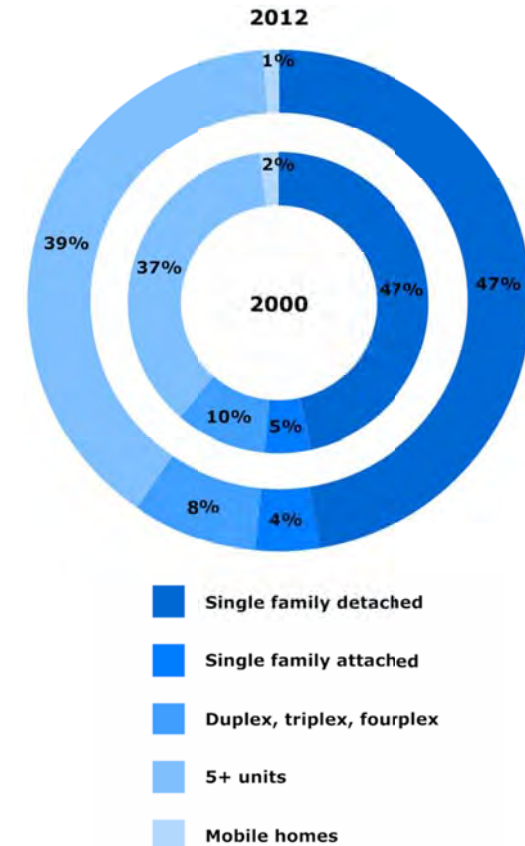
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Demographic impacts on housing demand. The demographic changes experienced since 2000 have had varied impacts on the housing market:

- Homeownership has been unchanged at around 45 percent.
- Housing types have shifted only modestly, toward multifamily/apartment developments (now 39% of all units) and away from single family attached and duplex/triplex/fourplex units (12% of all units).
- The pool of high income renters has invited the development of additional market rate, higher priced rentals.

**Figure ES-3.
Type of Housing
Units, City of Austin,
2000 and 2012**

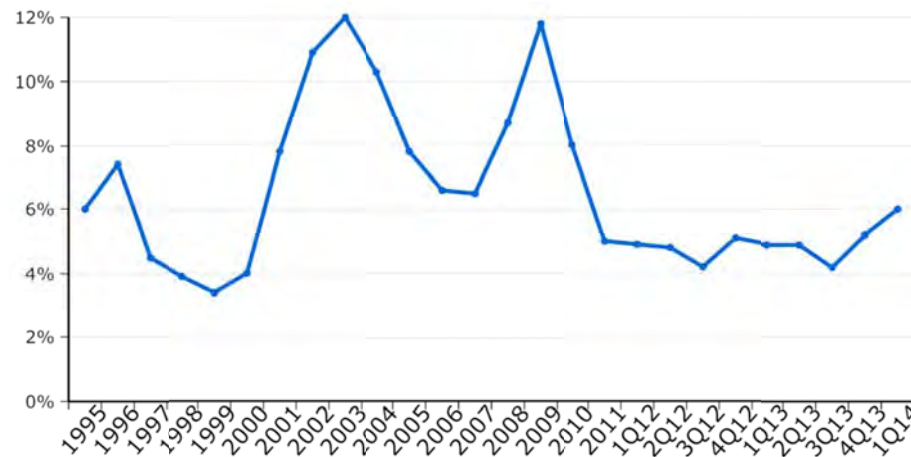
Source:
U.S. Census, 2000, and 2012
ACS.



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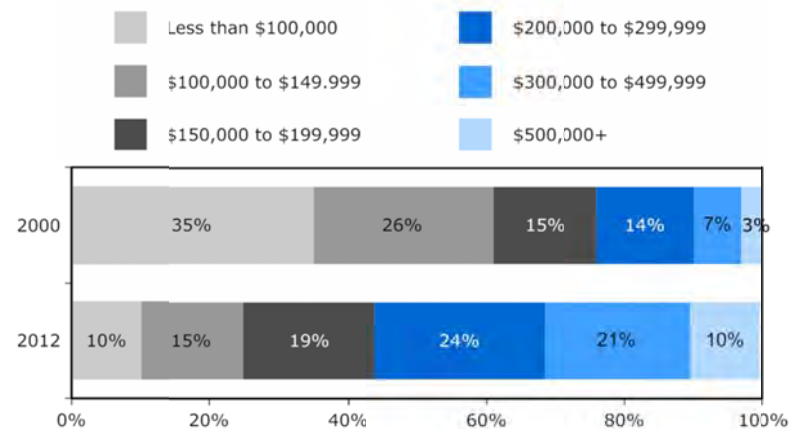
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Figure ES-4.
Multifamily Vacancy Rates, Austin MSA, 1995-1Q14



Source: Austin Investor Interests.

Figure ES-5.
Shifts in Home Values, Austin, 2000 and 2012



Source: U.S. Census, 2000, and 2012 ACS.

- Competition among low and moderate income renters for non-luxury rentals has increased, pushing vacancy rates down to record low levels as shown in Figure ES-4.
- As shown in Figure ES-5, home values have shifted toward pricier homes, with 31 percent valued at more than \$300,000 in 2012 versus 10 percent in 2000.
- Although counterintuitive, between 2007 and 2013 it became easier for renters to find affordable homes to buy, solely due to drops in mortgage interest rates. Yet affordable, for sale housing became more concentrated geographically. These concentrations are correlated with many of the strongest areas of residential growth, mostly located on the city periphery, away from job centers.
- Affordable housing to buy is also more likely to be in poor condition: 17 percent of homes affordable to renters earning less than \$50,000 were in poor or fair condition, compared to just 9 percent of all homes on the market.

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Residents' views on market changes. Changes in the housing market as told by Austin residents reveal a dynamic that can get lost in data analysis alone:

- Many Austin residents made economic trade-offs to live in the city: 69 percent of homeowners paid more for their home to live in Austin. Sixty-six percent of renters choose to rent and live in Austin rather than own outside of the city.
- Overall, half of renters and 28 percent of owners pay more than 30 percent of their gross income toward housing costs and are “cost burdened.” Cost burden is much higher for low income residents, with 69 percent of renters and 53 percent of owners experiencing cost burden.
- More than one-fourth of Austin residents have sought additional employment to pay for housing costs. Thirty-one percent of renters have gone without health care to afford housing.
- Nineteen percent of low income owners think they may need to move in the next five years, mostly because of increased property taxes. Nearly 60 percent of renters plan to move, mostly to find less expensive housing.

Resulting housing gaps. A gaps analysis—a comparison between the supply of housing at various price points and what households can afford—helps define the extent of housing needs. It also provides a benchmark against which needs can be measured over time.

This “snapshot” is shown in the figure on page 9. As the figure illustrates, the gap in housing supply has widened for renters but not for owners since 2008. Specifically:

Renter gap. There are 60,000 renter households earning less than \$25,000 per year—and just 19,000 affordable rental units to serve them. This leaves a shortage of 41,000. This gap is based on 2012 incomes and rental pricing.

A 2014 gaps based on first quarter rental pricing estimates decreases the supply of affordable rentals by 7,000, putting the rental gaps at around 48,000.

Increase in Rental Gaps based on 2014 Rental Prices

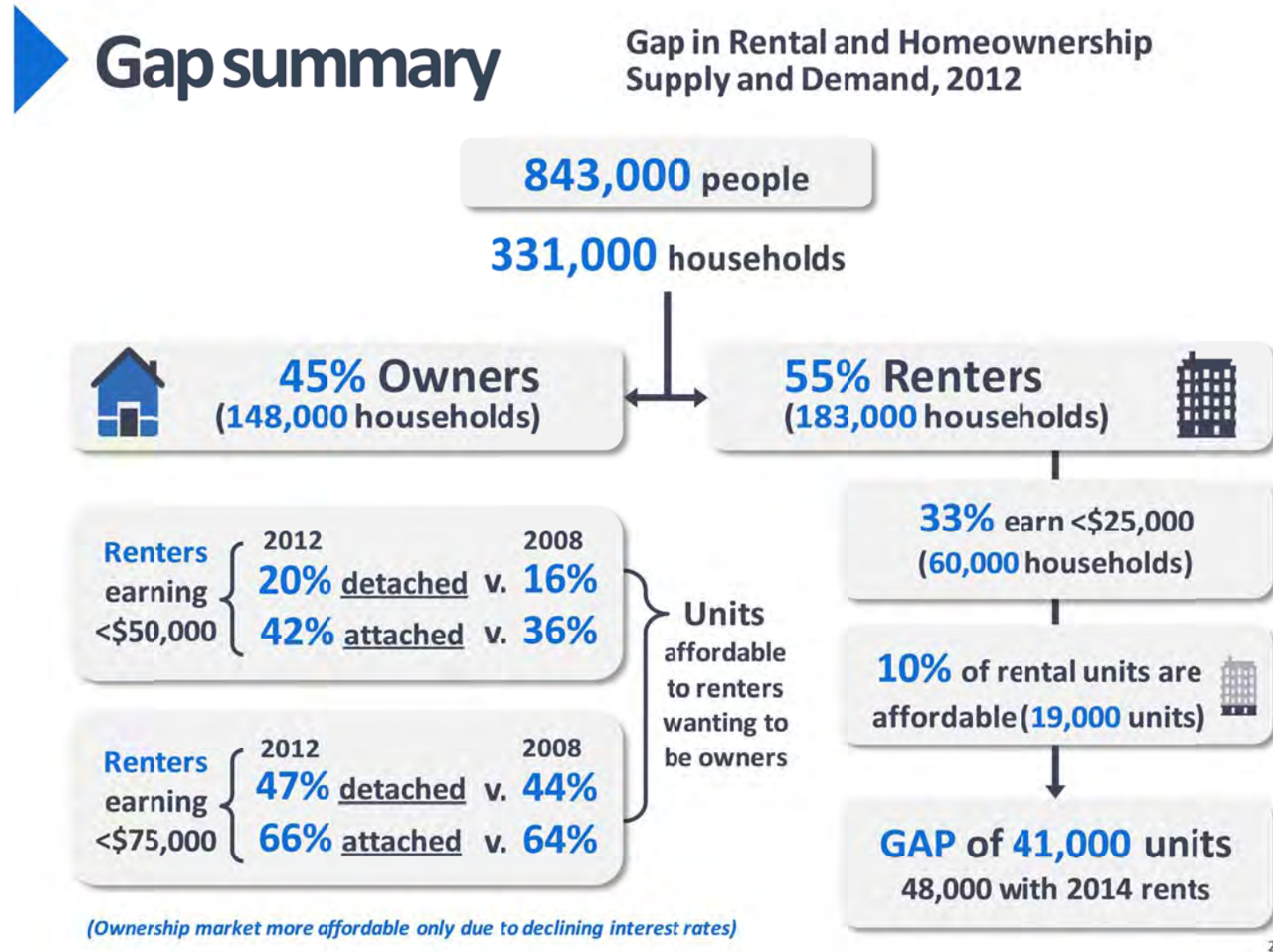
	<u>2012 Gap</u>	<u>2014 Gap</u>	
Renters earning \$0-\$25,000	40,924	47,698	6,774

Source: BBC Research & Consulting housing gaps modeling.

It is important to note that without the city's investment in creating and preserving affordable rental properties, the rental gap would be larger by as many as 1,000 units.

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Source: BBC Research & Consulting housing gaps modeling.

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Homeownership gap. The gap in homeownership is measured by comparing the proportion of renters at various income levels with the proportion of affordable units for sale. As shown in the gaps figure on page 9, the proportions of affordable homes have increased for both renter income categories and for both detached and attached housing.

Falling interest rates were the primary reason why ownership opportunities were preserved for renters looking to buy. In 2008, a household earning \$50,000 could afford a home priced at \$160,000 (with a 5% downpayment and an interest rate of 6.5%). In 2014, the same household, earning \$50,000, could afford a home priced at \$183,000 (with the same 5% downpayment) because interest rates dropped two percentage points, to 4.5 percent.

What if interest rates hadn't changed? Homeownership opportunities would have declined from 2008 to 16% of units for renters at < \$50,000 (v. 21% in 2008) and 43% of for renters at < \$75,000 (v. 49% in 2008).

Despite this relative increase in homeownership affordability, renters earning less than \$50,000 per year have very limited for-sale options. Among the homes they can afford, more than one-quarter are attached properties (condos, townhomes, etc).

The market is particularly tight for renters earning less than \$35,000 per year: 46 percent of all renters in Austin earn less than \$35,000 per year but only 9 percent of homes on the market are affordable to them.

As was the case in 2008, renters earning \$75,000 are relatively well served by the for-sale market.

Top housing needs. The top housing needs in Austin, identified through the quantitative and qualitative analysis conducted for the 2014 HMS, include:

- A shortage of deeply affordable rental units (primarily those renting for less than \$500/month) for renters earning less than \$25,000 per year.
- Geographically limited housing opportunities: 1) Affordable rentals are scarce west of I-35, and 2) Homes to buy for \$250,000 and less are increasingly concentrated in northeast, far south and southeast Austin.
- Rising housing costs in a handful of neighborhoods that are redeveloping, which could cause long-time residents to seek more affordable housing elsewhere.
- A growing need for affordable housing near transit and services—to enable seniors to age in place, to provide a wider array of housing choices for persons with disabilities and to mitigate the financial impact of rising transportation costs.

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Recommendations

Since the 2008 HMS, Austin has worked hard to secure additional funding for affordable housing in the form of a General Obligation (GO) bond to support affordable housing projects. Past funding from a similar GO bond was used to construct new and preserve housing for the city's most vulnerable residents—many with very low incomes, some who were formerly homeless and some with special housing needs. This type of flexible funding, which can be deployed quickly and addresses many of the greatest needs in the city, is an irreplaceable tool in a fast-moving housing market where federal support is diminishing.

The city is also in the process of revisiting its land use regulations as part of CodeNEXT. This effort will examine potential barriers to creating a diverse set of housing opportunities for a mix of residents.

These two very important tools—flexible funding for affordable housing and reduction of regulatory barriers—put Austin far ahead of many cities nationally who are struggling to address affordability needs.

These efforts also put Austin in a unique position of being able to focus on making the best use of other resources to further address housing needs. These “untapped resources” include:

- Public private partnership opportunities, and
- Public assets, particularly land owned by the city that is currently underutilized.

The city should also move quickly to adopt the easiest regulatory fixes recommended by the diagnosis process of CodeNEXT, explore additional property tax relief options for homeowners and market attached units as an affordable housing alternative.

Finally, we recommend that the city establish a target goal for affordable housing and manage all programs and policies to that goal.

Our specific recommendations follow, beginning with the easiest fixes—modifying regulations to remove regulatory barriers.

Adopt quick fixes for regulatory barriers. *Imagine Austin* developed a list of land development code barriers to creating an affordable Austin. Many of the recommendations require substantive changes to regulations—and/or additional study of the impacts—but some could be achieved rather easily. Waiting to adopt all of the changes may mean a missed opportunity to create affordable housing.

Regulatory “quick fixes” should be employed now, to take advantage of opportunity to create affordable units.

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In our opinion, these “quick fixes” should include the following.

Modifications to accessory dwelling unit (ADU) regulations.

- Reduce the minimum lot size for homes with ADUs.
- Allow a wider variety of ADU types—attached to or within less than 15 feet of the primary dwelling unit.
- Allow lower parking requirements for ADUs, especially in older neighborhoods built before parking requirements were imposed. Do not impose additional parking requirements for the primary dwelling unit if they do currently exist and were not required at the time of development.
- Allow more flexibility in driveway requirements for ADUs, particularly in older areas where lots cannot accommodate the requirements.

Improvements to the development process.

- Begin the process of strengthening departmental coordination to streamline the development approval process for affordable housing.

One of the strongest developer incentives to build affordable housing—fast track approval—can only be effective with a streamlined development approval process.

- Institute fast track development processes, beyond the SMART housing program, for units that contain a target proportion of affordable units (not cash-in-lieu units).

- Waive impact fees for developed affordable units, beyond SMART Housing units, up to an annual maximum subsidy.

Expand public-private partnerships. The private sector is a very important partner in affordable housing development. The city has a number of development incentives and agreements to encourage the private sector to build affordable housing—yet it could do more, by asking greater contributions from developers when they receive expanded entitlements, for example, through rezoning and density bonuses.

In the current environment, in which housing prices are rising and private sector developers are eager to meet growing demand, it is appropriate to ask them to be a stronger partner in affordable housing creation.

An in-depth review of the various aspects of the development agreements and incentives offered by the city was beyond the scope of this study. Stakeholders frequently mentioned the opportunity to improve these programs to make them more transparent and achieve greater affordable housing contributions. For example, the city could:

- Make the density bonus and developer entitlement programs consistent with current needs. This could involve modifying affordability targets (lower MFI for rental units to match the needs in the gaps analysis), acceptance of Section 8 and other similar vouchers (required), cash in lieu fees (raised) and consistent onsite or offsite options. A proportion of units should also be required address the need for larger,

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affordable units to accommodate low income families, who have very limited options in the current rental market.

- Raise cash-in-lieu (CIL) fees. The CIL fee should be comparable to what it costs a developer to build, market and rent or sell an affordable unit.
- Include the option of redeveloping and deed restricting existing housing in more affordable and/or gentrifying areas to satisfy the developer obligation to create units or pay the CIL fee. This helps improve the condition and preserve affordability of housing stock of existing low income owners and renters.

We also recommend the city consider two additional types of public-private partnerships to help address affordable housing needs: Community Development Financial Institutions, or CDFIs, and land banking.

- **CDFI.** A CDFI is an alternative type of bank used nationwide to address lending needs that traditional banks cannot. Austin has CDFIs that serve a variety of needs, but none functions solely as a lender to private and nonprofit affordable housing developers. These institutions, which are partnerships between traditional banks and the public sector, make loans at a subsidized rate with a quick turnaround, enabling developers to better compete with investors. This tool is especially valuable in hot housing markets.

The Federal Deposit Insurance Corporation (FDIC) recently published an article, geared toward financial institutions,

about the value of partnering with CDFIs to satisfy their Community Reinvestment Act (CRA) obligations.¹

- **Land bank.** Making public land available for residential redevelopment is one form of a land bank (such land is already in a “bank” through city ownership). Another version that is being more commonly used is created through public private partnerships, including through foundations. Seed money and organizational support for the land bank is provided by the private sector. In return, the land bank may prioritize acquisition of land for the development of workforce housing, housing along transit corridors, housing to serve public school teachers and workers, etc.

Utilize public land. Making better use of land—particularly that which is underutilized and ripe for redevelopment—may be one of the most valuable contributions the city can make to addressing affordable housing challenges.

These do not have to be large parcels (i.e., Mueller). City-owned infill parcels, near existing services and in neighborhoods that are at-risk or experiencing gentrification, would be ideal for mixed-income residential developments.

Public land is also a tremendous asset for expanding land trust ownership models, which achieve a greater level of homeownership affordability than any other product.

¹ <http://www.fdic.gov/consumers/community/CDFI/index.html>

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Explore additional property tax relief for low income owners. Rising property taxes citywide and especially in gentrifying areas is a top concern of residents. Low income owners are reluctant to make needed improvements to their homes, fearing that this will lead to increased taxes that they cannot afford to pay.

The city should continue to explore options for property tax relief, including how low income owners can be absolved of rising taxes when needed improvements are made.

Consider preservation initiatives. A study conducted during the HMS, *Taking Action: Preservation of Affordable Housing in the City of Austin*, contains a number of recommendations to preserve existing affordable housing stock in Austin. These initiatives—in addition to many of the above recommendations (e.g., land banking)—could provide the foundation for a more aggressive preservation strategy. Preservation efforts should focus on neighborhoods that have traditionally been home to low income residents and workers, have experienced strong price increases and are in close proximity to low wage jobs.

Encourage a broader use of neighborhood infill and design tools in neighborhood plans. The survey conducted for this study showed that a clear majority of homeowners—and one in four renters—live in single family detached homes. Just 4 percent of homeowners live in duplexes/triplexes/fourplexes and 5 percent live in a condominium. Only half of renters live in apartment buildings.

Creating attached home alternatives for both homeowners and renters would help broaden the choices of affordable products to buy and rent.

CodeNEXT will examine barriers to developing such products in the city; this should include limitations on splitting large lots and rezoning underutilized commercial properties to accommodate “missing middle” housing products (e.g., duplexes). The city can facilitate this process by helping neighborhoods understand the benefits of these alternative products, demonstrating how they are used successfully in peer cities and how design features can be used to integrate these products seamlessly into neighborhoods.

Set a citywide affordable housing goal. Establishing a citywide goal for housing affordability would institute a citywide effort to preserve existing income diversity.

This goal should be targeted to areas of need identified in this market study—that is, rental units affordable to households earning less than \$25,000 (addressing the rental gap) and ownership units targeting workforce (earning less than \$50,000 per year). The purpose of the goal would be to maintain or improve the current proportion of affordable units for renters earning less than \$25,000 (at 10% in 2012) and homes to buy for workforce (priced less than \$183,000 and 24%).

Ten percent is a common goal used by other cities that have embraced affordable housing targets. A 10 percent goal is also consistent with many existing city programs (e.g., density bonuses, PUDs).

The maps and data sheets in Appendix A show how well each ZIP code matches the overall city level of affordability of rental and homeownership units. Fewer than half of the city's ZIP codes match the city's 10 percent rental and/or 24 percent homeownership affordability provisions. The Appendix also provides ZIP code level information on demographics and

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socioeconomic diversity; the ability of the ZIP code to house workers in key professions in Austin; and estimates of household transportation costs.

All city programs and policies should be linked to achievement of the citywide target. For example, developers who receive any type of entitlement or funding in a geographic area would be required to move a neighborhood closer toward the affordable housing

goal. Neighborhoods that exceed the target and are at risk of gentrification should not be exempt from the requirements, as preservation and creation of affordable units is important to prevent displacement.

The city could use the Housing Model built for this study and available metrics from the Census, ABOR and private rental data, to track progress at meeting the affordable housing goals.

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Demographic Context

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It's no secret that Austin is one of today's most desirable cities. Those looking for the next great place to live will find Austin at the top of the charts:

**"The best city in the country for filmmakers."—
(moviemaker.com)**

**"Best performing large cities."—
(Milliken Institute)**

**"The new Brooklyn."
— (Bloomberg Businessweek)**

The growing interest in Austin is best evidenced in the city's strong population growth. Austin has an estimated 200,000 more residents than it did in 2000. During the last decade, the city increased its size by almost one-third.

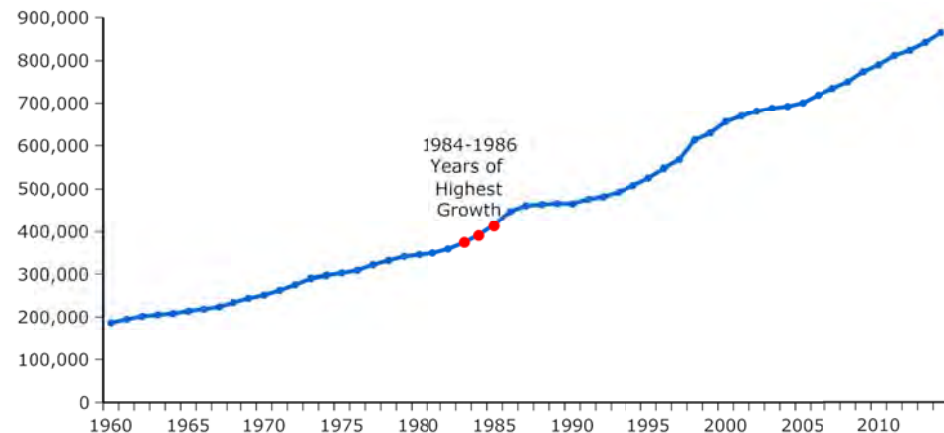
This section of the HMS discusses how the city has changed—and is changing—demographically. It sets the context for the sections that follow, which focus on housing demand and preferences.

Population

The April 2014 population of Austin was 865,504, according to the City Demographer—up 32 percent from a 2000 population of 656,562. At the end of this decade of strong growth, Austin was the 11th largest city in the nation, up from the 16th in 2000.¹

Figure I-1 shows annual growth trends since 1960. Growth was the strongest during the mid-1980s, when annual rates of growth averaged 6 percent, compared to 3 percent in the past year (2013-2014).

**Figure I-1.
Population Growth Trends, City of Austin, 1840 to 2014**



Note: According to the City Demographer, about 70% of the annual growth from 1997 to 1998 was largely the result of annexing large tracts of populated land into the city.

Source: City of Austin population estimates.

¹ <https://www.census.gov/statab/ccdb/cit1020r.txt>

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Figure I-2 puts Austin's recent growth in the context of south central Texas and peer cities.² Austin's recent growth is significant, especially when compared to peer cities of Portland, Denver, Nashville—and even high tech-dominated San Jose. Between 2000 and 2012, Austin was second only to Charlotte in percent growth, as well as movement among the Census' largest cities ranking. Austin was fourth among the group in numerical growth.

Figure I-2.
Population Growth and Largest City Ranking, 2000 and 2012

City	2012		2000		2000-2012 Percent Growth	2000-2012 Numerical Growth
	Population	Largest Cities Rank	Population	Largest Cities Rank		
Charlotte, NC	775,208	17	540,828	26	43%	234,380
Austin, TX	842,595	11	656,562	16	28%	186,033
San Antonio, TX	1,383,194	7	1,144,646	9	21%	238,548
Denver, CO	634,265	23	554,636	24	14%	79,629
Nashville, TN	623,255	25	545,524	25	14%	77,731
Portland, OR	603,650	28	529,121	28	14%	74,529
Houston, TX	2,161,686	4	1,953,631	4	11%	208,055
San Jose, CA	982,783	10	894,943	11	10%	87,840

Note: Bold indicates significant change in largest cities rank.

Source: U.S. Census Bureau.

And this growth is not just contained within the City of Austin. The Austin-Round Rock-San Marcos metropolitan statistical area (MSA) posted the highest growth rate of any MSA in the nation from 2000 to 2011.

Drivers of population growth. There are two distinct reasons that a community grows. First is “natural increase,” which occurs when the number of births exceeds deaths in a given year. In-migration is the second reason for growth.

Figure I-3 shows the drivers of growth between 2010 and 2013 for Travis County and surrounding counties.³ As the figure demonstrates, in-migration is an important part of growth for Travis County, yet about one-third of the county's recent growth has been driven by natural increase. In-migration was a larger driver of growth for Hays and Williamson counties and less so for Bastrop and Caldwell counties.

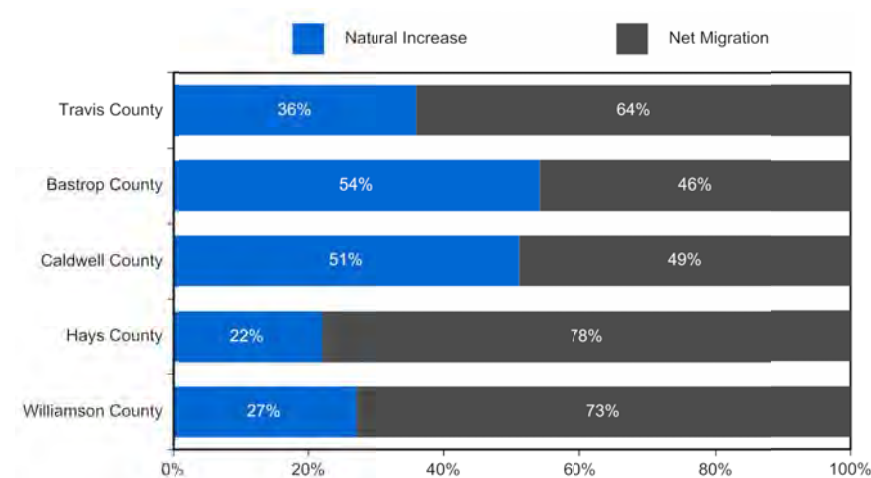
² “Peer” cities are similar in socioeconomic characteristics, industries and/or level of attractiveness for in-migrants.

³ The Census reports the drivers of population growth at the county level.

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Figure I-3.
Components of Population Change, Travis and Surrounding Counties, 1990-2000, 2000-2007 and 2007-2013



Note: Two additional components of change--net federal movement and a residual--are not included in the numbers above. Thus, natural increase and net migration do not add to total population growth. The differences are minimal.

Source: Census Population Estimates.

Regional growth. Since 1990, the City of Austin's share of the MSA population has been declining, as shown in Figure I-4. Population projections for the city and MSA suggest that the city's share of the MSA population will drop to around 30 percent by 2045.

Figure I-4.
City of Austin Share of Travis County and MSA Population, 2000 to 2045

Source:
City of Austin City Demographer, January 2014.

Year	Travis County	MSA
1990	81%	55%
2000	81%	53%
2007	78%	46%
2010	77%	46%
2014	76%	45%
↓		
2045	57%	30%

Geographic dispersion of growth. Figure I-5 shows population change between 2000 and 2012 by ZIP code.⁴ As the map demonstrates, population growth varied considerably throughout Austin, with many ZIP codes experiencing 100 to 200 percent growth, while a handful of ZIP codes had population losses.

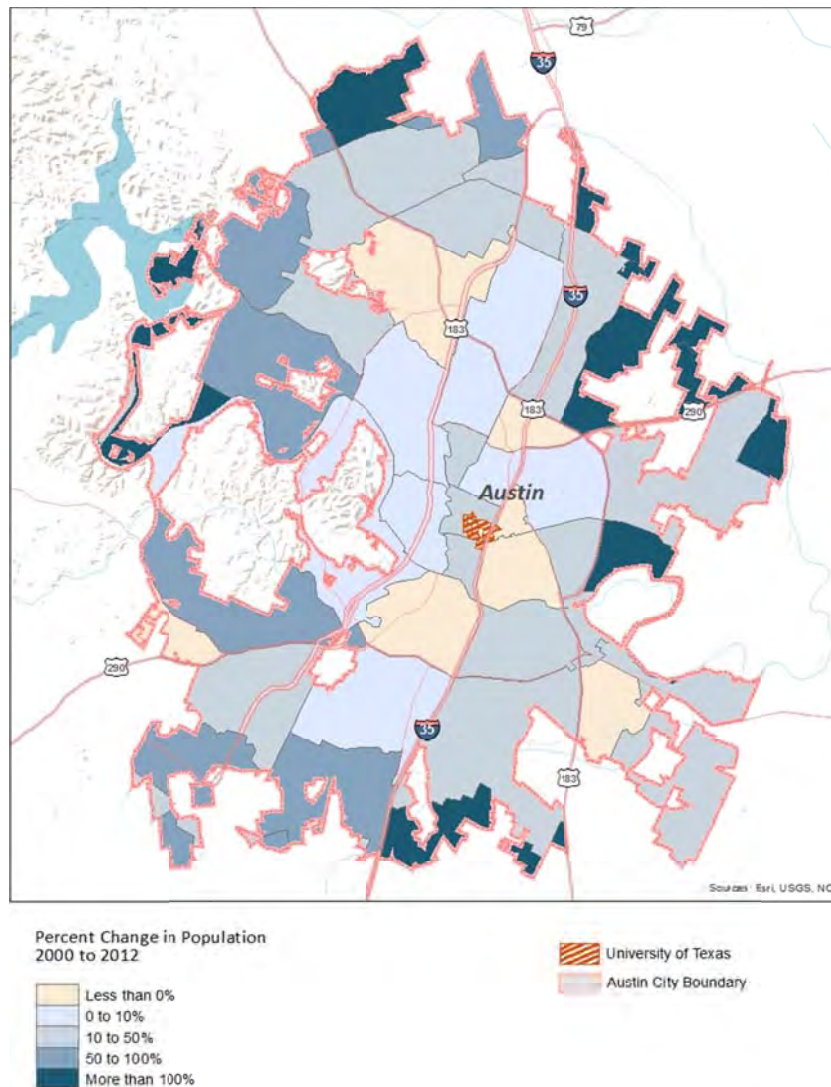
The strongest growth occurred on the periphery of the city. Slow growth areas and population declines occurred in areas between the city core and outlying communities.

⁴ The 2012 data by ZIP code are the 5 year, 2008-2012 ACS.

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Figure I-5.
Population Change by ZIP Code, 2000 to 2012



Source: U.S. Census.

Household Composition

Austin's demographics are similar to those in 2000, with a few notable exceptions, which are discussed below. Although it may feel to Austinites that the city's demographic changes have occurred recently, most demographics shifts took place in the earlier part of the decade, between 2000 and 2007.

Race and ethnicity. As shown in Figure I-6, the number and proportion of African Americans in the city declined by an estimated 525 people or more than 2 percentage points. This was the only racial category where population was lost. The strongest growth occurred in the White and Hispanic racial/ethnic categories.

Austin is characterized as a "majority minority" city, meaning that no single racial or ethnic group exists as a majority of the city's population. This is mostly due to growth in residents who are of Hispanic descent, many of whom report their race as white. Non-Hispanic white residents represent about 43 percent of the city's population in 2012.

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Figure I-6.
Residents by Race and Ethnicity and Change, City of Austin, 2000, 2007 and 2012

Race	2000	2007	2012	2000-2012 Change
American Indian and Alaska Native	3,889	4,810	5,272	1,383
Asian	30,960	42,818	54,084	23,124
Black or African American	65,956	60,971	65,431	(525)
Native Hawaiian and Other Pacific Islander	469	818	776	307
Two or More Races	19,650	16,813	28,642	8,992
White	429,100	471,296	647,851	218,751
Ethnicity				
Hispanic or Latino (of Any Race)	200,579	260,535	286,850	86,271
Non-Hispanic	455,983	489,124	555,745	99,762
Race	2000	2007	2012	2000-2012 Change
American Indian and Alaska Native	1%	1%	1%	0.0%
Asian	5%	6%	6%	1.7%
Black or African American	10%	8%	8%	-2.3%
Native Hawaiian and Other Pacific Islander	0%	0%	0%	0.0%
Two or More Races	3%	2%	3%	0.4%
White	65%	63%	77%	11.5%
Ethnicity				
Hispanic or Latino (of Any Race)	30%	35%	34%	4.0%
Non-Hispanic	70%	65%	66%	-4.0%

Note: The ACS question on Hispanic origin was revised in 2008 to make it consistent with the Census 2010 Hispanic origin question. As such, there are slight differences in how respondents identified their origin in the 2000, 2007 and 2012 surveys.

Excludes "Some Other Race" category, due to inconsistency of reporting between 2000 and 2012 Census surveys.

Source: U.S. Census, 2000, 2007 and 2012 ACS.

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Age. The median age of Austin residents increased during the past decade, from 29.6 to 31. This was due to a shift away from college-age residents towards Baby Boomers. As shown in Figure I-7, the proportion of city residents age 18 to 24 dropped from 17 percent to 13 percent in the last decade. Growth of the 45-64 cohort is due to Baby Boomers aging into a higher age group, in addition to new migrants.

Figure I-7.
Residents by Age Cohort and Change, City of Austin, 2000, 2007 and 2012

Population by Age	2000	2007	2012	2000-2012 Change
Total population	656,562	749,389	842,595	186,033
Number of Population				
Children (Under 18)	147,548	173,800	182,530	34,982
College-Aged Adults (18-24)	109,256	99,124	111,596	2,340
Young Adults (25-44)	243,517	272,377	310,684	67,167
Baby Boomers (45-64)	112,336	155,965	176,686	64,350
Seniors (65 and older)	43,905	48,123	61,099	17,194
Percent of Population				
Children (Under 18)	22%	23%	22%	-0.8%
College-Aged Adults (18-24)	17%	13%	13%	-3.4%
Young Adults (25-44)	37%	36%	37%	-0.2%
Baby Boomers (45-64)	17%	21%	21%	3.9%
Seniors (65 and older)	7%	6%	7%	0.6%

Note: Changes among age categories do not always indicate growth, but rather, show differences in the size of age cohorts. For example, the Baby Boomers were roughly between the ages of 35 and 54 in the Census 2000, and mostly captured in the 45 to 64 age cohort in the 2012 ACS.

Source: U.S. Census, 2000, 2007 and 2012 ACS.

Household type. According to the City Demographer, the share of family-with-children households in the urban core has declined since 1970, when the share was about 32 percent. This continued between 2000 and 2012, as shown in Figure I-8. Growth in the city's Hispanic households, which generally have larger families with children, has helped the city maintain a share of family-with-children households, which otherwise would be much smaller.

As shown in Figure I-8, declines in family-with-children household shares have been offset by slight increases in the proportions of residents living alone and in households with alternative composition types.

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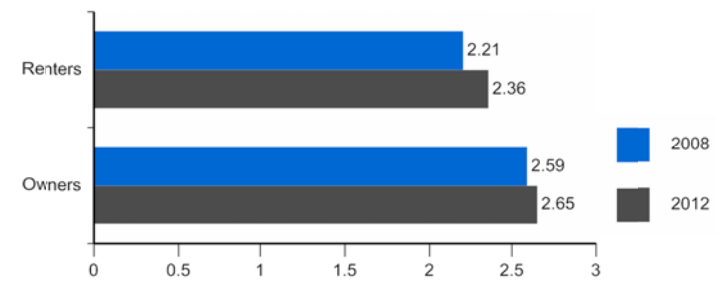
Figure I-8.
Household Type and Change, City of Austin, 2000, 2007 and 2012

Household Type	2000	2007	2012	2000-2012 Change
Total Households	265,649	306,693	330,838	65,189
Number of Households				
Married without Children	51,950	54,712	62,254	10,304
Married with Children	49,148	57,075	53,105	3,957
Single Parent Household	22,132	27,821	30,362	8,230
Living Alone	87,026	110,764	112,092	25,066
Other Household Types	55,393	56,321	73,025	17,632
Percent of Households				
Married without Children	20%	18%	19%	-0.7%
Married with Children	19%	19%	16%	-2.4%
Single Parent Household	8%	9%	9%	0.8%
Living Alone	33%	36%	34%	1.1%
Other Household Types	21%	18%	22%	1.2%

Source: U.S. Census, 2000, 2007 and 2012 ACS.

Household size. According to the ACS, household size has increased since 2008, despite the shift away from family households. As shown in Figure I-9, average household sizes have increased for both renters and owners.

Figure I-9.
Household Size, 2008 and 2012



Source: 2008 and 2012 ACS.

Income and Poverty

Housing programs generally use percentages of “median family income” or MFI as benchmarks for targeting housing assistance and affordability programs.⁵ Households earning less than 30 percent of MFI—roughly at the poverty level and below—are characterized as “extremely low income.” Households earning between 30 and 50 percent of MFI are considered to be “very low income;” households between 50 and 80 percent MFI, “low income;” and those above 80 percent of MFI “moderate” and “high” income.

⁵ Also referred to as Area Median Income or AMI.

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Figure I-10 shows the MFI levels for the City of Austin according to household size. It is important to note that these are based on the MFI for the Austin-Round Rock-San Marcos MSA (that is, MFI is not calculated at the city level) and provided to the city by HUD.

Figure I-10.
Median Family Income Categories, Austin-Round Rock-San Marcos MSA, 2014

Percent MFI	Income Limit	Percent MFI	Income Limit
30% MFI		100% MFI	
1 person HH	\$15,850	1 person HH	\$52,800
2 person HH	\$18,100	2 person HH	\$60,400
3 person HH	\$20,350	3 person HH	\$67,900
4 person HH	\$22,600	4 person HH	\$75,400
50% MFI		120% MFI	
1 person HH	\$26,400	1 person HH	\$60,192
2 person HH	\$30,200	2 person HH	\$68,856
3 person HH	\$33,950	3 person HH	\$77,406
4 person HH	\$37,700	4 person HH	\$85,956
80% MFI		150% MFI	
1 person HH	\$42,250	1 person HH	\$79,200
2 person HH	\$48,250	2 person HH	\$90,600
3 person HH	\$54,300	3 person HH	\$101,850
4 person HH	\$60,300	4 person HH	\$113,100
95% MFI		2014 HUD Median Income Overall: \$75,400	
1 person HH	\$50,160		
2 person HH	\$57,380		
3 person HH	\$64,505		
4 person HH	\$71,630		

Source: www.huduser.org.

Median income for the city overall was \$52,453 in 2012, a 23 percent increase from the 1999 median of \$42,689.⁶ This increase was not enough to keep up with inflation. According to the Consumer Price Index (CPI), the price of consumer goods rose by 38 percent between 1999 and 2012. This suggests that, overall, Austin households lost purchasing power during the past decade. This is also true when examined by family income.⁷

As in much of the U.S., Austin's income distribution is shifting and there are now proportionately more lower and upper income households and fewer middle income households than in 2000, as shown in Figure I-11.⁸ The number of middle income households did grow during the decade but not as much as lower and higher income households.

⁶ The median income figures in the years 1999 and 2010 are not precisely comparable due to differences in the Census surveys. The 2012 data were collected over a variable period of time and thus represent income levels over a rolling time period, whereas the 2000 Census represents the income earned during a fixed period (1999).

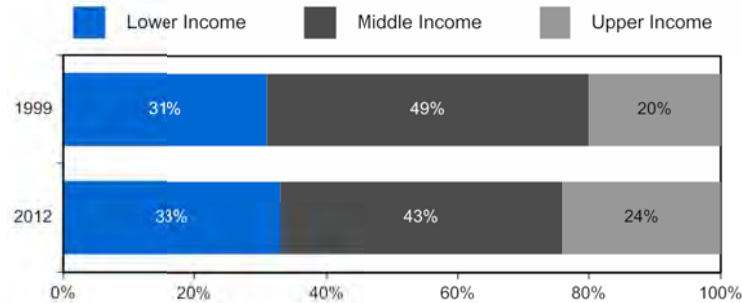
⁷ Household income includes single individuals living alone and roommates, which family income does not. Median household income is lower than median family income because it represents more single earners.

⁸ This analysis is based on a national measure of middle income recently used in research examining the decline of the middle class. For 2012, middle income is defined as households earning between \$35,000 to \$100,000. In 1999, the middle income range is \$28,000 to \$84,000.

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Figure I-11.
Lower, Middle and Upper Income Households, City of Austin, 1999 and 2012



Note: Lower income roughly approximates less than two-thirds of the national median income and upper income roughly approximates twice the national median income. These income thresholds are consistent with the way that Americans self-identify as members of socioeconomic classes. (See Pew Research report, "The Rise of Residential Segregation by Income.")

Source: U.S. Census, 2000, 2012 ACS and BBC Research & Consulting.

The previous figure (I-11) showed shifts in socioeconomic cohorts, where "middle income" is defined as \$28,000 to \$84,000 in 1999 and \$35,000 to \$100,000. The next figure (I-12) displays shifts in nominal income ranges between 1999 and 2012.

As shown in Figure I-12, the greatest shifts in income distribution occurred in the \$100,000+ category. The proportion of Austin residents earning more than \$100,000 grew by 10 percentage points between 1999 and 2012.

The proportion of households earning between \$25,000 and \$75,000 dropped by 6 percentage points.

Figure I-12.
Household Income by Range, City of Austin, 1999 and 2012



Source: U.S. Census, 2000, 2012 ACS.

Renters and owners both experienced income growth, as shown in Figure I-13, but the change was far more significant for renters. The number of renters earning more than \$75,000 living in Austin in 2012 rose by more than 15,000 from 2007.

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Figure I-13.
Income by Tenure and Change, 2007 and 2012

Owners	2007		2012		2007-2012 change	
	Number	Percentage	Number	Percentage	Number	Percentage
Less than \$10,000	3,862	2%	3,719	2%	-143	0%
\$10,000 to \$14,999	3,774	2%	2,860	2%	-914	-1%
\$15,000 to \$19,999	2,774	2%	3,240	2%	466	0%
\$20,000 to \$24,999	5,089	3%	6,217	3%	1,128	0%
\$25,000 to \$34,999	9,937	6%	10,068	5%	131	0%
\$35,000 to \$49,999	15,915	10%	16,424	9%	509	-1%
\$50,000 to \$74,999	26,090	16%	25,434	14%	-656	-2%
\$75,000 to \$99,999	21,271	13%	20,757	11%	-514	-2%
\$100,000 to \$149,999	27,840	17%	28,897	16%	1,057	-1%
\$150,000 or more	25,253	15%	30,142	16%	4,889	1%
Total	141,805	86%	147,758	81%		
<i>Change in < \$25,000</i>					537	-1%
<i>Change in > \$75,000</i>					5,432	-1%
Renters						
Less than \$10,000	21,719	13%	24,155	13%	2,436	0%
\$10,000 to \$14,999	12,390	7%	12,024	7%	-366	-1%
\$15,000 to \$19,999	12,160	7%	12,699	7%	539	0%
\$20,000 to \$24,999	13,819	8%	12,297	7%	-1,522	-2%
\$25,000 to \$34,999	26,530	16%	22,757	12%	-3,773	-4%
\$35,000 to \$49,999	28,103	17%	32,639	18%	4,536	1%
\$50,000 to \$74,999	29,583	18%	29,338	16%	-245	-2%
\$75,000 to \$99,999	10,898	7%	17,262	9%	6,364	3%
\$100,000 to \$149,999	6,335	4%	13,241	7%	6,906	3%
\$150,000 or more	4,113	2%	6,668	4%	2,555	1%
Total	165,650	100%	183,080	100%		
<i>Change in < \$25,000</i>					1,087	-3%
<i>Change in > \$75,000</i>					15,825	7%

Source: 2007 income distributions from housing market study and 2012 ACS.

Incomes did not rise for all Austin residents, however. Between 2000 and 2012, the number of Austin residents living in poverty—defined as roughly \$23,000 or less for a family of four—increased dramatically. The poverty rate for individuals rose from 14 percent in 1999 to 20 percent in 2012.⁹ The rate of family poverty rose from 9 to 14 percent.

Overall, 20 percent of Austin residents lived in poverty in 2012.

⁹ Includes all people living in poverty (as opposed to households). For example, if three children live in a household where their parents earn less than the poverty threshold, all five household members would be counted as living in poverty.

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As shown in Figure I-14, Austin's children have much higher incidence of poverty than any other age group.

Figure I-14.
Poverty Rate by Age and Change, City of Austin, 1999 and 2012

	1999	2012	1999-2012 Percentage Point Change
Families living in Poverty	9%	14%	5%
People living in Poverty	14%	20%	6%
Under 18 Years	17%	30%	13%
18 to 64 Years	14%	18%	4%
65 Years and Over	9%	9%	0%
	Overall	For Children	
City of Austin Poverty Rate	20%	30%	
Travis County Poverty Rate	18%	26%	
MSA Poverty Rate	16%	21%	
Texas Poverty Rate	18%	26%	

Source: U.S. Census, 2000, and 2012 ACS.

College students affect the poverty rate because of their relatively low incomes; however, they generally have strong earnings potential and, as such, are only temporarily "poor." The U.S. Census Bureau recently released a report that adjusts the poverty rates of cities with large student populations to account for the low earnings of students. The Census report estimates that Austin's overall poverty rate is 2.5 percentage points lower when students are removed. This puts the city's "real" poverty rate

closer to 17 percent, which is similar to that of Travis County, the MSA and the State of Texas.¹⁰

In addition to age, poverty also varies by race and ethnicity. Figure I-15 reports poverty level by race and ethnicity. As the figure shows, African American and Hispanic residents experienced the greatest—and very significant—increases in poverty between 1999 and 2012.

Figure I-15.
Poverty by Race or Ethnicity and Change, City of Austin, 1999 and 2012

	1999	2012	1999-2012 Percentage Point Change
African American	20%	31%	11%
Asian	20%	16%	-4%
Hispanic	21%	31%	10%
Two or More Races	16%	21%	5%
White, Non-Hispanic	9%	12%	3%

Source: U.S. Census, 2000, and 2012 ACS.

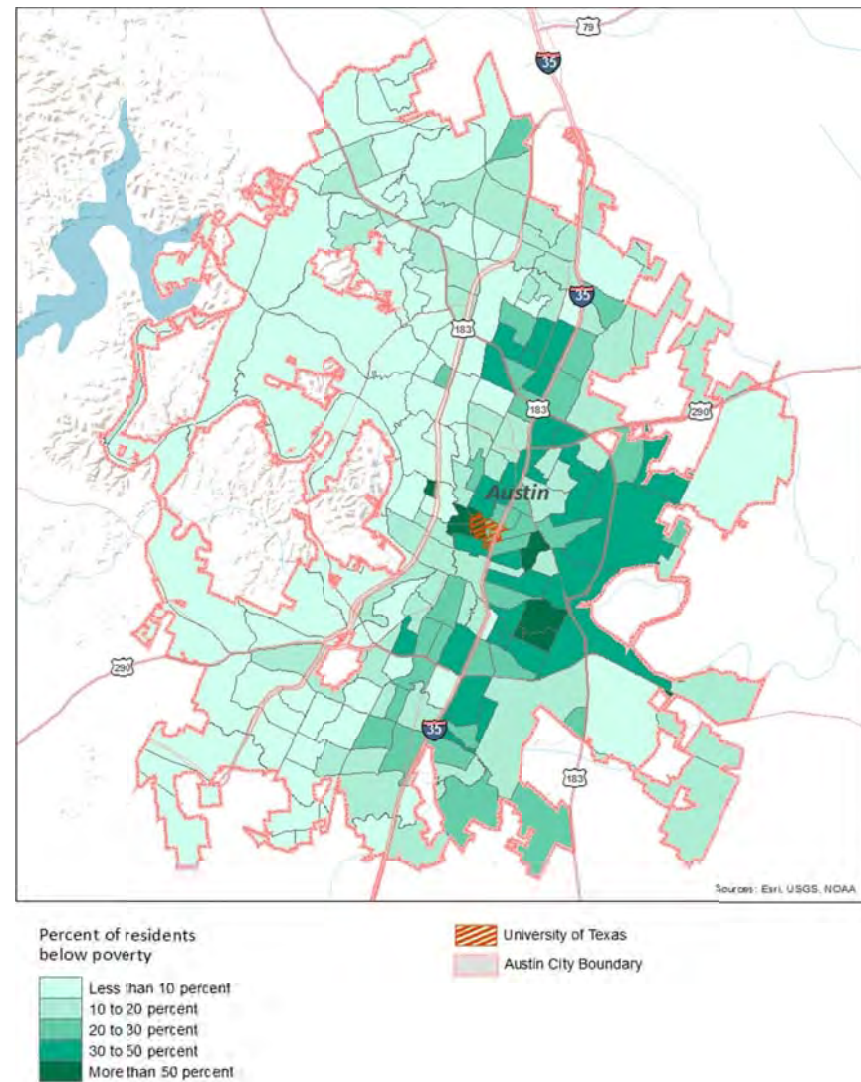
¹⁰ <http://www.census.gov/hhes/www/poverty/publications/bishaw.pdf>

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Figure I-16 shows the poverty rate by ZIP code. High poverty areas are very concentrated in east Austin and, to a lesser extent, along I-35.

Figure I-16.
Poverty Rate by Census Tract, 2008-2012



Source: 2008-2012 ACS.

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Education and Employment

Education is an important part of mitigating poverty. And Austin's overall educational attainment increased during the past decade, as discussed below. Yet poverty also increased, primarily due to the rising rate of child poverty. Of the 1999-2012 increase in the number of residents living in poverty, about 40 percent was due to an increase in poor children.

Educational attainment. Austin residents are well educated—and became even better educated during the past decade.

The Census estimates that 30 percent had a Bachelor's degree and 16 percent had graduate or professional degree in 2012 (46% total). This compares to 18 percent of Texans with a Bachelor's degree and 9 percent with a graduate/professional degree (27%). The city's educational attainment has increased since 2000, when 26 percent had a Bachelor's degree and 15 percent had a graduate/professional degree (41%).

As shown in Figure I-17, in 2012, nearly 13 percent of Austin's residents had less than a high school degree and 17 percent had a high school degree but had not attended college—that is, 30 percent of residents had no college. This is slightly improved from 2000, when 17 percent of residents had less than a high school degree and another 17 percent had a high school degree but no college (34%). And although growth has been strongest for highly educated residents, the city has 30,000 more residents with a high school degree and less than in 2000.

Figure I-17.
Educational Attainment, City of Austin, 2000 and 2012

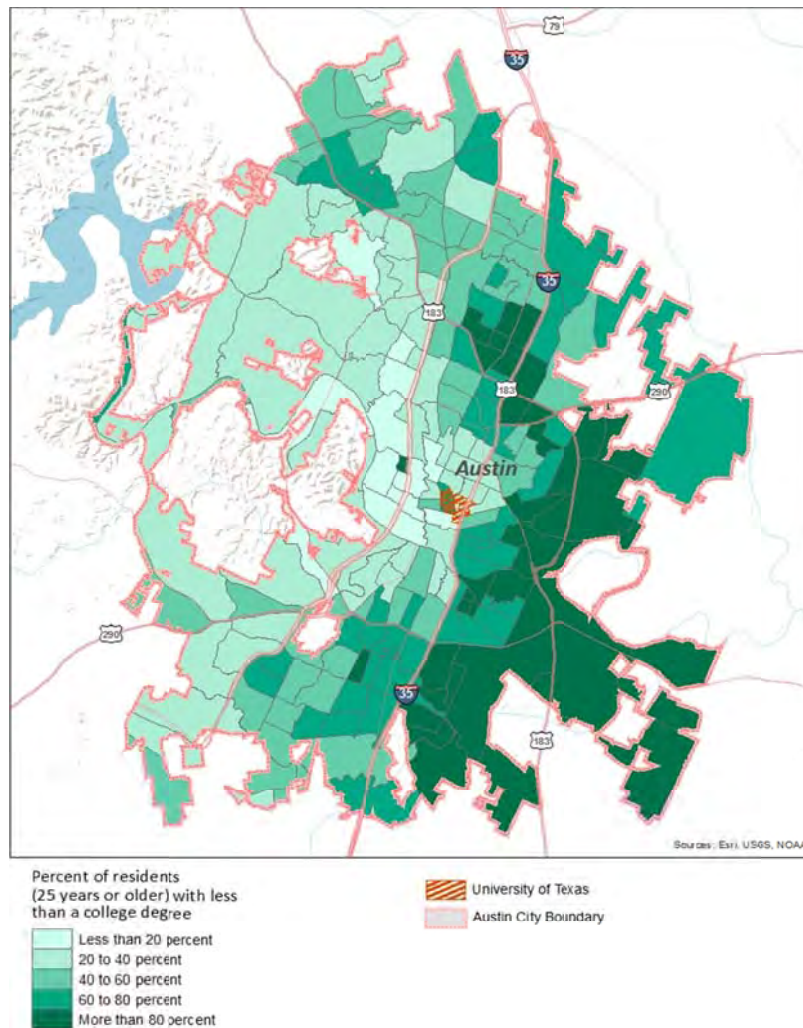
	2000		2007	
	Number	Percent	Number	Percent
Less than a High School Degree	66,511	17%	82,798	17%
High School Degree or GED	68,316	17%	80,077	17%
Some College, No Degree	84,486	21%	85,286	18%
Associates Degree	19,887	5%	25,824	5%
Bachelor's Degree	103,111	26%	123,493	26%
Graduate or Professional Degree	58,826	15%	79,257	17%
	2012		2000-2012 Change	
	Number	Percent	Number	Percent
Less than a High School Degree	72,823	13%	6,312	-3%
High School Degree or GED	91,797	17%	23,481	0%
Some College, No Degree	108,529	20%	24,043	-1%
Associates Degree	26,084	5%	6,197	0%
Bachelor's Degree	162,033	30%	58,922	4%
Graduate or Professional Degree	87,203	16%	28,377	1%

Source: U.S. Census, 2000, and 2012 ACS.

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Figure I-18.
Educational Attainment by Census Tract, 2008-2012



Source: 2008-2012 ACS.

As shown in Figure I-18, educational attainment is correlated with areas of high poverty, although not perfectly. Many areas in north and south central Austin have relatively high levels of residents with less than a college degree—but are not areas of concentrated poverty. Figure I-20, a map of where unemployed residents are located, is more closely aligned with areas of high poverty.

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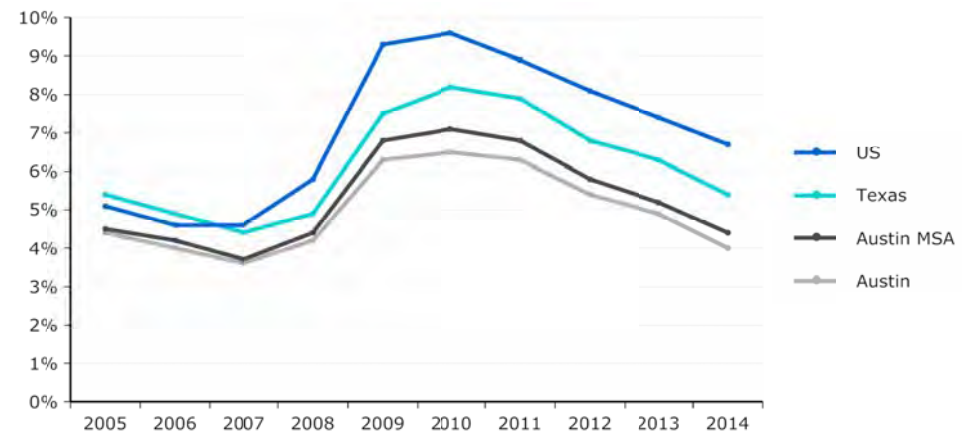
Employment. According to the Census Bureau's Longitudinal Employer-Household Dynamics (LEHD), there are about 608,000 jobs located in the City of Austin, up from 565,000 in 2008 (an 8% increase).

Forty percent of Austin workers both live and work in the city; the other 60 percent are in-commuters, living outside the city but employed in Austin.

In April of 2014, there were about 17,000 Austin residents actively looking for work but unable to find employment. The April unemployment rate was 3.5 percent, the lowest since April of 2008 when unemployment was 3.2 percent. Figure I-19 shows the annual unemployment rates for Austin, the MSA, Texas and the United States. Austin—and the MSA as a whole—have maintained very low unemployment, even though the recent recession.

Yet the city has pockets of very high unemployment rates, as shown in the following map.

Figure I-19.
Unemployment Rate, 2005 through 2014



Note: 2014 rate reflects annual average through April.

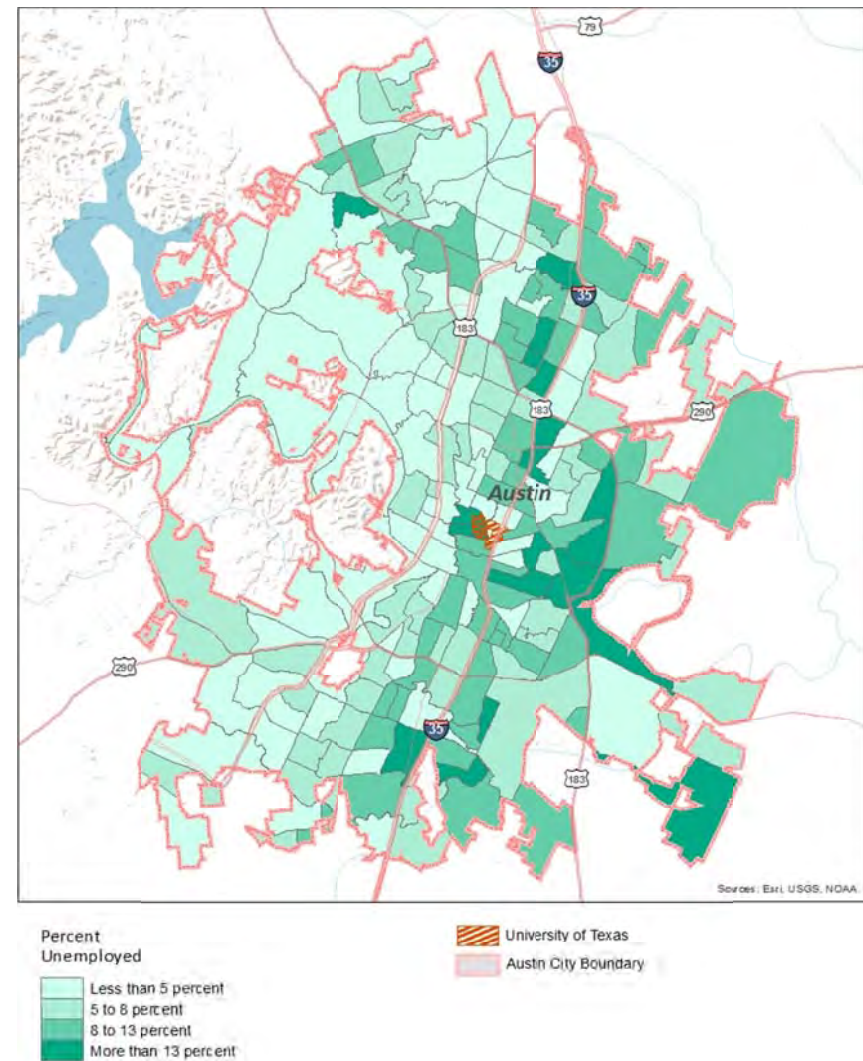
Source: Labor Market & Career Information, Texas Workforce Commission.

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Figure I-20 which shows 2008-2012 unemployment rates by Census tract. Residents living in the north and east portions of the city are more likely to experience high levels unemployment, some more than four times the citywide rate.

Figure I-20.
Unemployment by Census Tract, 2008-2012



Source: 2008-2012 ACS.

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The average weekly wage for all Austin-Round Rock workers is \$915, or about \$47,580 annually.¹¹ As discussed in Section II. Housing Market Gaps, workers earning \$50,000 and less find it difficult to buy homes in much of Austin.

Figure I-21 displays employment and wages by industry for the Austin-Round Rock MSA in 2000, 2007 and 2013. Of the 100,000 new jobs, 36,000 were in the Education and Health Services industries, which pay about \$44,000 per year. Another 26,000 jobs were in the low paying leisure and hospitality industries, paying less than \$20,000 per year. Both the construction and manufacturing industries, which offer higher paying jobs, declined between 2007 and 2013.

**Figure I-21.
Employment
and Average
Weekly
Wages, Austin
MSA, 2000,
2007 and 2013**

Source:
Texas Workforce
Commission, QCEW.

Industry	Employment				
	Number of Jobs			Recent Growth: 2007 to 2013	
	2000	2007	2013	Number	Percent
Natural Resources and Mining	2,144	3,739	4,687	948	25%
Construction	43,888	51,963	46,171	-5,792	-11%
Manufacturing	81,897	60,596	52,321	-8,275	-14%
Trade, Transportation and Utilities	120,178	141,649	159,938	18,289	13%
Information	24,430	23,133	24,155	1,022	4%
Financial Activities	36,319	45,112	50,176	5,064	11%
Professional and Business Services	92,276	109,550	135,457	25,907	24%
Education and Health Services	125,445	152,272	187,896	35,624	23%
Leisure and Hospitality	63,330	81,365	102,285	20,920	26%
Other Services	20,865	25,967	30,795	4,828	19%
Public Administration	51,213	54,517	56,763	2,246	4%
Unclassified	205	805	314	-491	-61%
Total	662,190	750,668	850,956	100,288	13%

Industry	Wages				
	Average Weekly Wages			Recent Growth: 2007 to 2013	
	2000	2007	2013	Dollars	Percent
Natural Resources and Mining	\$683	\$1,752	\$1,989	\$237	14%
Construction	\$672	\$844	\$979	\$135	16%
Manufacturing	\$1,169	\$1,470	\$1,728	\$258	18%
Trade, Transportation and Utilities	\$896	\$827	\$920	\$93	11%
Information	\$1,319	\$1,241	\$1,491	\$250	20%
Financial Activities	\$767	\$1,075	\$1,411	\$336	31%
Professional and Business Services	\$774	\$974	\$1,241	\$267	27%
Education and Health Services	\$551	\$735	\$850	\$115	16%
Leisure and Hospitality	\$268	\$325	\$379	\$54	17%
Other Services	\$497	\$632	\$765	\$133	21%
Public Administration	\$712	\$940	\$1,087	\$147	16%
Unclassified	\$617	\$685	\$762	\$77	11%

¹¹ Assumes 52 work weeks in a year. As a point of comparison, the weekly wage for the state of Texas is \$985 weekly, which equates to an annual average of \$51,220. Detailed industry and wage data are not available at the municipal level, but in the Austin-Round Rock MSA as a whole.

SECTION II.

Housing Market Gaps

SECTION II. Housing Market Gaps

PAGE 1

The changes in Austin's housing market are visible in the large cranes perched among downtown's skyscrapers. News articles abound about rising housing prices, declining affordability and gentrification. And the voluntary housing survey conducted for this study received more than 5,000 responses—evidence that housing is a topic of interest of Austinites and, for many residents, a concern.

The section begins with an overview of the housing market today, compared to when the last HMS was completed (2008) and the beginning of the decade. It contains an analysis of both rental and homeownership affordability, including an update to the housing gaps model from the earlier study.

The results of the housing survey conducted for this study—including data on residents' needs, housing preferences and experience finding housing in Austin—are detailed in Sections III and IV of this report. This section supplements the chapters on residents' housing needs with quantitative information on the city's housing market.

Trends in Housing Supply

There were 276,600 housing units in the City of Austin in 2000, according to the U.S. Census. By 2007, this had risen to around 333,500—an increase of 57,000 units. The Census estimates the housing inventory at around 360,500 in 2012, or about 84,000 more units than in 2000.

As shown in Figure II-1, the growth rate of residential units was highest during the 1970s, when the city's housing stock

increased 70 percent. The past decade has been the strongest in numerical growth.

**Figure II-1.
Housing Unit Growth,
City of Austin, 1970-
2013**

Source:
City of Austin and 2012 ACS.

	Number of Units	Numerical Growth per Decade	Percent Growth per Decade
1970	85,456		
1980	146,503	61,047	71%
1990	216,939	70,436	48%
2000	276,611	59,672	28%
2007	333,487		
2010	354,211	77,600	28%
2012	360,518		

Density and land use. Housing unit density—the number of residential units per acre—has fluctuated between 1.5 and 2.0 units per acre since the 1970s, peaking in 1980 following rapid housing growth.

As of 2010, a little more than one-fourth of land acreage in the city was in residential use, according to the City Planning Department's land use statistics report. Overall, 22 percent of acreage in the city is used for single family homes (about 5% of this large lot homes) and just 3 percent is in multifamily (apartment, condos) use. Another 2 percent is used for mobile homes.

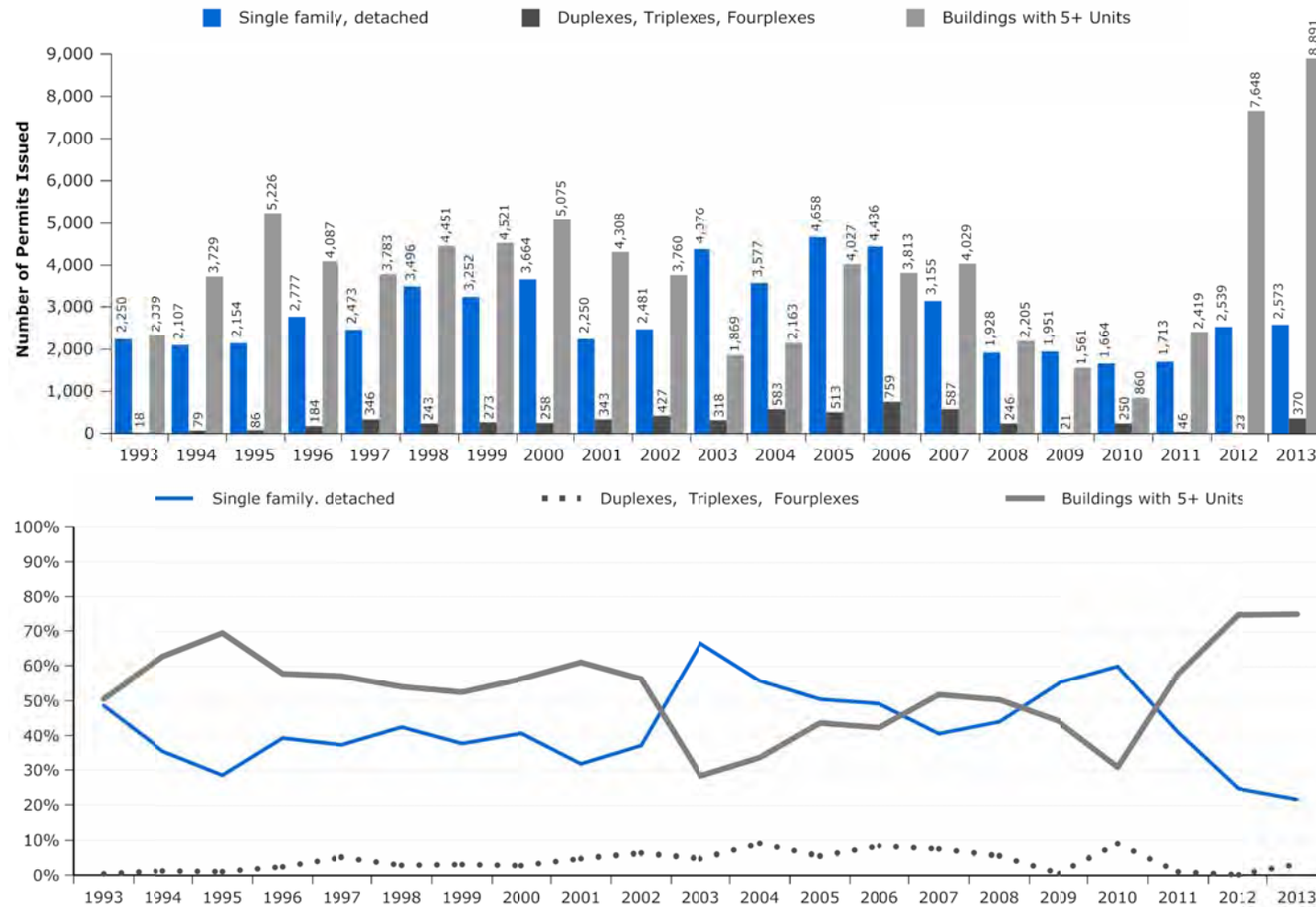
The balance of land is undeveloped (29%), or used for open space (18%), streets/roads/utilities (13%) and commercial and other uses (12%).

SECTION II. Housing Market Gaps

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Permitted units. Historically, residential growth in Austin has been dominated by single family detached and multifamily units, as shown below.

Figure II-2.
Number and Percentage of Building Permits Issued by Type, City of Austin, 1993 to 2012



Source: City of Austin.

SECTION II. Housing Market Gaps

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As demonstrated by Figure II-2, the proportion of single family attached permits is at a historical low, and, conversely, multifamily permits are at a historical high.

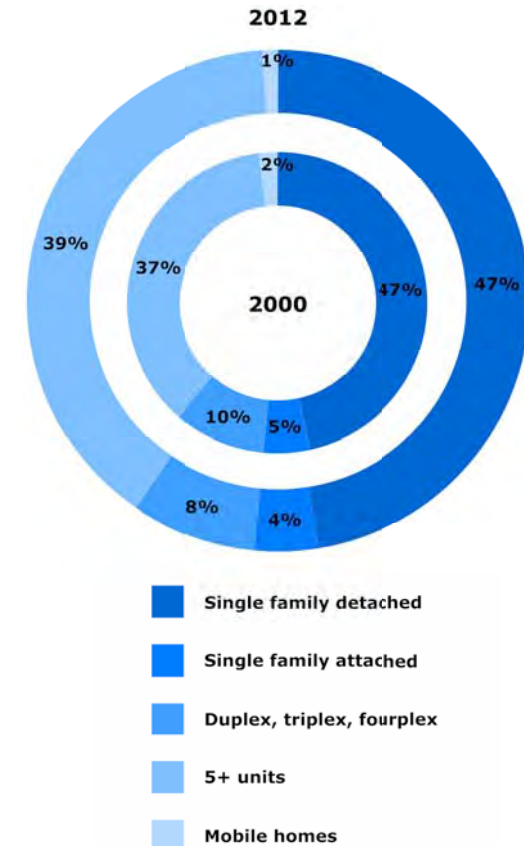
The rise in multifamily development is closely related to declining rental vacancies, discussed below. During 2011, about 800 new multifamily units were completed in the Austin MSA, compared to 2,600 in 2012 and nearly 5,900 in 2013. According to Austin Investor Interests, this addition of multifamily units had minimal impact on the market until recently. Rental vacancy rates have remained low as the supply of rental units caught up with demand. Yet this might be changing: the first quarter 2014 multifamily trend report reported the first quarterly rise in multifamily vacancies since 2010.¹

Despite the slight uptick in vacancy rates, more apartments are likely to hit the market soon, based on the large number of multifamily units being permitted (Figure II-2) and under construction. As of first quarter 2014, as many as 16,000 multifamily units were identified as under construction in the City Demographer's Multifamily Report.²

Unit type. As demonstrated by Figure II-3, the city's housing unit distribution has changed little during the past 12 years. Very modest shifts have occurred between duplexes/triplexes/fourplexes and larger multifamily developments. But, overall, the composition of residential housing in the city is about the same as it was in 2000.

Figure II-3.
Type of Housing
Units, City of Austin,
2000 and 2012

Source:
U.S. Census, 2000, and 2012
ACS.



¹ The Austin Multi-Family Trend Report, Austin Investor Interests, 1Q2014.

² <http://www.austintexas.gov/page/demographic-data>

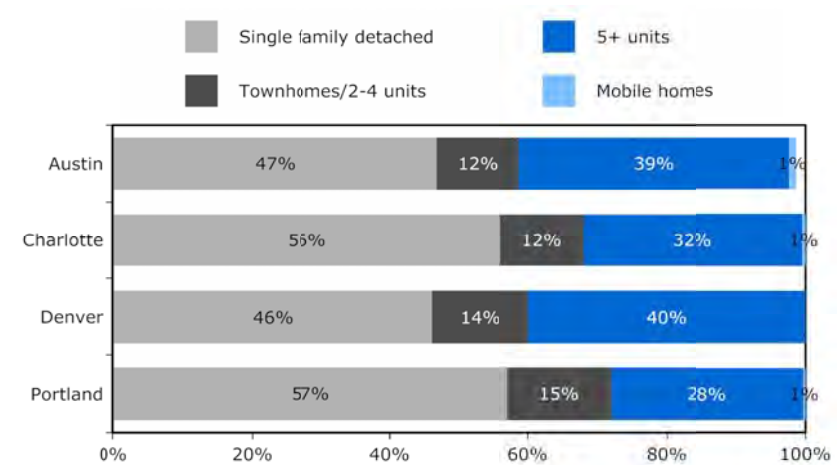
SECTION II. Housing Market Gaps

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Austin's housing unit composition is similar to peer cities, as shown in Figure II-4. Austin's housing distribution most closely matches that of Denver. Denver and Portland have higher proportions of single family alternative products (townhomes, duplexes, etc.), but Austin is not far behind. Charlotte and Portland have the largest proportions of single family detached housing.

The housing unit composition in Austin is likely to change in the future with the infusion of multifamily units, but it will be modest. Changing the overall distribution of housing units requires a fairly significant infusion of one product type. For example, an addition of 16,000 multifamily units to Austin's market, without any other types of development, would shift the multifamily proportion by just 2 percentage points—up to 41 percent, from 39 percent now.

Figure II-4.
Type of Housing Units, Austin, Charlotte, Denver, Portland, 2010



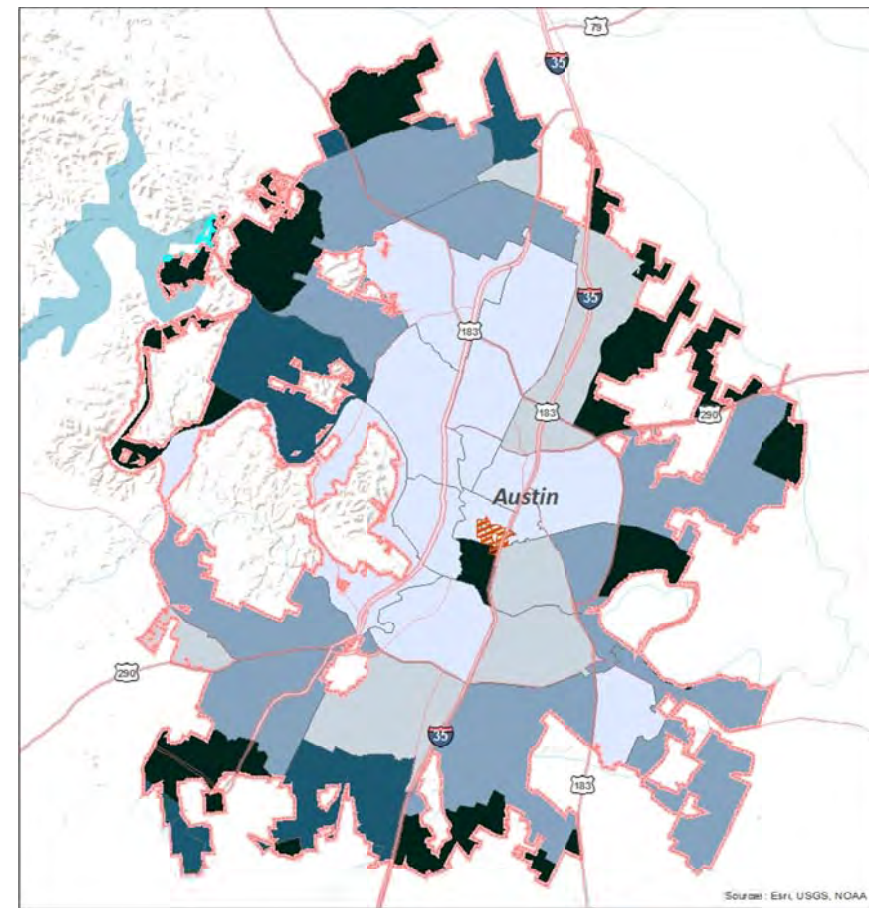
Source: 2012 ACS.

SECTION II. Housing Market Gaps

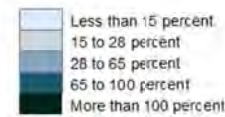
PAGE 5

Geographic changes. New residential construction has not been distributed evenly throughout the city, as shown in the following map. Housing unit growth has been most prominent in along the outer border of the city as well as near downtown.

Figure II-5.
Change in Housing Units, ZIP code, 2000-2012



Percent increase in housing units
2000-2012



University of Texas
Austin City Boundary

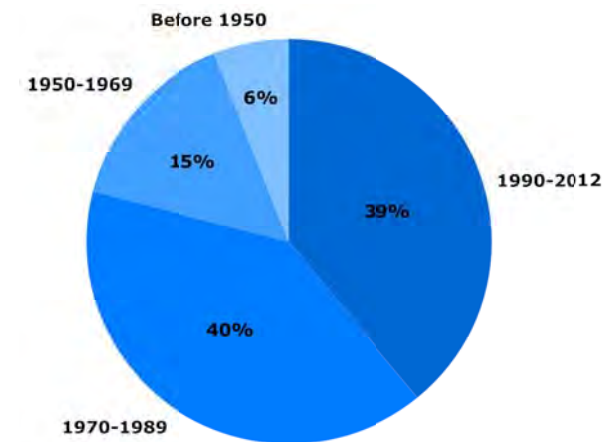
Source: U.S. Census, 2000 and 2012 ACS.

SECTION II. Housing Market Gaps

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Housing age and condition. Austin is known for its many unique neighborhoods, shaped by historic residential properties. Yet most of the city's housing stock was developed relatively recently, as shown in Figure II-6. About 40 percent of units were built in 1990 and later. Another 40 percent were built in the 1970s and 1980s. Six percent of the city's housing stock was built before 1950.

Figure II-6.
Year Housing Units were Built, City of Austin



Source: 2012 ACS.

As part of the Housing Market Analysis, the City of Austin conducted a survey of residents about their housing needs, including the condition of their current housing units.

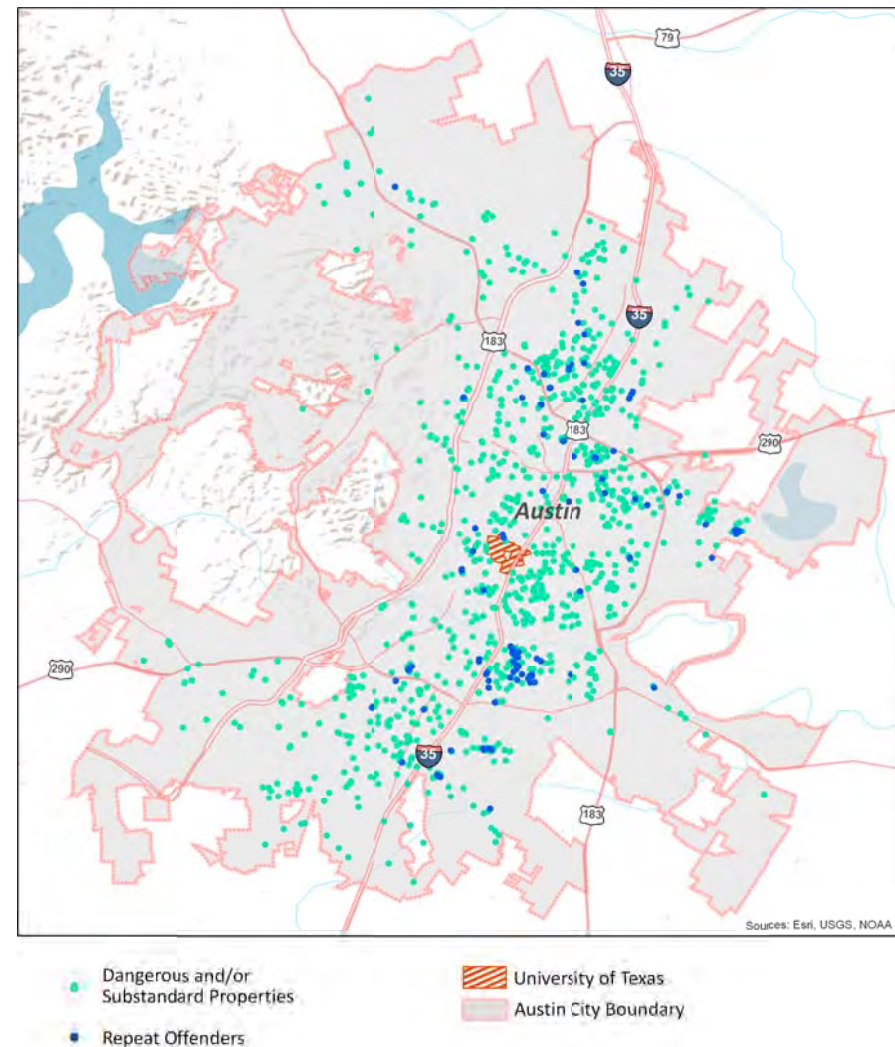
Overall, 5 percent of renters earning less than \$25,000 per year—but no low income homeowners—said their housing units are in such poor condition that their units are unlivable. This suggests that as many as 3,000 low income renters in the city occupy units that are in extremely poor condition.

SECTION II. Housing Market Gaps

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Figure II-7 displays the location of units that were deemed dangerous and/or substandard as a result of a 2013 code complaints. The map also shows repeat offenders of code compliance. As shown in the map, repeat offenders are clustered in east and north Austin, many located in low income and minority neighborhoods. Dangerous and substandard properties appear throughout central Austin, north Austin and in southwest Austin.

Figure II-7.
Code Compliance, City of Austin, 2013



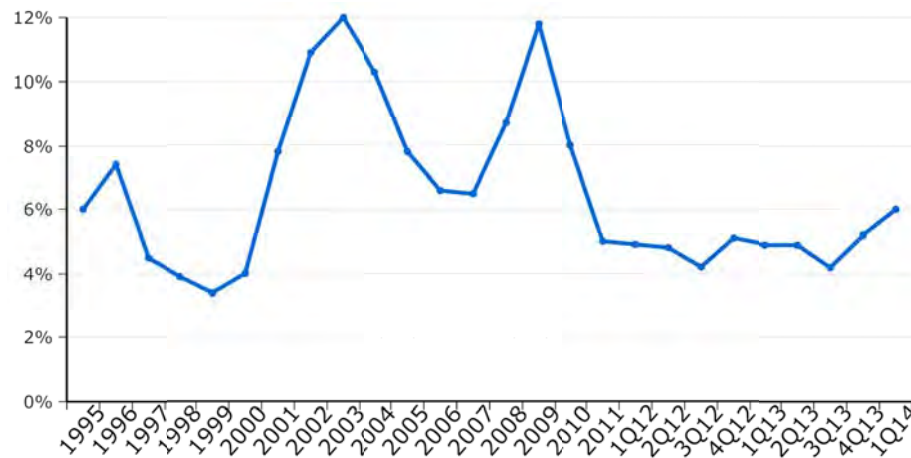
Source: City of Austin.

SECTION II. Housing Market Gaps

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Rental vacancy rates. Figure II-8 shows trends in rental vacancies for Austin MSA tracked by Austin Investor Interests. After peaking in 2009, vacancies dropped and have hovered around 5 percent since 2011.

Figure II-8.
Multifamily Vacancy Rates, Austin MSA, 1995-1Q14



Source: Austin Investor Interests.

Vacancy rates differ, however, by property “class.” According to Austin Investor Interests, vacancies are lowest for non-luxury units (Class B and C properties). Rents differ little between the two, both averaging \$1.15/square foot—e.g., \$920 per month for an 800 square foot unit.

There is usually a difference in the rental costs of B and C properties, based on unit age and condition—but not in the current market. According to Austin Investor Interests, this narrowing of price differential is due to unit upgrades in both property types, as well as a limited supply of each, relative

to the supply of Class A units. Renters in B and C properties may be paying as much as \$300 more per month for upgraded B and C units.³³

Class A—luxury rentals—average \$1.36/square foot (\$1,088/month for 800 square feet) and have a much higher vacancy rate of 12 percent. B and C class properties are the primary reason that rental vacancy rates have remained low overall.

Class A rents may drop over time as more Class A units are added to the market. Yet a drop in such rents is unlikely to be low enough to make a difference in the shortage of affordable rental units (discussed below). Instead, Austin Investor Interests argues that the dominance of Class A apartments in high-demand neighborhoods—e.g., downtown Austin—could raise demand, and rents, of Class B units in surrounding areas. Affordability and need for these types of rental units is addressed in the following section.

³³ The Austin Multi-Family Trend Report, Austin Investor Interests, 1Q2014.

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Housing Affordability

The 2008 HMS identified two primary areas of need in Austin's housing market:

- A shortage of rental units for renters earning \$20,000 and less, and
- A shortage of units to buy, as well as affordable product types, for to-be-owners earning less than \$75,000 per year.

Rental needs. The 2008 study concluded that the city had a large need for affordable rentals. At that time, the rental market was undersupplying affordable rentals for renters earning less than \$20,000 per year. These 44,700 renters, needing rents of less than \$425 per month, had just 7,150 affordable units in the market, leaving a shortage of 37,600 units.

The 2008 study also projected future rental needs based on household growth. These projections found the need for the city to develop 12,500 rental units priced less than \$425 per month to accommodate additional low income renters through 2020.

Homeownership needs. The 2008 HMS also found a need for homeownership product affordable for renters earning between \$35,000 and \$75,000 per year. The study recommended broadening the inventory of alternatives to single family detached homes which could be priced between \$113,000 and \$240,000, depending on subsidies and product type.

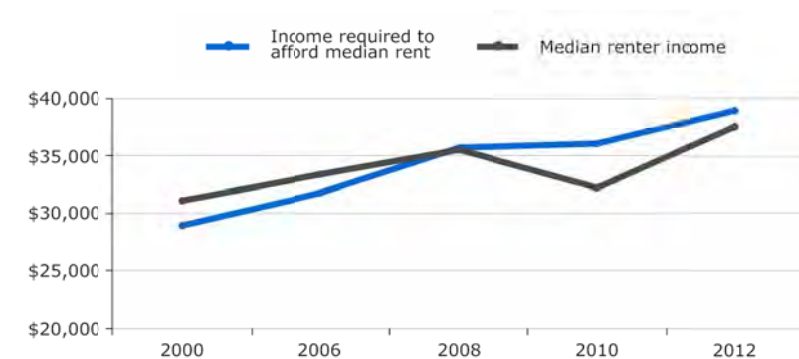
Since the 2008 study, Austin's market has become less affordable for low income renters and more affordable for owners. The increase in ownership affordability is solely due to the large decline in mortgage interest rates after 2008.

Rental affordability. Fifty-five percent of Austin's households are renters. This proportion has shifted little since 2008 (54%) and 2000 (55%).

Between 2000 and 2010, median rents in Austin increased from \$724 to \$924. This means Austin renters were paying an additional \$200 per month for rents in 2010 than in 2000.

As shown in the figure below, renter incomes did not keep up with the increases in rents.

Figure II-9.
Change in Median Income versus Median Rent, 2000 to 2012



Source: 2000 Census and 2012 ACS.

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Rental subsidies. Increases in rents are particularly challenging for low income households who have limited options in the rental market. As discussed in the rental gaps analysis below, maintaining an inventory of publicly subsidized rentals has been key for preserving rental opportunities for the city's lowest income households. Without these units, the rental gap would be much larger—and many more low income residents would be cost burdened or leave the city for more affordable housing.

An estimated 18,500 affordable rental units have been created with local, state and federal funds, according to the city's 2013 affordable housing inventory database. These include housing authority units, developments built with rental tax credits, developments funded by General Obligation (GO) bonds, SMART Housing developments and others. Of these units, almost 2,500—or 13 percent of all units—have affordability contracts that expire in the next 10 years. As such, these units are at risk of being lost from the affordable rental inventory.

Figure II-10 shows the distribution of these publicly subsidized rentals by ZIP code. The highest proportion of units are located in ZIP code 78741 (18%), followed by 78753 (10%). These ZIP codes also have the highest proportions of affordable rentals with affordability contracts that are set to expire in the next 10 years.

Figure II-11 maps the location of place-based subsidized rentals along with locations where housing choice vouchers are being used. Both are predominantly located in the eastern portion of the city and to a lesser extent, north and south Austin.

**Figure II-10.
Distribution of
Subsidized
Rentals and
Rentals with
Expiring
Contracts by
ZIP Code, 2012**

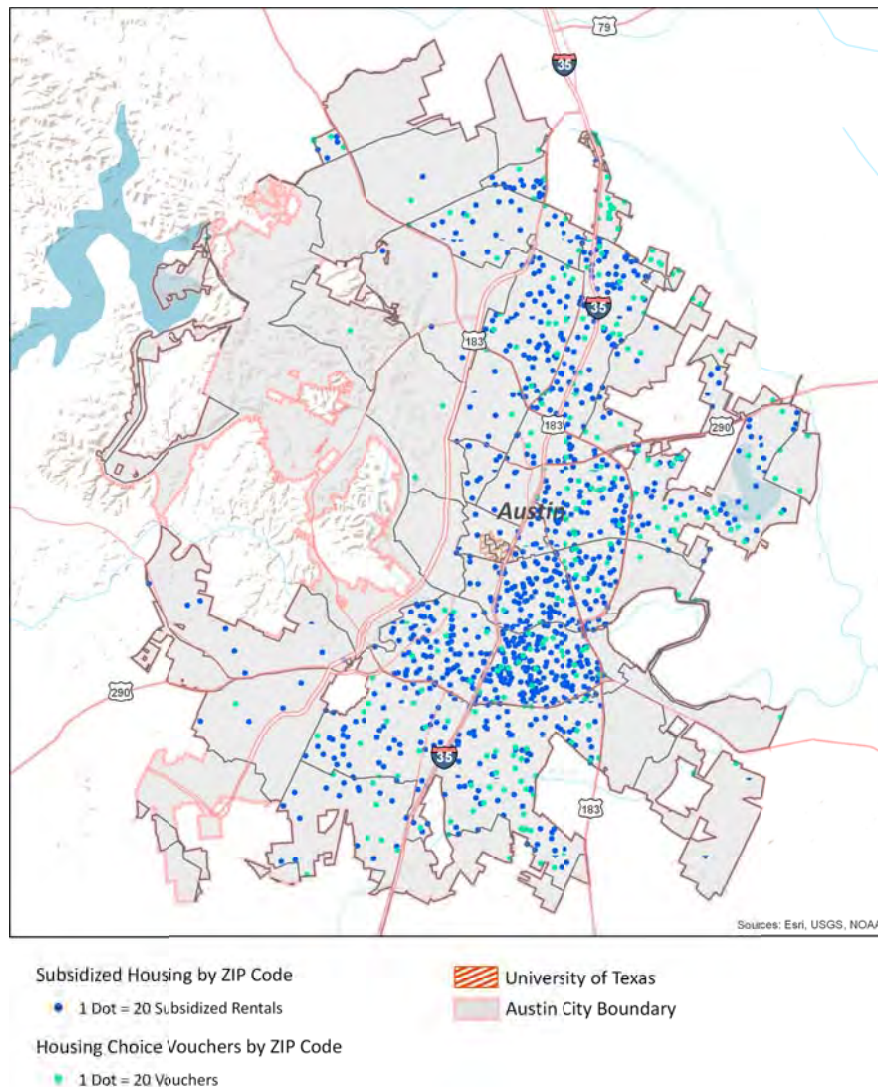
Source:
City of Austin.

ZIP code	Distribution of Subsidized Rentals by ZIP Code	Distribution of Units with Expiring Contracts
78613	0%	
78617	0%	
78660	0%	
78701	1%	
78702	9%	3%
78704	9%	8%
78705	1%	2%
78721	5%	
78722	1%	
78723	7%	14%
78724	5%	
78727	3%	
78728	2%	
78729	0%	
78735	1%	
78741	18%	17%
78744	9%	12%
78745	5%	9%
78748	2%	3%
78749	0%	
78751	0%	
78752	2%	1%
78753	10%	19%
78754	1%	
78756	1%	1%
78757	1%	
78758	6%	12%
78759	1%	
78702	0%	
	100%	100%

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Figure II-11.
Subsidized Rentals and Housing Choice Voucher Locations, 2012



Source: City of Austin.

The Housing Choice Voucher program, also known as Section 8, provides subsidies to low income renters based on their monthly incomes. The federal program is managed locally by the Housing Authority of the City of Austin, or HACA. Approximately 6,300 vouchers are available to eligible low income renters in Austin, although funding is subject to federal authorization.

Housing choice voucher holders rent market rate units that meet quality standards. Voucher holders are reimbursed based on a “fair market rent” (FMR) standard that is set at the federal level for each market area.

The FMR is set for the MSA, which can affect where voucher holders can find affordable units.⁴ A recent demonstration program by HUD that allowed the use of ZIP code level FMRs broadens the market area in which voucher holders can find units by providing higher subsidies in higher priced ZIP codes.⁵

⁴ Voucher holders can rent units that are priced higher than the FMR, but they must make up the difference in rent, which is usually difficult for low income households.

⁵ The downside is that fewer voucher holders may be served by the program (without an increase in overall funding for vouchers) because the cost per voucher is higher.

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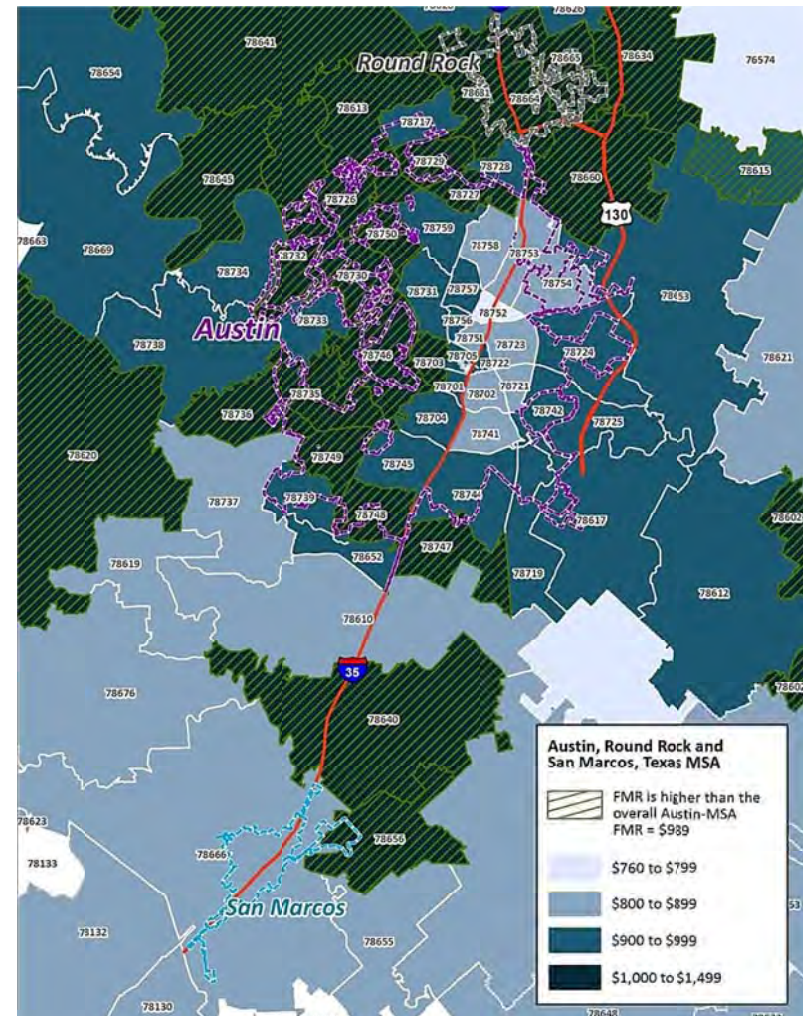
Figure II-12 shows how the ZIP code level, “hypothetical” FMRs would expand the options of voucher holders in Austin. The crosshatch shows the additional ZIP codes available to voucher holders under a ZIP code FMR reimbursement model.

Rental preservation. A 2014 study conducted by Housing Works in Austin found that a significant amount of affordable housing (rents affordable to renters earning 50% and 60% of AMI) existed in smaller, older, multifamily properties. The study also found that these properties had twice the Section 8 acceptance rate of larger rental complexes.

The affordable units provided by these properties, however, are mostly small (efficiencies and 1-bedroom) and not always affordable to large families needing 2-plus bedroom units.

Still, the study highlights the role of privately-provided, affordable rental units in helping to meet the need of affordable rentals across the low income spectrum—and suggests a broader role for the city in helping to preserve the affordability of existing properties.

Figure II-12.
Hypothetical Small Area FMRs for the Austin, Round Rock and San Marcos, Texas Metropolitan Statistical Area (MSA), 2012



Note: The 2012 2-bedroom FMR for the Austin-Round Rock-San Marcos area is \$989. The crosshatch indicates a ZIP code where the ZIP code FMR is higher than the overall FMR.

Source: www.huduser.org; Fair Market Rent database.

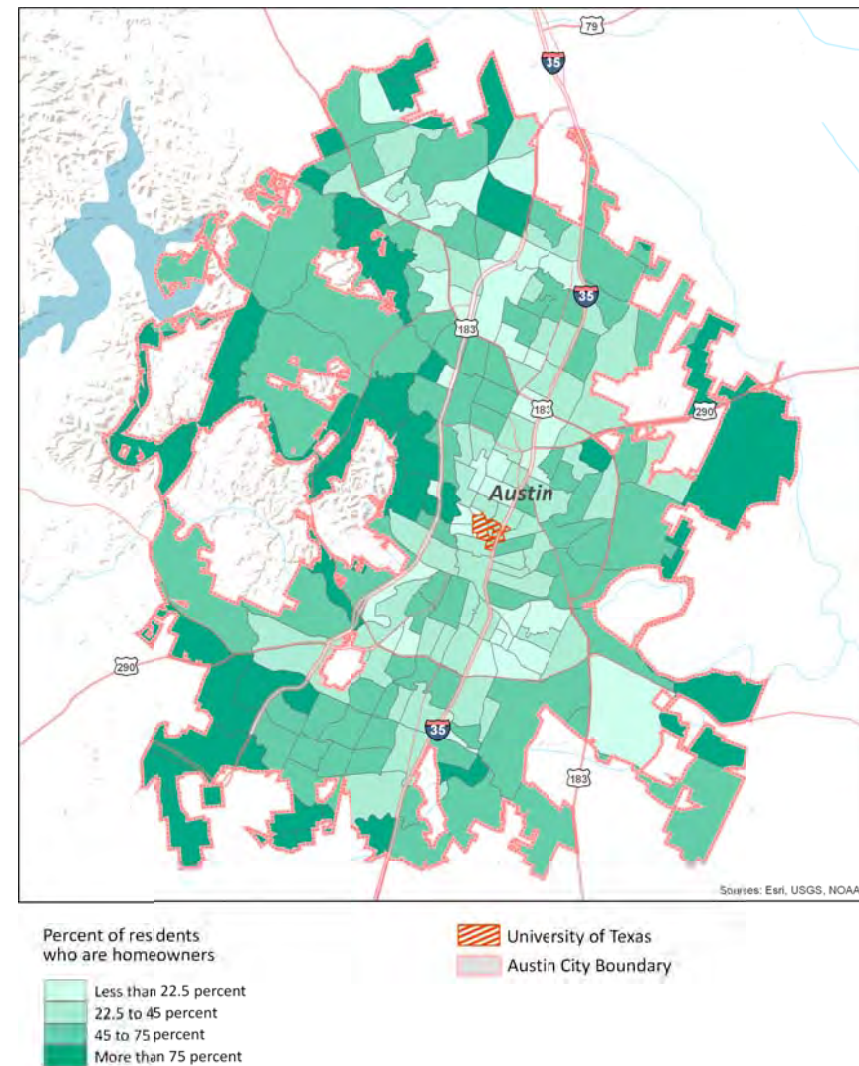
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Homeownership affordability. Since 2000, the homeownership rate in Austin has been unchanged at 45 percent. Homeownership in Austin has been about this level for more than a decade, after rising from 41 percent in 1990.

Homeownership varies geographically, as shown in the following map. Ownership is highest in the outer boundaries of the city and lowest in the city core and north Austin.

Figure II-13.
Homeownership Rate by Census Tract, City of Austin, 2012



Source: 2008-2012 ACS and BBC Research & Consulting.

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Home values. According to the Census, the median value of a home in Austin was \$222,100 in 2012—up 78 percent from the 2000 value of \$124,700. As shown in the figure below, home value increases in Austin have exceeded those in Travis County and Texas overall.⁶ Austin's median value surpassed that of Travis County after 2000.

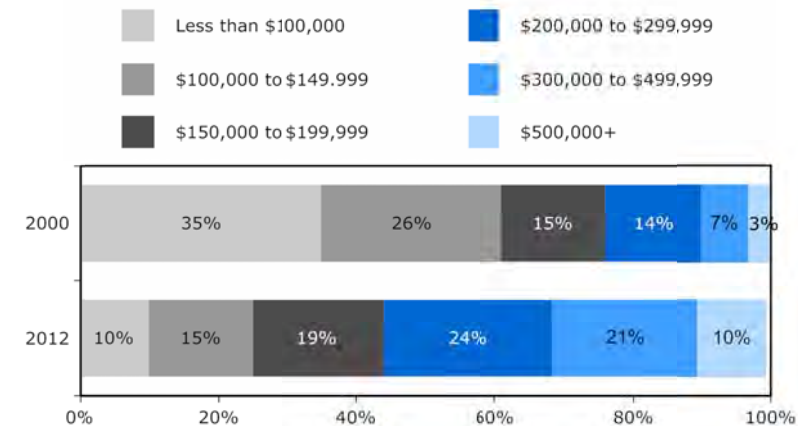
Figure II-14.
Home Values and Increases, Austin, Travis County and State of Texas, 2000 to 2012

	Austin	Travis County	State of Texas
2000 Median	\$124,700	\$134,700	\$82,500
2012 Median	\$222,100	\$217,600	\$129,200
% change	78%	62%	57%

Source: U.S. Census, 2000, and 2012 ACS

Figure II-15 shows how values have shifted among value categories. In 2000, more than one-third of homes in Austin had values of less than \$100,000; by 2012, just 10 percent of units were valued at less than \$100,000. The figure shows a significant movement away from moderately priced homes toward higher priced units.

Figure II-15.
Shifts in Home Values, Austin, 2000 and 2012



Source: U.S. Census, 2000, and 2012 ACS.

Homes to buy. Data on homes listed for sale or sold are used to determine how easily renters can buy in a market and how prices have changed. The 2008 HMS compared home prices in 2005 and 1997; this section updates that analysis with a comparison of prices from 1997, 2000, 2005, 2010 and 2013 (the last full year of sales at the time this report was prepared).

⁶ Home values are self-reported on the Census long form survey. They do not necessarily reflect units that are available for purchase. Values are a general indicator of the distribution of home prices.

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Figure II-16 compares the median prices of attached and detached homes over the past 16 years. Percentage-wise, price increases were strongest for attached units. Numerically, price increases were largest for detached units. For all units, prices rose the most between 1997 and 2000. The average increase in prices during this period was about twice that of growth between 2010 and 2013.

Figure II-16.
Median Sale Price, Austin, 1997-2013

	Attached	Equivalent Annual Increase	Detached	Equivalent Annual Increase	All Homes	Equivalent Annual Increase
1997	\$78,000		\$125,000		\$118,990	
2000	\$115,000	16%	\$169,000	12%	\$159,900	11%
2005	\$142,000	5%	\$193,000	3%	\$181,500	3%
2010	\$164,000	3%	\$245,000	5%	\$229,000	5%
2013	\$205,000	8%	\$285,100	5%	\$269,000	6%
1997-2013 change	\$127,000	163%	\$160,100	128%	\$150,010	126%

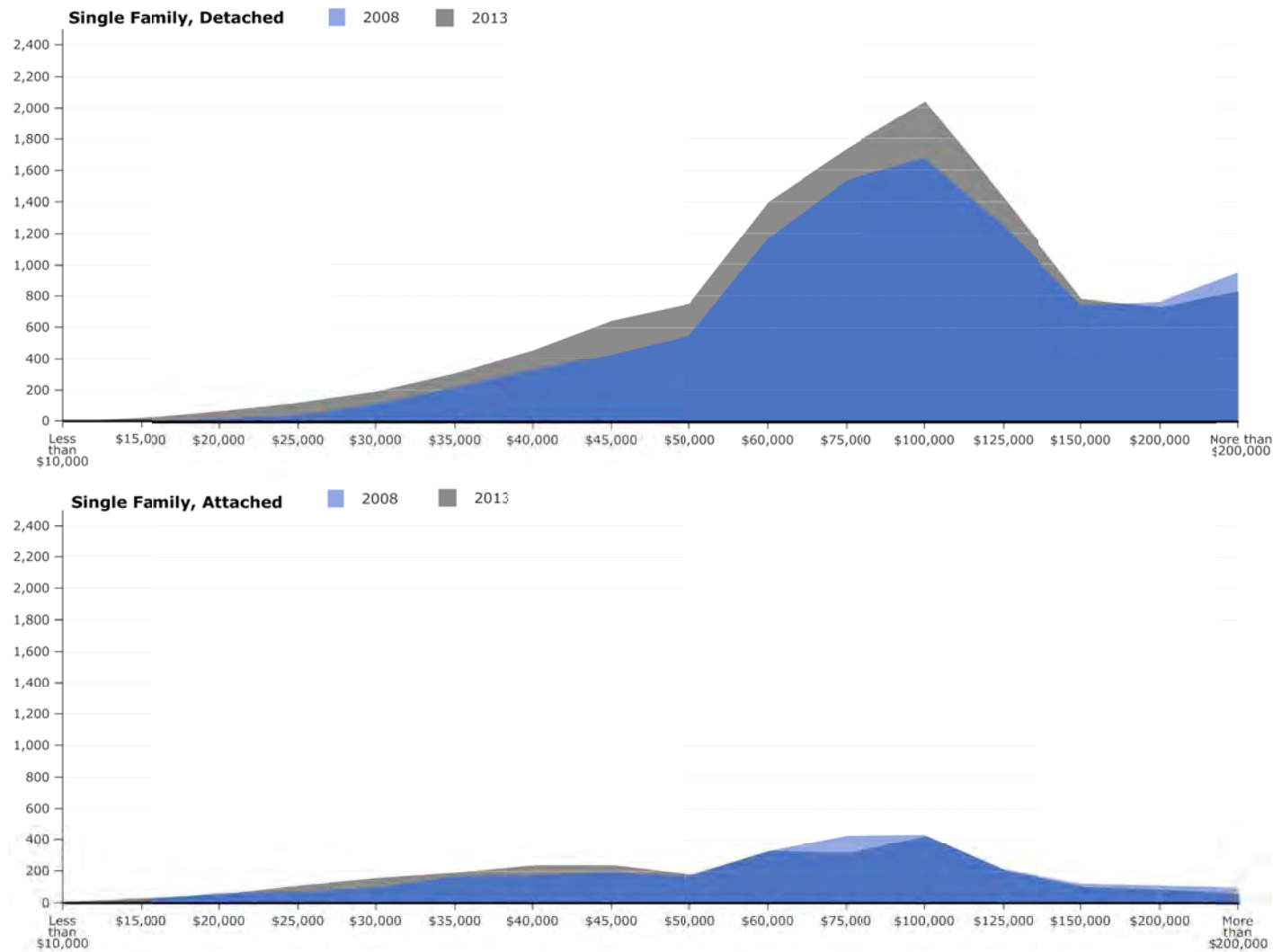
Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

Figure II-17 demonstrates where peaks and valleys exist in the 2013 for-sale market—it charts the number of single family detached and attached homes by the incomes at which they are affordable. The distribution of detached homes for sale in 2013 is similar to 2008 with the market primarily serving households earning between \$60,000 and \$125,000. There have been some affordability gains in the attached market since 2008, though the market overall still primarily serves households earning between \$50,000 and \$100,000 per year.

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Figure II-17.
Distribution of Housing Units Available to Buy by Income and Housing Type, 2013



Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

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Figures II-18 and II-19 illustrate the geographic variation in median sale price across Austin ZIP codes. Among Austin ZIP codes that had at least 10 home sales in 2013, the lowest median sale price was \$127,000 (in ZIP code 78724) and the highest was \$770,000 (in ZIP code 78746). As displayed in the map, sale prices were highest in West Austin.

Figure II-18.
Median Sale Price by ZIP Code, Austin, 2013

ZIP code	Median Price - All For-Sale	Median Price - Attached	Median Price - Detached	ZIP code	Median Price - All For-Sale	Median Price - Attached	Median Price - Detached
CITY OF AUSTIN	\$269,000	\$205,000	\$285,100				
78617	N/A	N/A	N/A	78735	\$420,000	\$205,750	\$440,000
78701	\$380,000	\$375,500	N/A	78739	\$385,000	N/A	\$385,000
78702	\$263,000	\$230,750	\$280,000	78741	\$137,500	\$119,500	\$166,300
78703	\$622,500	\$365,050	\$801,500	78742	N/A	N/A	N/A
78704	\$366,750	\$300,000	\$449,000	78744	\$132,000	N/A	\$133,000
78705	\$210,000	\$195,000	\$535,000	78745	\$205,500	\$174,500	\$206,000
78717	\$263,000	\$200,653	\$272,000	78746	\$770,000	\$389,000	\$850,000
78721	\$161,250	N/A	\$163,950	78748	\$205,000	\$192,250	\$208,400
78722	\$339,500	N/A	\$340,000	78749	\$275,000	\$189,750	\$280,000
78723	\$215,000	\$278,000	\$212,000	78750	\$298,250	\$195,000	\$375,000
78724	\$127,000	N/A	\$127,705	78751	\$345,000	\$185,000	\$354,700
78726	\$357,250	N/A	\$357,750	78752	\$207,250	\$127,250	\$228,250
78727	\$225,000	\$162,500	\$235,900	78753	\$145,000	\$108,500	\$149,950
78728	\$185,900	N/A	\$186,200	78754	\$170,000	N/A	\$170,208
78729	\$212,375	\$151,500	\$216,250	78756	\$365,000	\$174,900	\$440,000
78730	\$540,000	\$176,150	\$710,000	78757	\$290,000	\$119,900	\$324,000
78731	\$479,600	\$191,000	\$555,000	78758	\$151,486	\$107,000	\$167,000
78732	\$419,000	N/A	\$419,000	78759	\$330,000	\$185,000	\$389,900

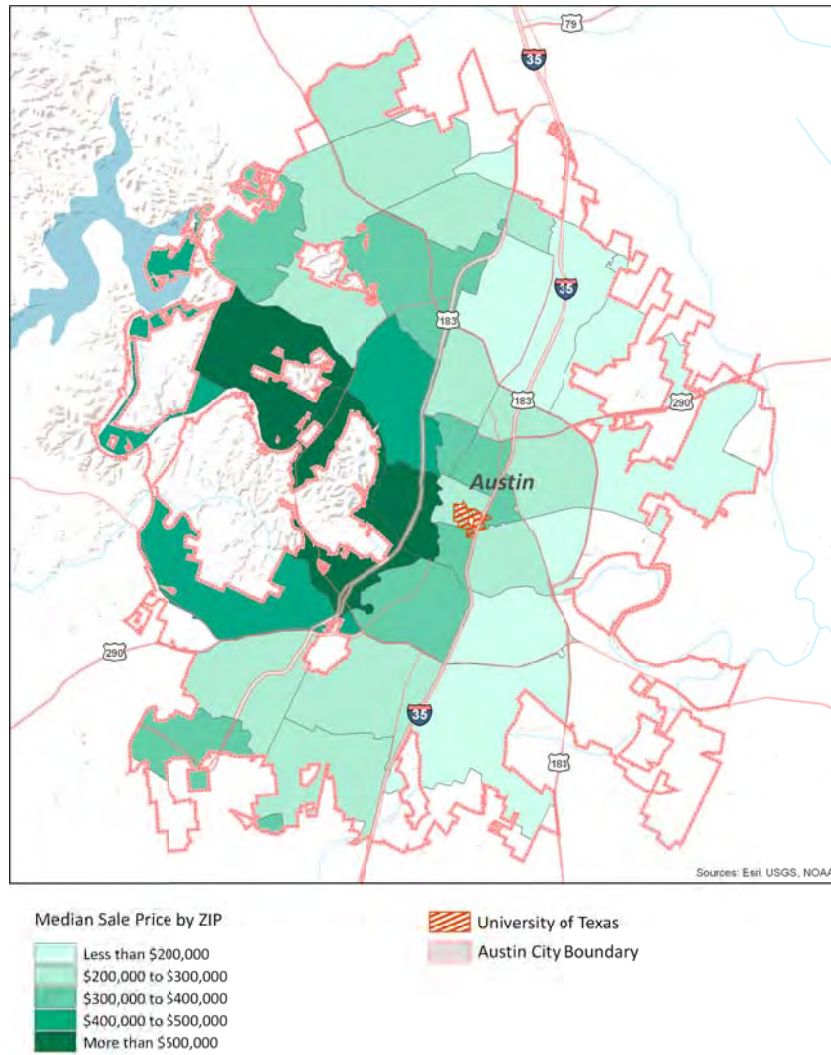
Note: Medians are not shown for ZIP codes with fewer than 10 sales in 2013.

Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

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Figure II-19.
Median Sale Price for All Homes by ZIP Code, Austin, 2013



Note: Medians are not shown for ZIP codes with fewer than 10 sales in 2013.

Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

Some markets appear affordable but only because the housing affordable to buy is in poor condition. According to the 2013 MLS, 17 percent of homes affordable to renters earning less than \$50,000 are in poor or fair condition, compared to just 9 percent of all homes on the market.

Figure II-20.
Condition of For Sale Homes, Austin, 2013

Condition at time of Sale	Number of Homes Available	Average Year Built	Average Square Footage	Percent Attached
Excellent	1,059	1994	1,314	39%
Good	1,572	1986	1,277	36%
Average	575	1983	1,314	30%
Fair	445	1980	1,321	19%
Poor	224	1968	1,286	6%

Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

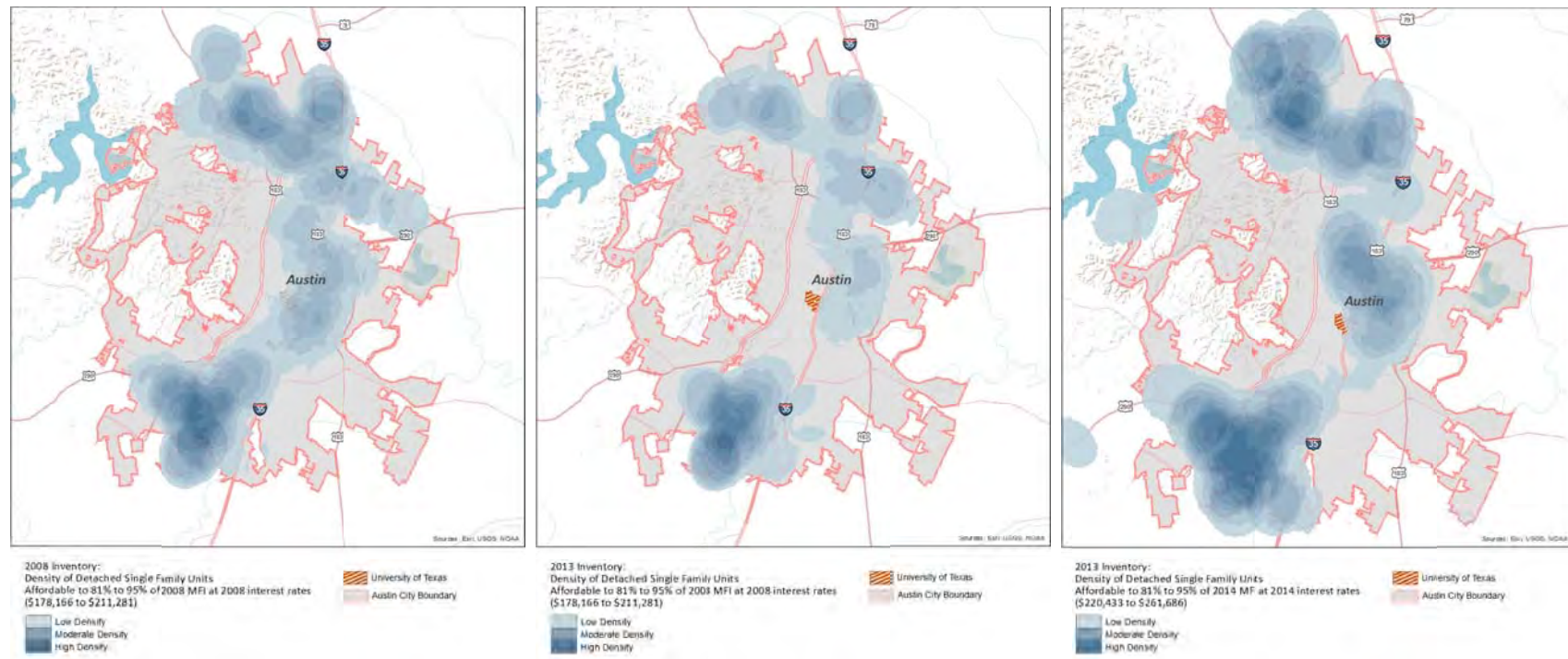
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Figures II-21 and II-22 demonstrate how affordability has changed *geographically*. As discussed previously, affordability in the ownership market did increase between 2008 and 2013 but only due to falling mortgage interest rates. The first map in each figure shows affordability in 2008; the second map shows properties available in 2013 that meet the 2008 criteria (2008 MFI threshold and 6.5% interest); and the third map shows affordability in 2013 using 2013 MFI thresholds and a 4.5 percent interest rate.

The availability of single family detached homes affordable to those earning 81 to 95 percent MFI increased but also became more concentrated in northern and southern portions of the city. There are fewer affordable options in the city center.

Figure II-21.
Single Family Detached Homes Affordable to Households Earning 81% to 95% MFI, 2008 and 2013

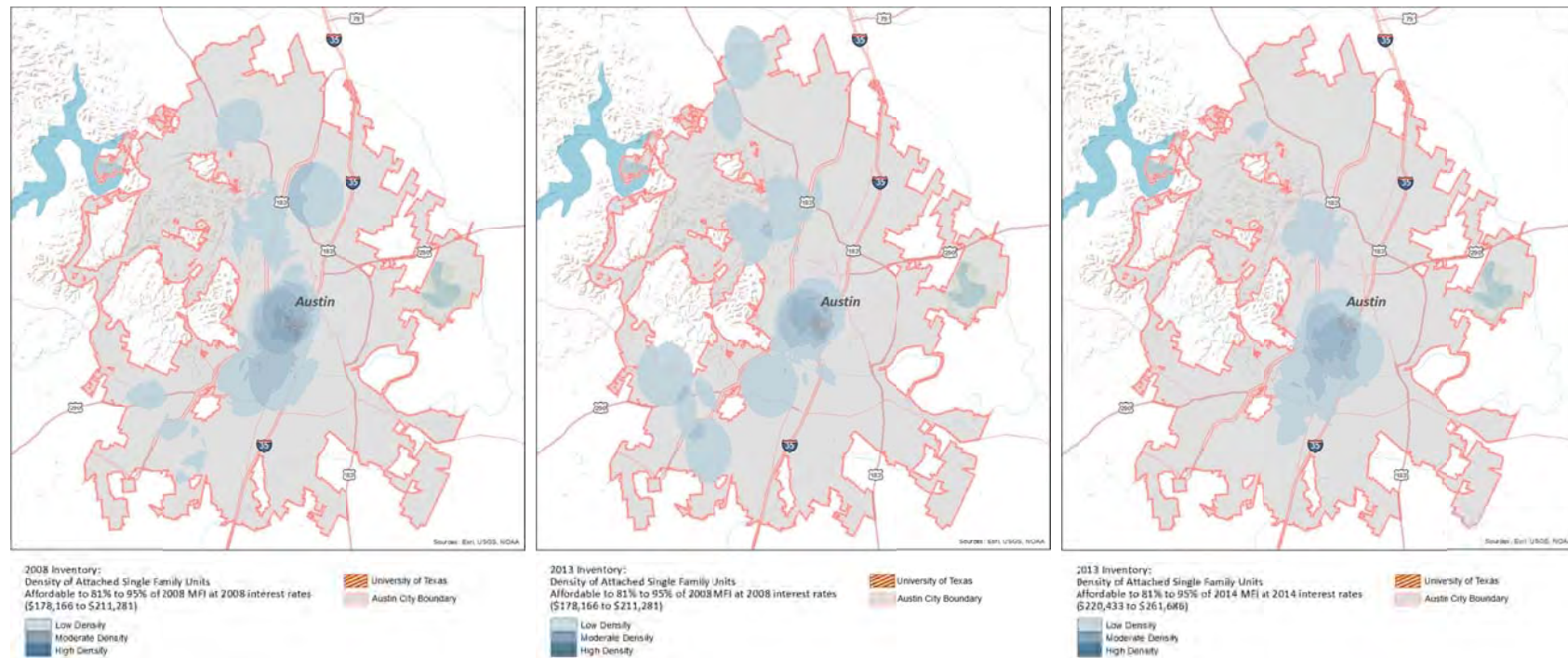


Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

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Figure II-22.
Attached Homes Affordable to Households Earning 81% to 95% MFI, 2008 and 2013



Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

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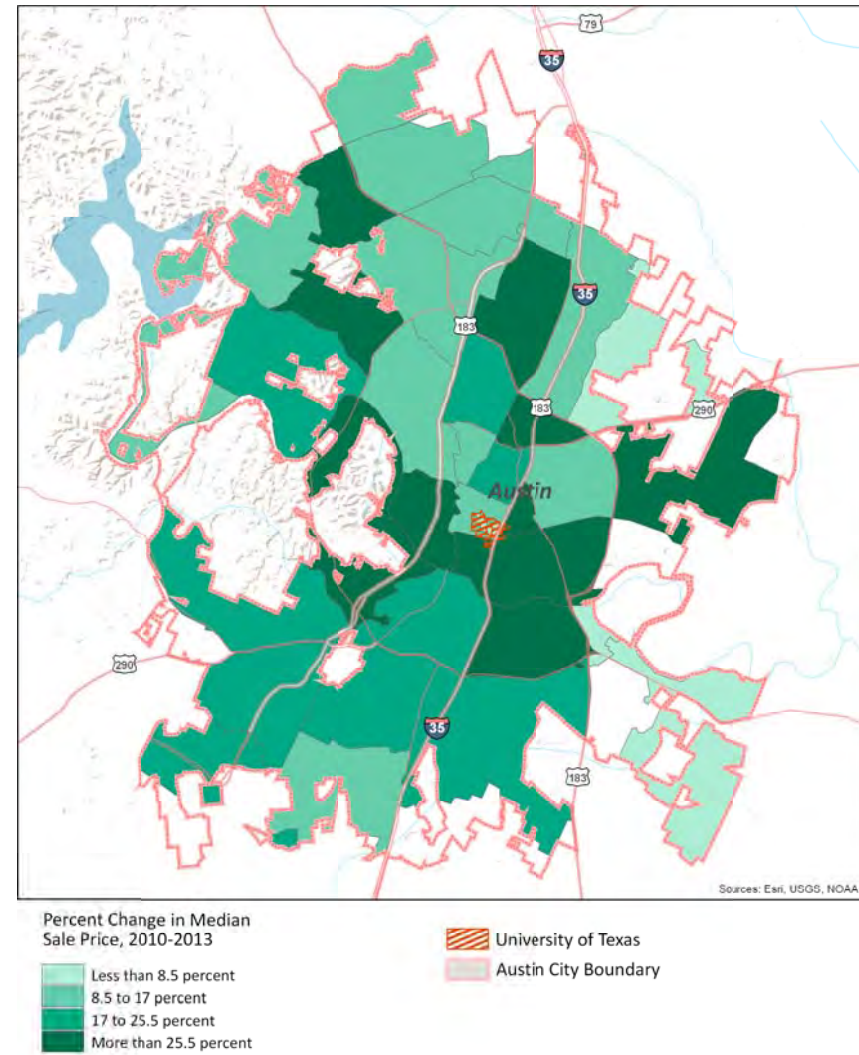
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Over the past few years, median home prices in Austin (for all homes including attached and detached) increased by 17 percent (from \$229,000 in 2010 to \$269,000 in 2013). Figure II-23 maps the change in home price by ZIP code. Rapid increases in home price are a typical indicator of gentrification.

ZIP codes 78702, 78752, 78721, 78701 and 78722 all experienced price increases that were twice that of the city overall. ZIP codes 78704 and 78723 had substantial price increases between 2000 and 2010, but since 2010 that growth has slowed somewhat.

As demonstrated by the map, neighborhoods in close proximity to downtown are experiencing some of the most dramatic price increases within the Austin for-sale market.

Figure II-23.
Percent Change in Median Sale Price by ZIP Code, 2010-2013



Source: U.S. Census, 2000, and 2012 ACS

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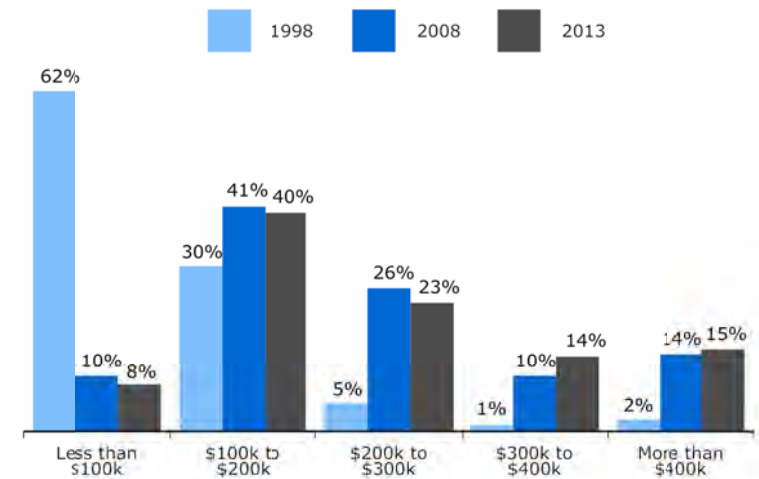
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Rapidly increasing home prices are not just a concern for residents looking to purchase a home. Current homeowners in neighborhoods with dramatic valuation increases are subject to substantial increases in their property tax burden. For low income owners and those on a fixed income such increases can be an impediment to keeping their homes.

Consider, for example, a senior resident of ZIP code 78702 (where the home prices increased by 46% between 2010 and 2013). Even with the senior tax exemption, that resident's property taxes are likely to have doubled, rising from \$1,860 to \$3,600.

Condo affordability. Although condos are more affordable than single family detached homes, Austin's recent condo development has not alleviated unmet demand for affordable for-sale homes. Condos sold in 2013 and constructed in 2010 or later had a median listing price of \$309,000.

Figure II-24.
Price Distribution of For-Sale Condos, Austin, 1998, 2008 and 2013



Source: Austin Board of Realtors and BBC Research & Consulting analysis of ABOR data.

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Cost burden. Cost burden is a useful way to compare how affordability has shifted over time. Households are considered to be “cost burdened” when they pay more than 30 percent of their gross household income in housing costs—this includes rent, mortgage payment, basic utilities, property taxes and homeowners insurance. This is an industry standard, and ideal, for affordability.⁷

The proportion of households who are cost burdened generally worsens when housing prices increase. Cost burden can also occur when household incomes decline but home prices do not.

Between 2000 and 2012, cost burden increased for both renters and owners in Austin, as shown in Figure II-25.

Figure II-25.
Cost Burden, Austin, Travis County and State of Texas, 2000 and 2012

	Austin	Travis County	State of Texas
Owners			
2000 owners cost burdened	21%	21%	19%
2012 owners cost burdened	28%	28%	27%
Percentage point increase	7%	7%	23%
Renters			
2000 renters cost burdened	44%	43%	37%
2012 renters cost burdened	50%	51%	48%
Percentage point increase	6%	8%	11%

Source: U.S. Census, 2000, and 2012 ACS

Interestingly, cost burden is about the same in Austin as in Travis County and the State of Texas—even though housing prices in Austin are higher. Cost burden has also increased less in Austin. This suggests that Austin renters and owners have been better able to manage housing price increases through increases in income relative to renters and owners in the county and state overall. It may also demonstrate the effect of Austin’s investment in affordable rental units.

⁷ http://www.huduser.org/portal/datasets/cp/CHAS/bg_chas.html

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Housing Gaps

This section updates the 2008 housing gaps analysis, which compared rental and ownership supply to demand to identify housing needs. This updated analysis incorporates the following data:

- Population estimates from the City Demographer,
- Housing unit estimates and rent distribution from the U.S. Census,
- Subsidized rental units from the city's affordable housing database and the Housing Authority of the City of Austin (HACA),
- Austin Investor Interests' Multi-family Trend Report from first quarter 2014, and
- For sale listings from the Austin Board of Realtors (ABOR).

For the purposes of this analysis, affordability is determined by the criteria that a household should pay no more than 30 percent of gross monthly income toward housing costs. This includes utilities, homeowners insurance and property taxes.

Figure II-26 shows how much households can afford to both buy and rent by income level. The figure incorporates two different assumptions for downpayments—a downpayment equivalent to 5 percent of the home price, which was used in the 2008 gaps model, as well as 10 percent, which has become

more customary with changes in housing finance. A 10 percent downpayment appears to make the market slightly more affordable since buyers are able to afford a higher home price. This is only possible if buyers have saved for a downpayment or are provided with downpayment assistance.

Figure II-26.
Affordable Home Price and Rents and Utilities by Income Range

Income Category	Affordable Home Price - 10% Downpayment	Affordable Home Price - 5% Downpayment	Affordable Monthly Rent & Utilities
Less than \$10,000	\$39,661	\$38,196	\$250
\$10,000 to \$14,999	\$58,559	\$56,398	\$375
\$15,000 to \$19,999	\$77,463	\$74,601	\$500
\$20,000 to \$24,999	\$96,367	\$92,809	\$625
\$25,000 to \$29,999	\$115,266	\$111,012	\$750
\$30,000 to \$34,999	\$133,857	\$128,914	\$875
\$35,000 to \$39,999	\$152,756	\$147,122	\$1,000
\$40,000 to \$44,999	\$171,660	\$165,325	\$1,125
\$45,000 to \$49,999	\$189,934	\$182,923	\$1,250
\$50,000 to \$59,999	\$227,737	\$219,337	\$1,500
\$60,000 to \$74,999	\$284,449	\$273,951	\$1,875
\$75,000 to \$99,999	\$378,329	\$364,370	\$2,500
\$100,000 to \$124,999	\$472,843	\$455,398	\$3,125
\$125,000 to \$149,999	\$567,358	\$546,422	\$3,750
\$150,000 to \$199,999	\$756,382	\$728,475	\$5,000

Note: Assumes an interest rate of 4.5% and a 30-year payment term.

Source: BBC Research & Consulting affordability calculations.

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Rental gaps. Two updates from the 2008 HMS are provided for the rental gaps: 1) A 2012 gaps using 2012 Census data, and 2) A 2014 update using rents collected during first quarter 2014.

The first is based on 2012 household and rental market data available from the 2012 ACS. Because the ACS uses self-reported rental data, it can be a better measure of what a household actually pays in rent. This is important because households with Housing Choice Vouchers pay less in monthly rent than the market rents of the units they occupy. The ACS also contains a broader inventory of rental units (units in smaller complexes and subsidized developments) than are available in market surveys.

The primary weakness of the rental data in the ACS is that it is from 2012—and the rental market has changed quite dramatically since then. For example, according to Austin Investor Interests, rental rates per square foot for Class B and C units rose from about \$1.00/square foot (Class C) and \$1.10/square foot (Class B) in mid-2012 to \$1.15/square foot for both types of properties in first quarter 2014. This is equivalent to a \$120 rent increase on a Class C 800 square foot unit.

Therefore, two gaps analyses are provided: a comprehensive comparison of the 2008 gaps using 2012 data, and an update to the 2012 gaps to reflect early 2014 rental prices.

2012 rental gaps. In 2012, 27 percent of the city's renters earned less than \$20,000 per year. This is the same proportion as in 2008. Although the number of renter households grew between 2008 and 2012, the growth was concentrated among higher income renters. For example, as discussed in Section I, the number of

renters earning less than \$20,000 increased by 1,575, while renters earning more than \$75,000 grew by more than 15,000.

In 2008, just 4 percent of rental units were estimated to be affordable to renters earning less than \$20,000. This proportion remained the same in 2012 but the actual number of units increased, from 7,150 to 8,410. This increase in affordable units does not entirely make up for the increase in renters earning less than \$20,000. As such, the rental gap for renters earning less than \$20,000 increased, but only very modestly.

It is important to note that renters earning less than \$20,000 find the vast majority of units they can afford in publicly subsidized housing, not market rate units. The rents on publicly subsidized units are generally more stable. These units made up the bulk of units renters earning less than \$20,000 could find in 2008—and that appears to be the case in 2012.

The impact of rising rents is evident in the \$20,000 to \$25,000 income range. The 2012 gaps found a shortage of units for renters earning \$20,000 to \$25,000—about 1,500 units—which was not found in 2008. This is not due to an increase in renters in this income range, but to a decrease in affordable, some privately provided, units.

Figure II-27 shows the results of the 2012 rental gap. Figure II-28 summarizes the changes in the gap since 2008.

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Figure II-27.
Rental Gaps Analysis, Income Level and AMI, 2012

Gaps by Income Range							
Income Range	Number and % of Renters		Maximum Affordable Rent+Utilities	Number of rental units, 2012 ACS	% of rental units	Rental Gap	Cumulative Gap
Less than \$5,000	12,677	7%	\$125	635	0%	(12,042)	(12,042)
\$5,000 to \$9,999	10,967	6%	\$250	2,774	1%	(8,193)	(20,235)
\$10,000 to \$14,999	11,770	7%	\$375	1,947	1%	(9,822)	(30,057)
\$15,000 to \$19,999	12,430	7%	\$500	3,054	2%	(9,376)	(39,433)
\$20,000 to \$24,999	12,037	7%	\$625	10,546	6%	(1,491)	(40,924)
\$25,000 to \$34,999	22,275	12%	\$875	52,540	28%	30,264	(10,660)
\$35,000 to \$49,999	31,948	18%	\$1,250	67,815	36%	35,867	25,207
\$50,000 to \$74,999	28,717	16%	\$1,875	37,497	20%	8,780	33,988
\$75,000 to \$99,999	16,897	9%	\$2,500	11,802	6%	(5,095)	28,893
\$100,000 to \$149,999	12,961	7%	\$3,750	-	0%	(12,961)	15,932
\$150,000 or more	6,527	4%		-	0%	(6,527)	9,406
Total	179,205	100%		188,611	100%	9,406	

Gaps by AMI (2014 income limits for 4-person hh)								
AMI maximums	income upper bound	Number and % of Renters		Maximum Affordable Rent+Utilities	Number of rental units, 2012 ACS	% of rental units	Rental Gap	Cumulative Gap
0-30% AMI	\$22,600	54,104	30%	\$565	13,895	7%	(40,208)	(40,208)
31-50% AMI	\$37,700	33,803	19%	\$943	69,808	37%	36,005	(4,203)
51-80% AMI	\$60,300	38,029	21%	\$1,508	71,057	38%	33,028	28,825
81-95% AMI	\$71,630	13,015	7%	\$1,791	16,995	9%	3,979	32,805
96-120% AMI	\$85,956	11,275	6%	\$2,149	10,226	5%	(1,049)	31,755
121-150% AMI	\$113,100	12,887	7%	\$2,828	6,630	4%	(6,258)	25,497
More than 150% of AMI	\$113,101	16,092	9%		-	0%	(16,092)	9,406
Total		179,205	100%		188,611	100%	49,614	

Note: The model excludes renters who do not pay rent but instead receive boarding for exchange of goods or services.

Source: BBC Research & Consulting.

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Figure II-28.
Change in Rental Gaps, 2008 to 2012

	<u>2008</u>	<u>2012</u>	<u>Difference</u>	
Renters earning <\$20,000	46,269	47,843	↑ 1,574	
Renters earning <\$25,000	60,088	59,880	↓ (208)	
Units affordable to <\$20,000	7,151	8,410	↑ 1,259	
Units affordable to <\$25,000	22,597	18,956	↓ (3,641)	
Gap for <\$20,000	39,118	39,433	↑ 315	<1% increase from 2008
Gap for <\$25,000	37,491	40,924	↑ 3,433	9% increase from 2008

Source: BBC Research & Consulting.

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The modest increase in the gap is a bit counterintuitive given increases in poverty. Yet much of the change in poverty occurred prior to 2008, between 2000 and 2007. There is also some evidence that low income residents may be living with others to manage housing costs: The average size of renter households was 2.36 in 2012 compared to 2.21 in 2008. These data suggest that the 2012 “gap renter households” are more likely than in 2008 to be “doubling up” to make ends meet.

2014 gaps. To adjust the 2012 gaps to 2014 prices, the rents of units priced between \$500 and \$1,000 in 2012 were raised to reflect the changes in price per square foot documented by Austin Investor Interests. This update assumes that units priced less than \$500 per month are publicly subsidized and that the 2012 inventory was maintained.

The 2014 increase in rental shortages shows up for renters earning \$20,000 to \$25,000. 2014 pricing increases this gap by about 6,800 units, putting the cumulative gap at nearly 47,700 versus 40,924 using the 2012 rent distribution.

Figure II-29.
Increase in Rental Gaps Based on 2014 Rental Prices

	<u>2012 Gap</u>	<u>2014 Gap</u>	
Renters earning \$0-\$25,000	40,924	47,698	6,774

Source: BBC Research & Consulting.

Impact on Housing Choice Voucher holders. Residents most affected by a tight rental market are Housing Choice Voucher holders, most of whom rent privately provided market rate units. As demonstrated by the 2014 gaps update, voucher holders earning between \$20,000 and \$25,000 have increasingly fewer market units to choose from. The housing authority in Austin reports that voucher holders are taking longer amounts of time to find affordable housing due to the lack of rentable units. This was supported by participants in the focus groups who described extreme challenges finding units that accept Section 8, especially for those who need units in particular areas because they cannot drive.

Homeownership gaps. The 2008 HMS examined how easy it was for renters of various income levels to purchase homes in Austin. This section updates the 2008 analysis with new data on homes for sale during 2013.

Market and financing changes. Housing prices increased between 2008 and 2013 but falling interest rates helped preserve ownership opportunities for residents looking to purchase a home. In 2008, a household earning \$50,000 could afford a home priced at \$160,000 (with a 5% downpayment and an interest rate of 6.5%). In 2014, the same household, earning \$50,000, could afford a home priced at \$183,000 (with the same 5% downpayment) because interest rates dropped two percentage points, to 4.5 percent.

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Figure II-30 displays available affordable homes based on 2008 and 2013 market conditions. The figure also shows what the 2013 market might look like if interest rates had **not** declined. In 2008, 21 percent of for-sale homes were affordable to households earning less than \$50,000. In 2013, that proportion increased to 24 percent. However, if interest rates had remained at 6.5 percent, only 16 percent of homes for-sale in 2013 would be affordable to households earning less than \$50,000. Similar affordability impacts are apparent across all income levels.

Figure II-30.
Affordable and Available For-Sale Homes in Austin, 2008 and 2013

	Affordability in 2008 (5% down and 6.5% int rate)			Affordability in 2013 (5% down and 4.5% int rate)			What if interest rates hadn't changed? 	Possible Affordability in 2013 (5% down and 6.5% int rate)		
	Affordable Home Price	Affordable Homes in the Market (No. and %)		Affordable Home Price	Affordable Homes in the Market (No. and %)			Affordable Home Price	Affordable Homes in the Market (No. and %)	
Households earning less than \$35,000	\$113,000	803	6%	\$129,000	1,189	8%		\$113,000	752	5%
Households earning less than \$50,000	\$160,000	2,651	21%	\$183,000	3,515	24%		\$160,000	2,357	16%
Households earning less than \$75,000	\$240,000	6,107	49%	\$274,000	7,366	51%		\$240,000	6,163	43%

Notes: Affordable home price incorporates utilities, insurance and property taxes and assumes a 30-year fixed rate mortgage.

Source: MLS data from ABOR and BBC Research & Consulting.

SECTION II. Housing Market Gaps

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Current gaps. Even with the affordability improvements displayed in the previous figure, the ownership market in Austin remains out-of-reach for many renters who wish to purchase their first home. The 2008 gaps analysis found a mismatch between supply and demand for renters earning less than \$50,000. The 2013 gaps analysis confirms that there is still a shortage of affordable for-sale options for those renters.

Figure II-31 displays the 2013 ownership market gaps using two different downpayment options—a 5 percent downpayment, which was used in the 2008 gaps model, as well as 10 percent, which has become more customary. Similar to the rental gap figure, the ownership model compares renters, renter income levels, the maximum monthly housing payment they could afford, and the proportion of units in the market that were affordable to them. The maximum affordable home prices assume a 30-year mortgage with either a 5 or 10 percent downpayment and an interest rate of 4.5 percent. The estimates also incorporate property taxes, insurance and utilities. The “Renter Purchase Gap” column shows the difference between the proportion of renter households and the proportion of homes listed or sold in 2013 that were affordable to them. Negative numbers (in parentheses) indicate a shortage of units at the specific income level; positive units indicate an excess of units. The figure displays renters’ income by dollar amount and as a percent of MFI.

The gaps analysis shows that renters earning less than \$50,000 per year have very limited for-sale options, even if they have savings for a 10 percent downpayment. Among the homes they can afford, more than one-quarter are attached properties (condos, townhomes, etc). The market is particularly tight for renters earning less than \$35,000 per year: forty-six percent of all renters in Austin earn less than \$35,000 per year but only 9 percent of homes on the market are affordable to them, even with a 10 percent downpayment. As was the case in 2008, renters earning \$75,000 are relatively well served by the for-sale market.⁸

⁸ Current owners are not included in the gaps analysis because it is assumed they are able to leverage their current equity for the purchase of a new home and thus have wider array of options. However, it should be noted that low income owners may have different concerns related to rising home values and the related property tax implications.

SECTION II. Housing Market Gaps

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Figure II-31.
Affordability of For-Sale Housing to Austin's Renters, 2013

			5% Downpayment						10% Downpayment					
			Maximum Affordable Home Price	Affordable Homes for Sale in 2013	% of Affordable Homes that are Attached	Renter Purchase Gap	Cumulative Gap	Maximum Affordable Home Price	Affordable Homes for Sale in 2013	% of Affordable Homes that are Attached	Renter Purchase Gap	Cumulative Gap		
Income Range														
Less than \$10,000	23,644	13%	\$38,196	9	0%	89%	(13%)	(13%)	\$39,661	12	0%	92%	(13%)	(13%)
\$10,000 to \$14,999	11,770	7%	\$56,398	57	0%	58%	(6%)	(19%)	\$58,559	61	0%	56%	(6%)	(19%)
\$15,000 to \$19,999	12,430	7%	\$74,601	111	1%	44%	(6%)	(25%)	\$77,463	136	1%	43%	(6%)	(25%)
\$20,000 to \$24,999	12,037	7%	\$92,809	217	2%	49%	(5%)	(31%)	\$96,367	245	2%	47%	(5%)	(30%)
\$25,000 to \$34,999	22,275	12%	\$128,914	795	6%	45%	(7%)	(38%)	\$133,857	878	6%	41%	(6%)	(37%)
\$35,000 to \$49,999	31,948	18%	\$182,923	2,326	16%	27%	(2%)	(39%)	\$189,934	2,544	18%	26%	(0%)	(37%)
\$50,000 to \$74,999	28,717	16%	\$273,951	3,851	27%	17%	11%	(29%)	\$284,449	3,804	26%	17%	10%	(26%)
\$75,000 to \$99,999	16,897	9%	\$364,370	2,507	17%	18%	8%	(21%)	\$378,329	2,476	17%	17%	8%	(19%)
\$100,000 to \$149,999	12,961	7%	\$546,422	2,677	19%	13%	11%	(9%)	\$567,358	2,530	18%	12%	10%	(8%)
\$150,000 or more	6,527	4%	\$546422+	1,859	13%	9%	9%		\$567,358+	1,723	12%	9%	8%	
Total	179,205	100%		14,409	100%	19%				14,409	100%	19%		
Income by MFI (Income Max)														
0-30% MFI (\$22,600)	54,104	30%	\$84,076	285	2%	51%	(28%)	(28%)	\$87,298	333	2%	50%	(28%)	(28%)
31-50% MFI (\$37,700)	33,803	19%	\$138,751	1,216	8%	41%	(10%)	(39%)	\$144,064	1,348	9%	40%	(10%)	(37%)
51-80% MFI (\$60,300)	38,029	21%	\$220,432	3,854	27%	23%	6%	(33%)	\$228,874	3,972	28%	22%	6%	(31%)
81-95% MFI (\$71,630)	13,015	7%	\$261,686	1,594	11%	15%	4%	(29%)	\$271,709	1,658	12%	15%	4%	(27%)
96-120% MFI (\$85,956)	11,275	6%	\$313,848	1,592	11%	19%	5%	(25%)	\$325,869	1,624	11%	20%	5%	(22%)
121-150% MFI (\$113,100)	12,887	7%	\$412,071	2,312	16%	14%	9%	(16%)	\$427,857	2,221	15%	13%	8%	(14%)
More than 150% of MFI	16,092	9%	\$412,071+	3,556	25%	11%	16%		\$427,857+	3,253	23%	11%	14%	
Total	179,205	100%		14,409	98%	19%				14,409	98%	19%		

Notes: MFI thresholds are based on 2014 HUD income limits for four-person households in the Austin-Round Rock-San Marcos MSA. Max affordable home price incorporates utilities, insurance, and property taxes and assumes a 30-year fixed rate mortgage with a 4.5 percent interest rate.

Source: ABOR, 2012 ACS and BBC Research & Consulting.

SECTION III.

Housing Choice

SECTION III. Housing Choice

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This section explores the housing choices made by Austin residents and in-commuters. It is informed by an online survey, paper surveys distributed to more than 30 locations in the community, focus groups with targeted populations, interviews and public forums. Figure III-1 maps the home ZIP codes of survey respondents and the locations of focus groups and public forums.

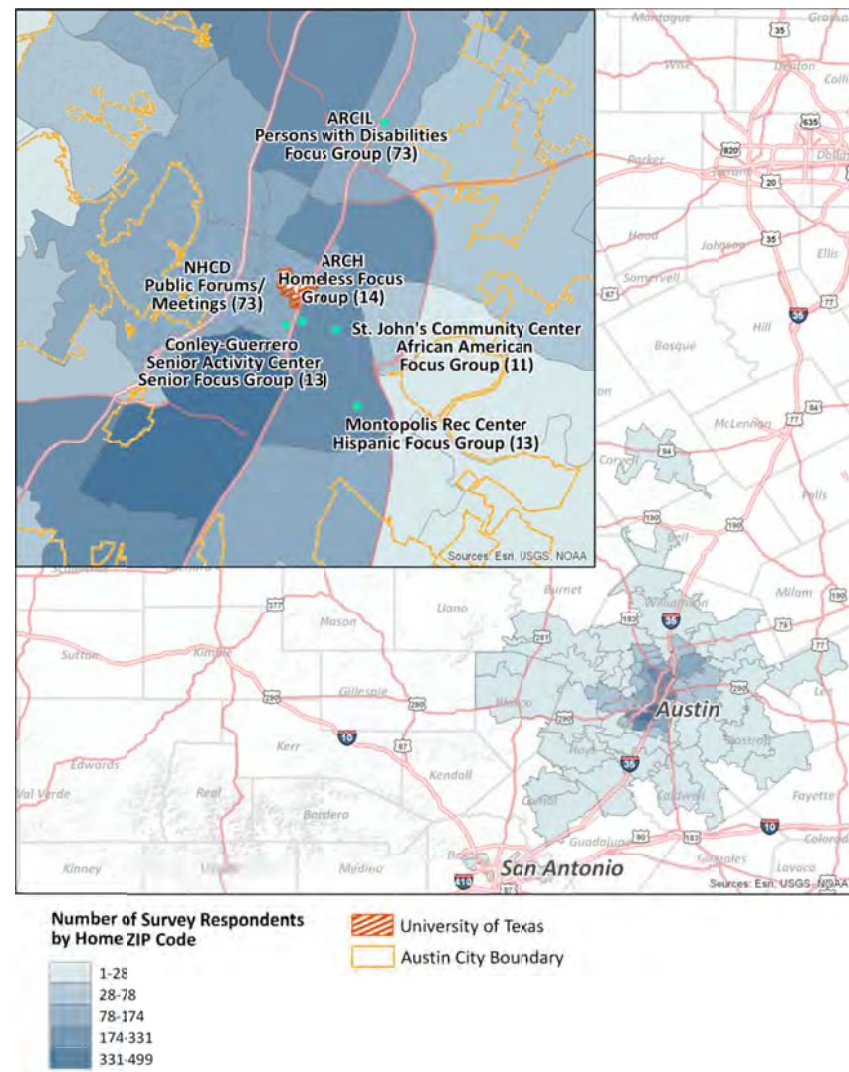
Since students have different housing opportunities and experiences than non-students, the results in this section do not include students. The housing experience of students is profiled in Section IV.

Methodological Note

The online survey—available in English and Spanish—was open to all Austin residents, including students, and those who work in Austin and live elsewhere (hereafter in-commuters). The opportunity to participate in the survey was promoted through the City of Austin's website, social media channels, local news media, an Austin Energy bill insert, and through local e-newsletters (NHCD Austin Notes, CitySource, CAN, Imagine Austin, Austin Mobility, Project Connect). A total of 5,315 residents, 922 in-commuters, and 398 students participated in the online survey.

That the survey was open to anyone interested in participating means that the results are based on non-probability sampling methods. Unlike a statistically valid, random probability sample, the results from this survey are not necessarily representative of all Austin residents. However, the very large number of responses yields a

Figure III-1.
Home ZIP Code of Survey Respondents and Focus Group/Public Forum Locations



Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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robustness to the results that minimizes error around the estimates. Compared to Austin's demographic characteristics, the survey data over-represent homeowners, whites and skew slightly higher in income. That said, there are sufficient numbers of responses from renters (1,522), low income residents—household income of \$25,000 or less (325), Hispanics (423), African American (124) and Asian (78) residents to produce estimates for these populations.

Because the data are based on a non-probability sample, they are not weighted to match Austin's demographic profile. Findings are presented based on the responses received. While the results should not necessarily be projected to Austin's population, they provide insights into how more than 5,000 Austinites and more than 900 in-commuters make complex housing decisions, their preferences and attitudes, and can inform policy development. No other source of data provides the opinions, perspectives and stories found in the survey results and echoed by the stories shared in focus groups and interviews.

Desire to Live in Austin

Choosing where to live is a complex decision based on myriad preferences that include access to job or educational opportunities, proximity to family or friends, cost of housing, type of housing desired, housing quality, school quality, access to highways, airports, transit, shopping, entertainment, church, weather, size of yard, acceptance of pets or certain dog breeds, degree of walkability, crime and safety, traffic and more. Nearly all people make some sort of tradeoff when choosing to live in a community or in choosing a place to live. Rising housing and

transportation costs, low vacancy rates and the overall desirability of a community increase the magnitude and number of tradeoffs residents must make to locate or remain in a community. One of the primary objectives of the survey and focus groups is to understand the factors residents consider when deciding to live, or to continue to live, in Austin.

To live in Austin I was willing to.... About half of Austin homeowners (54%) and 62 percent of renters made tradeoffs in order live in Austin. A smaller proportion of Hispanic renters (53%) and African Americans (41% of renters and 41% of homeowners) made tradeoffs to live in Austin. By far, paying more for housing costs was a tradeoff made by the majority of renters and homeowners. Other tradeoffs include compromising on square footage, yard size, longer commutes, higher property taxes, proximity to work, school quality, transit access and preferred neighborhood.

Overall, 71 percent of Austin homeowners have lived in Austin for 10 years or more, compared to 38 percent of renters. Nearly 90 percent of African American homeowners and 80 percent of Hispanic homeowners have lived in the city for 10 years or more. One in five renters has lived in Austin for less than five years.

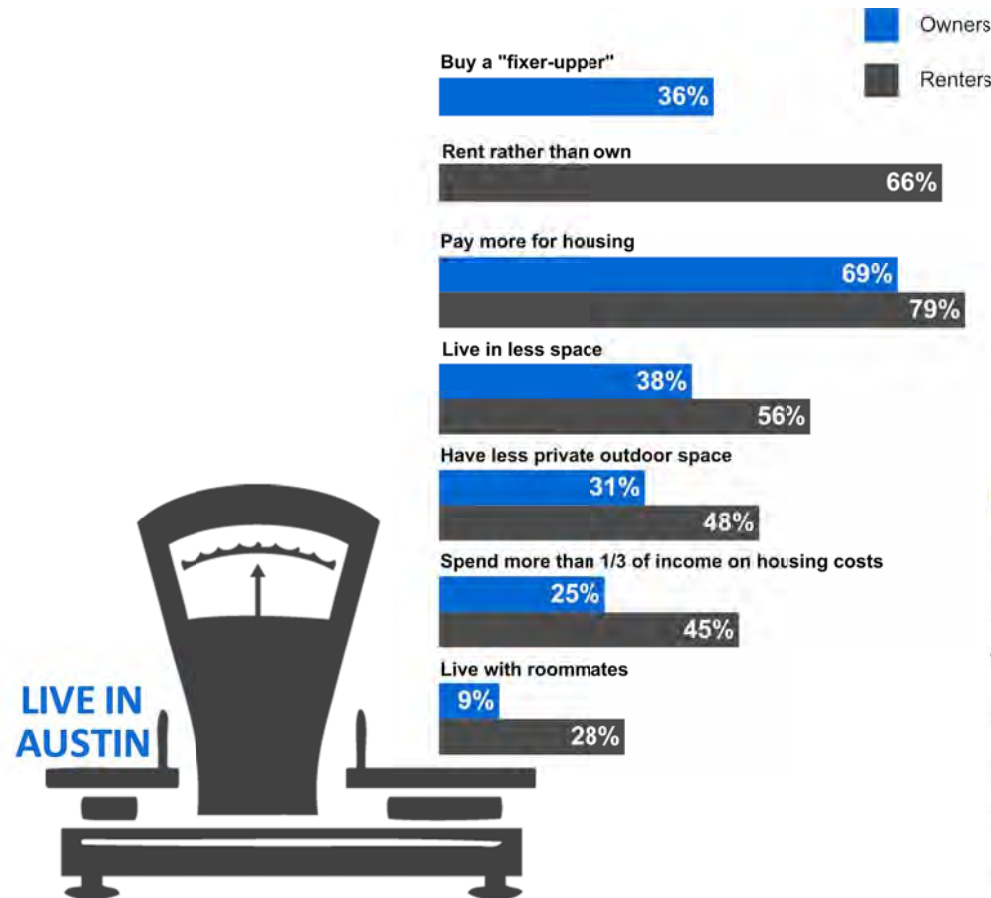
I considered living in Austin. About three in four in-commuters used to live in Austin. One in four in-commuter homeowners and 53 percent of in-commuter renters moved out of the City of Austin since 2010. Despite leaving the city about 74 percent of in-commuters considered living in Austin when they last looked for housing.

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Two in five in-commuter homeowners and renters chose to live outside Austin because they either couldn't afford to buy in Austin or couldn't afford to rent. Housing quality, size and age of Austin homes also influenced the decision to live elsewhere. Some in-commuters are willing to consider living in Austin in the future, and would be willing to tradeoff their current situation for a smaller, older single family home in Austin. In-commuter renters are more willing to make tradeoffs than homeowners.

TO LIVE IN AUSTIN, I WAS WILLING TO...



Note: n=1,809 Austin homeowners and n=946 renters.

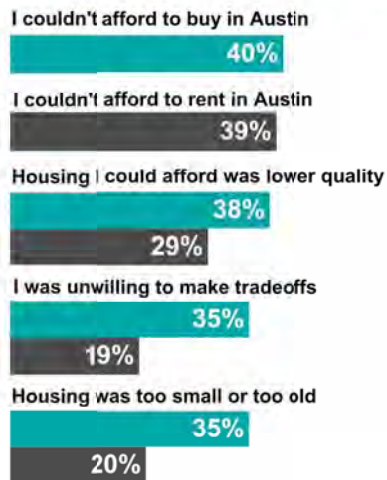
Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

SECTION III. Housing Choice

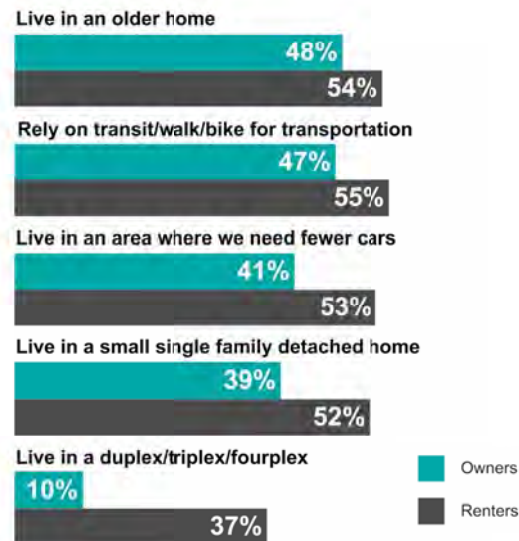
PAGE 4

I CONSIDERED LIVING IN AUSTIN (73% of in-commuters)

I CHOSE TO LIVE ELSEWHERE BECAUSE...



TO LIVE IN AUSTIN I'M WILLING TO...



Note: n=642 in-commuter homeowners and n=141 in-commuter renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

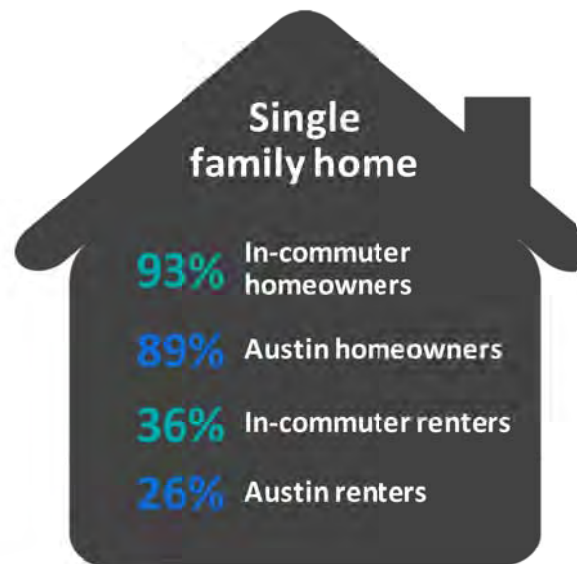
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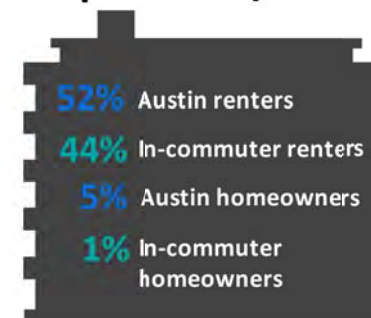
Housing Preferences

Housing Choice Survey respondents shared the type of housing in which they currently live and the factors that were most important to them when choosing a place to live. The majority of both City of Austin and in-commuter homeowners live in single family homes, compared to one in four Austin renters and 36 percent of in-commuter renters. Not surprisingly, a greater proportion of Austin residents live in homes built prior to 1980 when compared to in-commuters. Accessory Dwelling Units (ADUs) such as garage apartments can be a source of affordable housing. About one in 50 Austin renters lives in an ADU.

I LIVE IN A...



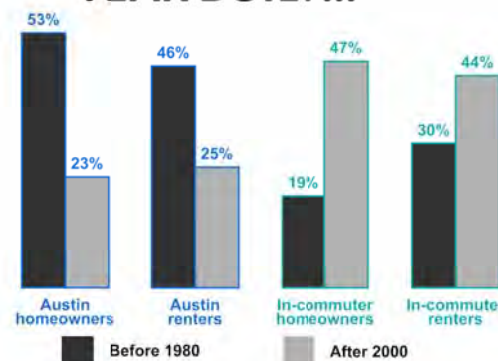
Apartment/condo



Duplex/triplex/fourplex



YEAR BUILT...



Accessory dwelling unit



Mobile home/trailer



Note: n=3,565 Austin homeowners, n=1,528 Austin renters, n=715 in-commuter homeowners and n=181 in-commuter renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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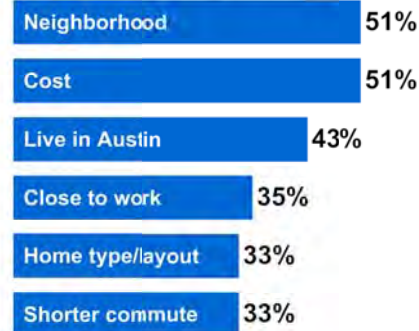
The most important factors when I chose my home were...

When considering a home to purchase or rent, Austin residents and in-commuters weighed different factors differently. While cost is either the first or second most important factor for all, Austin residents valued that the property was located in Austin, while in-commuters valued that the property was located in a neighborhood that was safe or had a low crime rate. Proximity to work and a shorter commute were also top considerations for both Austin homeowners and renters, while neither factor was included in the top five factors for in-commuters.

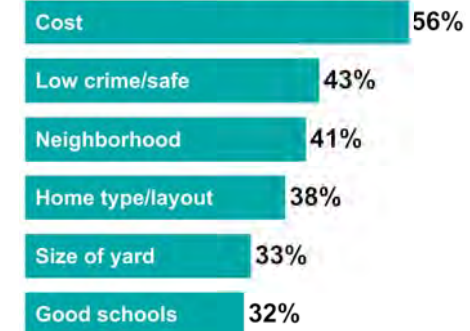
The preferences of Austin owners and renters are consistent with those documented in a recent survey of low-wage commuters (*Coming Home*, by Elizabeth Mueller and Clifford Kaplan). That study, which focused exclusively on low-wage workers commuting at least 10 miles, found the majority of low income households interested in moving to closer to work. The HMS in-commuter survey suggests that housing costs could be preventing such a move.

THE MOST IMPORTANT FACTORS WHEN I CHOSE MY HOME WERE...

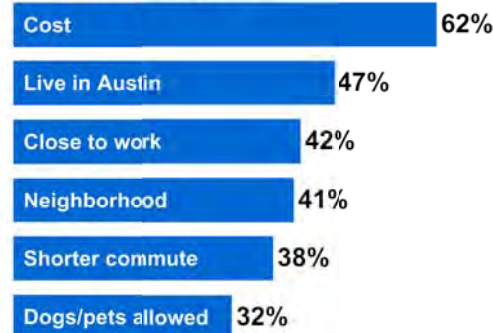
Austin homeowners



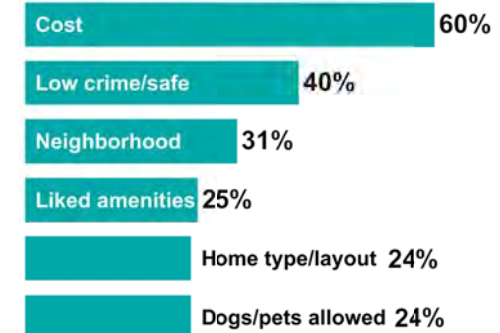
In-commuter homeowners



Austin renters



In-commuter renters



Note: n=3,521 Austin homeowners, n=1,521 Austin renters, n=642 in-commuter homeowners and n=141 in-commuter renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

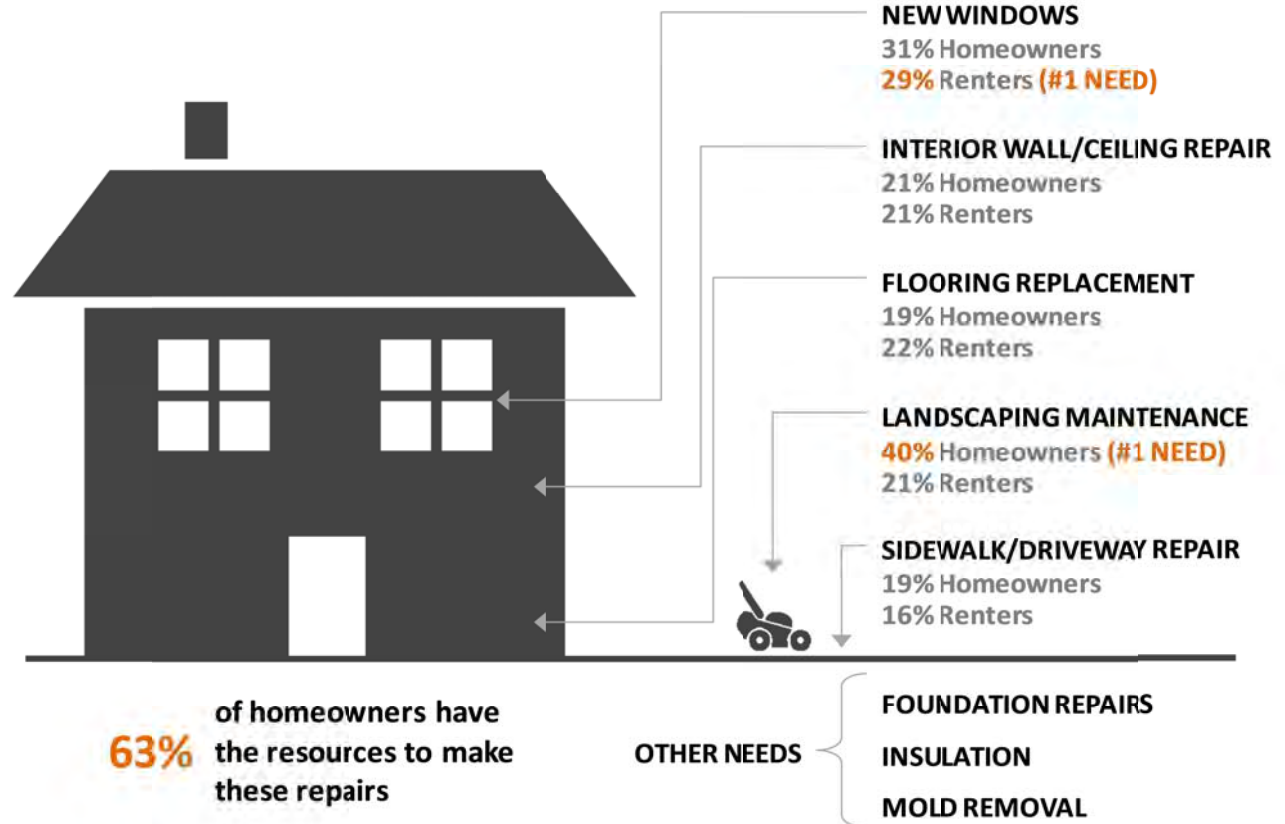
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Housing Condition

It is difficult to find a source for data on housing condition other than a few questions included in the American Community Survey. To attempt to measure the need for home repairs, the Housing Choice Survey asked residents to self-evaluate the need for repairs in their home. Overall, 72 percent of Austin homeowners and 66 percent of renters report that their home needs some type of repair. Among homeowners, 40 percent report that their landscaping needs maintenance and 31 percent need new windows. Like homeowners, 29 percent of renters need new windows and 23 percent have bathroom plumbing repair needs. Of those with homes needing repair, one percent of homeowners and two percent of renters believe that their maintenance needs make their home unlivable.

MY HOME NEEDS...



Note: n=2,028 Austin homeowners and n=1,009 renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

Most homeowners (63%) have the resources—financial, physical abilities, know-how—to make the repairs needed on their home.

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Housing and Transportation Costs

On average, an Austin homeowner with a car payment spends \$2,614 per month on housing costs (mortgage, insurance, taxes, utilities), and transportation costs, compared to \$2,582 for an average in-commuter homeowner. Austin renters with car payments spend \$1,886 on housing and transportation costs, compared to \$2,084 for the average in-commuter renter. A greater share of Austin residents does not have a car payment than in-commuters. About 15 percent of Austin homeowners and one in four renters spends money on non-personal vehicle expenses each month (transit, taxi, Car2Go, etc.).

EACH MONTH I SPEND*...

Housing & Transportation Costs	Austin Residents		In-Commuters	
	Homeowners	Renters	Homeowners	Renters
Mortgage/rent	\$1,589	\$1,098	\$1,408	\$1,057
Utilities	\$258	\$192	\$295	\$240
Car payment	\$456	\$355	\$478	\$434
Insurance	\$149	\$107	\$129	\$122
Gas	\$162	\$134	\$272	\$231
Non-personal vehicle (transit, taxi, Car2Go, etc.)	\$39	\$45	~Insufficient data~	
No car payment	44%	56%	37%	36%
Spends money on transit, taxi, Car2Go	15%	26%	~4% total~	

****Average***

Note: n=2,659 Austin homeowners, n=1,292 Austin renters, n=463 in-commuter homeowners and n=101 in-commuter renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

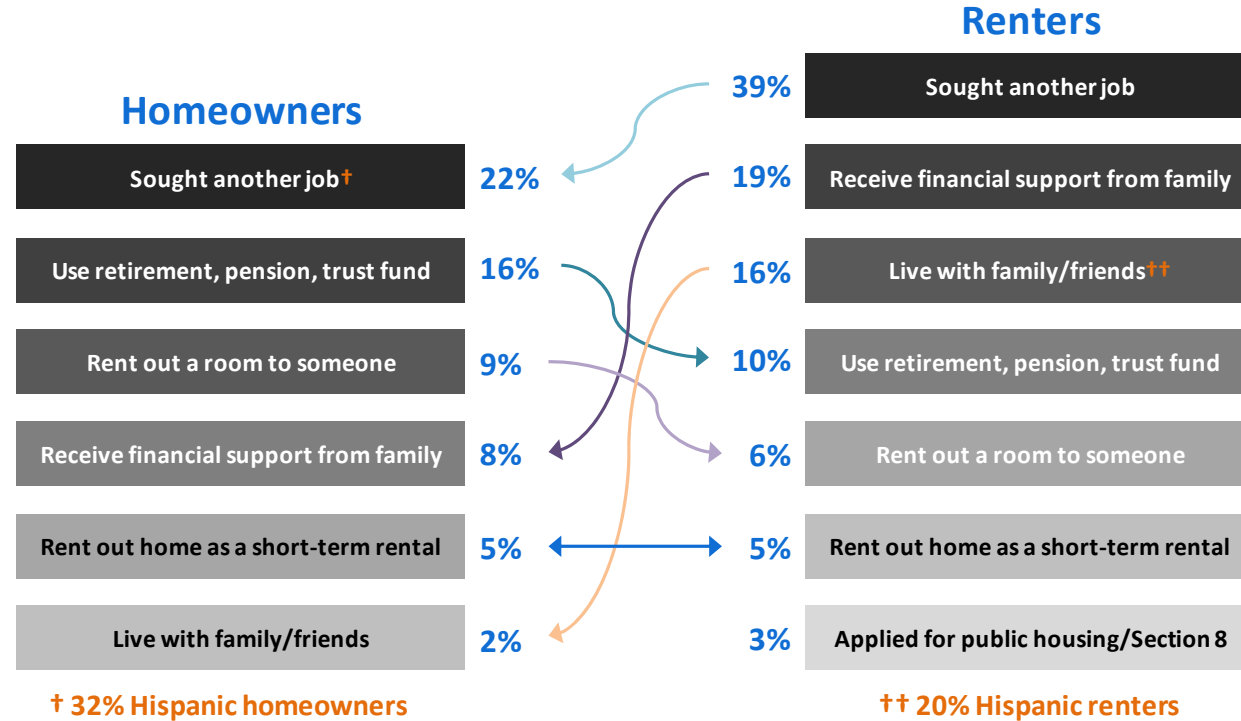
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Affordability

Rising housing costs were a concern to many residents and stakeholders who participated in the survey, focus groups, interviews and public forums. Participants shared stories of rent increases outpacing income growth, increased competition for vacant units, rising costs of homes for sale and the strategies they employ in order to continue living in Austin.

TO AFFORD MY HOUSING COSTS* I...



*Rent, mortgage,
insurance,
property taxes,
utilities

WITHOUT THIS
SUPPORT, I WOULD
HAVE TO LEAVE AUSTIN

14% Homeowners
27% Renters

Note: n=3,122 Austin homeowners and n=1,307 Austin renters.

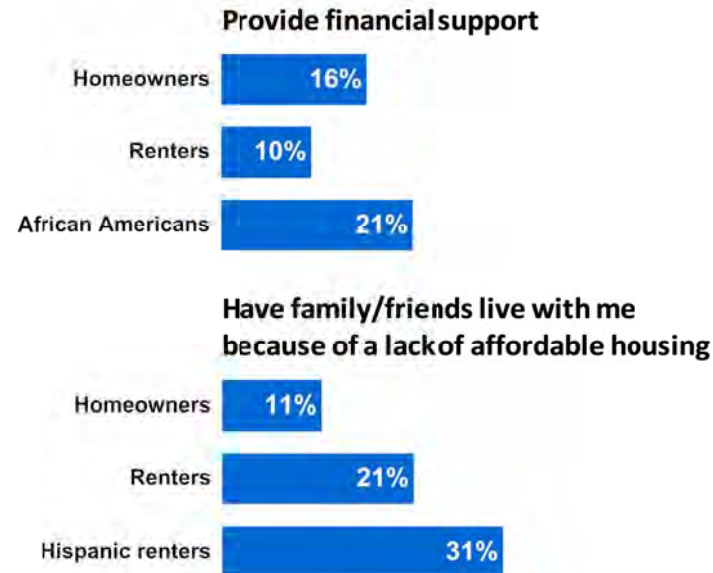
Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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To afford housing costs... The majority of homeowners and renters do not have outside support for housing costs or financially support other family members. About one in three Austin homeowners and two in five renters either pursue strategies to defray their monthly housing costs *or* provide financial or other supports to help family with housing costs. Without these outside supports, 15 percent of homeowners and 27 percent of renters say they would have to leave Austin.

TO HELP FAMILY WITH HOUSING COSTS* I...



****Rent, mortgage, insurance, property taxes, utilities***

Note: n=3,122 Austin homeowners and n=1,307 Austin renters.

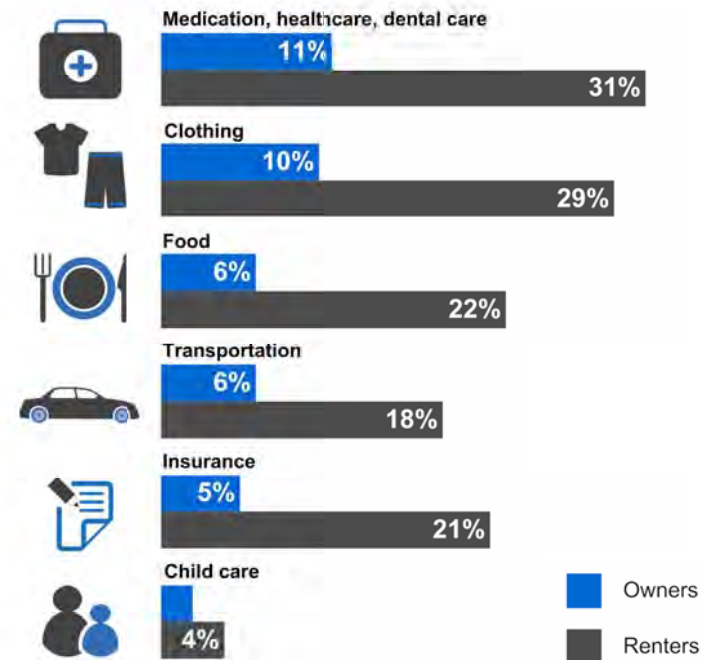
Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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Most Austin homeowners (78%) and 48 percent of renters have not had to reduce spending on basic needs in the past year. Overall, 22 percent of Austin homeowners and 52 percent of renters have reduced their spending on one or more basic needs in order to pay their housing costs. Greater proportions of renters than homeowners report reducing or foregoing basic needs at some point in the past year.

TO AFFORD MY HOUSING COSTS I HAVE REDUCED/GONE WITHOUT...



**I HAVE NOT HAD
TO FORGO ANY
BASIC NEEDS**

78% Homeowners

48% Renters

Note: n=3,122 Austin homeowners and n=1,307 Austin renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

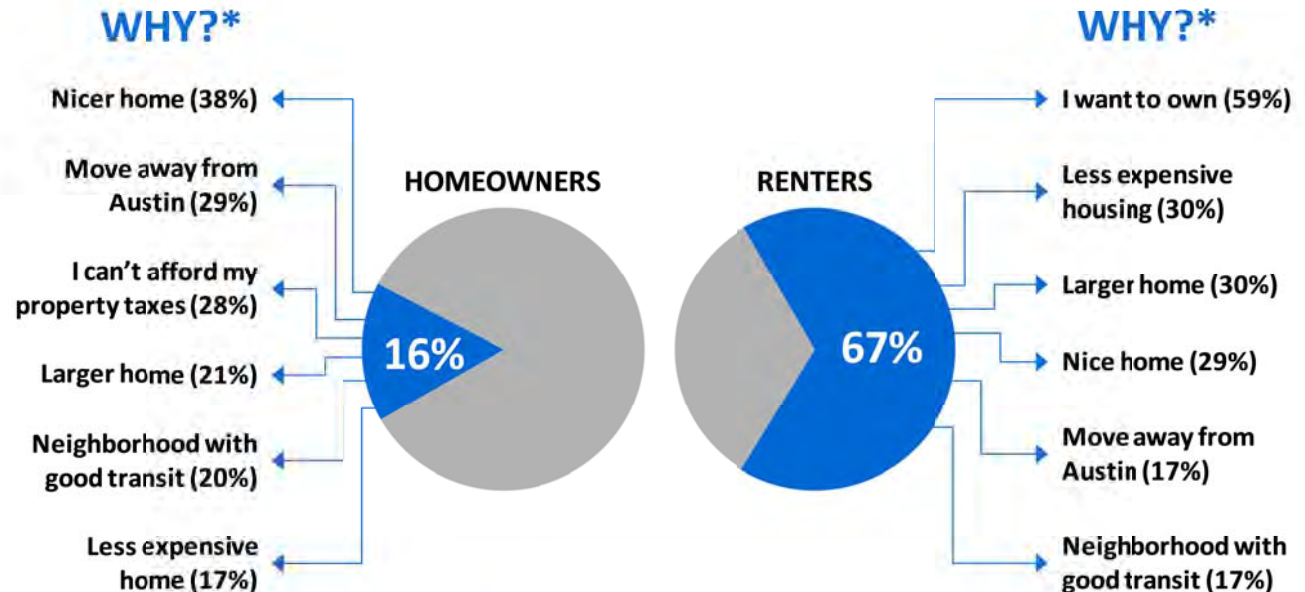
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I plan to move in the next five years.

Stretching budgets and finding ways to defray housing costs are not the only option available to homeowners and renters. Some will move into different housing in Austin or will leave Austin for other communities. In the next five years, 16 percent of homeowners and 67 percent of renters plan to move. Reasons for moving varied widely. The greatest proportion of renters planning to move wants to buy a home. Three in 10 renters want less expensive housing and 17 percent want to leave Austin—compared to 29 percent of homeowners who plan to move. Among homeowners planning to move, 28 percent report that they cannot afford their property taxes.

I PLAN TO MOVE IN THE NEXT FIVE YEARS.



*Percentage of homeowners or renters who plan to move.

Note: n=3,380 Austin homeowners and n=1,439 Austin renters. Numbers for why a resident plans to move add to greater than 100 percent because respondents were able to select more than one response.

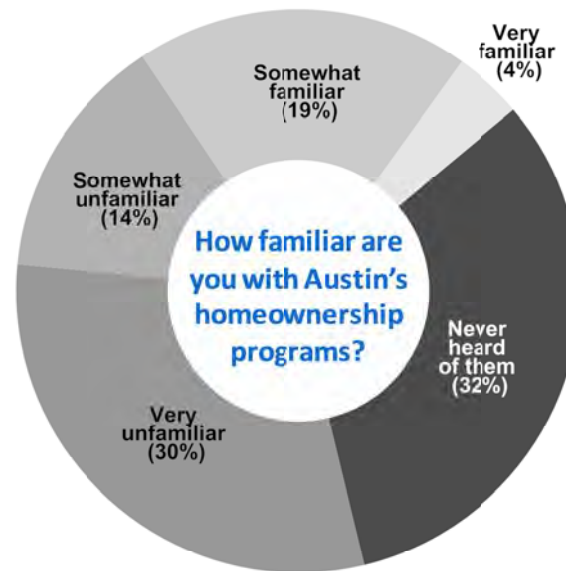
Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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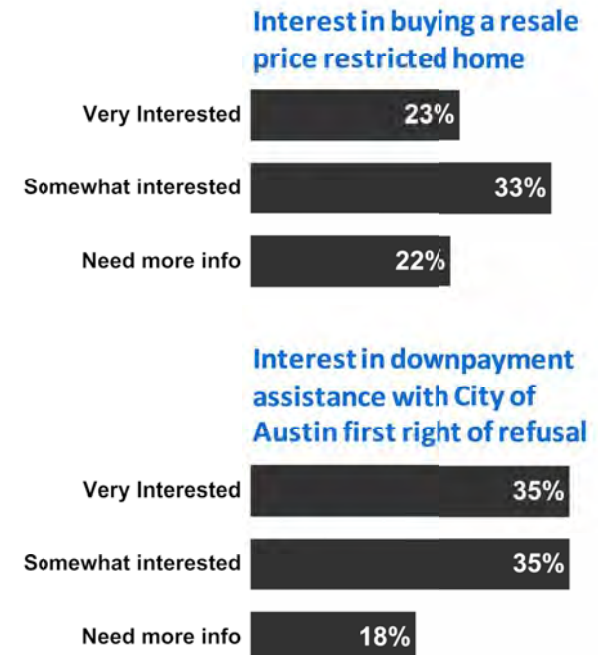
City of Austin Homeownership Programs. About one in four Austin renters are very or somewhat familiar with the city's programs to help low and moderate income residents become homeowners, and at least half of renters expressed interest in the programs. Those residents who were not interested in the programs described their lack of interest, including questioning the city's involvement in the for sale housing market, concerns about whether or not equity built in the home could be accrued to the homeowner and concerns that participation in the program would be similar to renting, since resale is capped.

AUSTIN'S HOMEOWNERSHIP PROGRAMS: RENTERS' AWARENESS & INTEREST



Note: n=1,405 Austin renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.



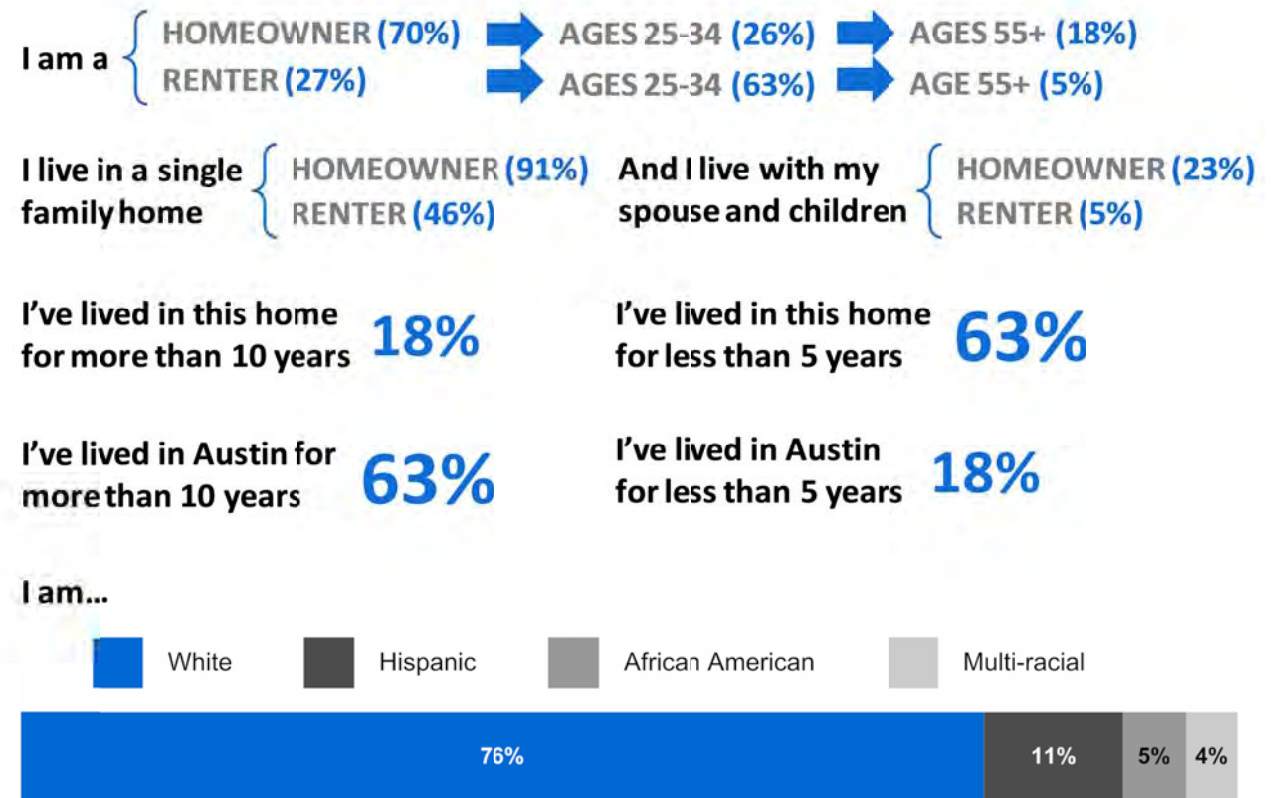
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I live in East Austin.

Survey respondents living in East Austin include a mix of new residents and long-time homeowners. The majority of respondents from these ZIP codes are white homeowners. Renters are much younger than homeowners—on average homeowners are 43 while renters are age 34. Renters are also more likely to have recently moved into their current home and into Austin.

I LIVE IN EAST AUSTIN.



Note: n=423 East Austin homeowners and n=163 East Austin renters. ZIP codes included in the analysis are 78702, 78722, 78721 and 78723.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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Impact of Gentrification

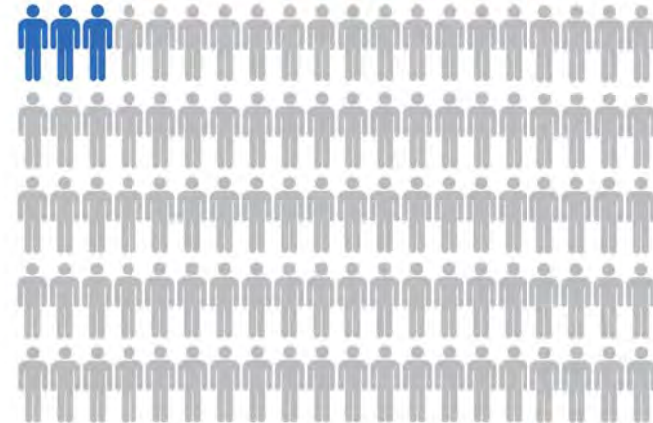
Gentrification can loosely be defined as increasing property values and changing resident demographic and socioeconomic characteristics associated with renewal of historically low income neighborhoods in a community. It can be spurred by public or private investment in a neighborhood or increased interest in neighborhood qualities valued by a new generation of residents—historic homes, proximity to a vibrant downtown core, affordable homes to purchase or rent, access to public transit and more. Gentrification in Austin, particularly in East Austin, was a topic of concern to residents who participated in the African American and Hispanic focus groups, survey respondents from gentrifying neighborhoods and participants in public meetings.

To explore the experiences, perspectives and housing choices of survey respondents in gentrifying neighborhoods in East Austin, BBC analyzed responses from residents living in 78702, 78722, 78721 and 78723 ZIP codes. These saw the highest growth in property values between 2000 and 2012; median values in 78702 increased by 207 percent.

Longtime East Austin residents, particularly aging homeowners on fixed incomes and low income residents, are feeling increased financial pressure due to rising property taxes and rents in East Austin. Many longtime East Austin residents are also experiencing cultural changes in their neighborhood as their neighborhood demographics change. In focus groups and open-ended survey comments, longtime residents used the Mueller redevelopment as an example of gentrification that impacted nearby property values and sped up the cultural change in the community.

MY EXPERIENCE WITH GENTRIFICATION IN EAST AUSTIN

3 in 100 homeowners plan to move
because they can't pay their taxes



1 in 5 have friends/family living with
them due to a lack of affordable housing



Note: n=601 East Austin survey respondents.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey, African American and Hispanic focus groups.

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Participants in the East Austin African American focus group shared their perspective that gentrification is causing longtime residents to sell their homes because they can't pay their property taxes. Others felt that investments in public infrastructure, particularly the addition of bike lanes, are meant to benefit the new white residents and are not for them. Hispanic focus group participants echoed these sentiments. The affordability impacts of increased property values and rents as well as the change in culture in East Austin seem to be the most top-of-mind impacts of gentrification to residents who participated in the study.

Traffic and Commuting

Austin's traffic and increasingly congested roads and highways were a common topic of conversation in focus groups, interviews and meetings. Survey respondents often wrote about traffic or congestion concerns in open-ended responses to questions.

The majority of residents represented in the survey lives and works in Austin (85%) and has a median commute time of 11 to 20 minutes. Most (82%) drive alone, but about one in 10 resident workers bike, carpool or take public transit. Austin residents who commute out of the city have a median commute of 21 to 40 minutes and one in 10 commute for more than one hour.

COMMUTING TO WORK: AUSTIN RESIDENTS



MODE OF TRAVEL TO WORK*



*Respondents could select multiple modes.

Note: n=3,344 Austin resident survey respondents representing 5,724 workers.

Mode of travel to work adds to greater than 100 percent due to multiple response.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

SECTION IV.

Housing Needs

SECTION IV. Housing Needs

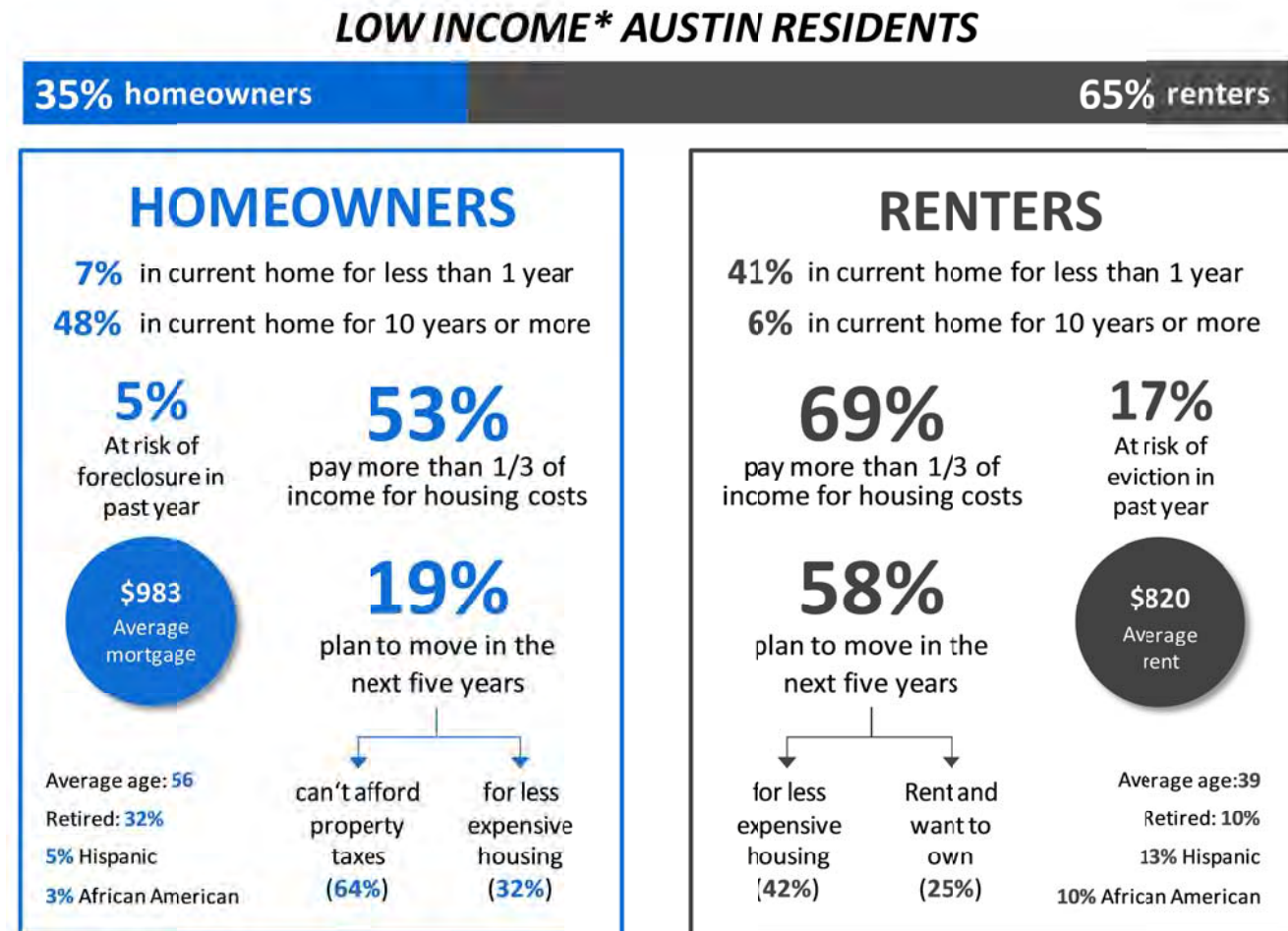
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This section examines housing choice and needs for selected populations of Austin residents. As with the previous section, findings are based on the online survey, paper survey, focus groups and interviews. The section begins with the housing needs reported by low income residents overall.

Low Income Residents (<\$25,000)

The majority of low income households represented in the survey are renters (65%), who tend to be younger and more racially and ethnically diverse than low income owners. These figures exclude students.

Renters pay almost as much as owners for their housing: \$820 in monthly rent, compared to the average mortgage of \$983.



*Income less than \$25,000

Note: n=114 low income Austin homeowners and n=210 low income Austin renters. These figures exclude students.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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Cost burden is very high for both low income renters and owners. To avoid being cost burdened, low income renters and owners should pay no more than \$625 per month in housing costs. Instead, the average low income owner is paying \$983 per month in housing costs; the average renter is paying \$820 per month. These costs are 30 to 50 percent more than what is affordable. Households with very high levels of cost burden must compromise on other household goods in order to pay their mortgage and rent; those who cannot are evicted or lose their homes. Nearly one in five renters reported being at risk for eviction in the past year. One in 20 homeowners were at risk of foreclosure.

As shown in the following table, no one household typifies Austin's low income owners and renters, although many are single householders.

Low Income Household Composition by Type of Housing

Household Composition	Homeowners	Renters		
	Single Family Home*	Apartment	Duplex/Triplex/ Fourplex/Townhome	Single Family Home
Single, living alone	42%	55%	31%	15%
Spouse/partner and children	13%	5%	5%	2%
Single, living with roommates/friends	12%	19%	19%	49%
Spouse/partner	8%	12%	14%	12%
Single, living with children	6%	5%	14%	5%
Other adult family living in the home	11%	4%	7%	4%

Note: *Insufficient data to report other housing types for homeowners.
n=98 low income Austin homeowners and n=189 low income Austin renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey

Seniors

The more than 700 respondents to the Housing Choice Survey age 60 or older (seniors) shared their current housing situation and their future housing plans. The majority of seniors (88%) are homeowners. Senior homeowners had relatively low average mortgages and high incomes and most had the means to make repairs to their homes. About 14 percent of senior homeowners plan to move in the next five years; 46 percent of these

homeowners say they will move because they can't afford to pay their property taxes. This equates to 6 percent of all senior homeowners overall (not just those planning to move).

Senior renters are different: they are much more likely to be low income and to live alone. More than half of senior renters plan to move in the next five years—39 percent want to move to less expensive housing and 37 percent want to own a home. Senior renters pay almost as much as their owner counterparts in housing costs.

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SENIOR HOUSING CHOICES & NEEDS

88% homeowners

12%renters

HOMEOWNERS

- 88%** live in a single family home
- 8%** have an income less than \$25,000
- 32%** have an income over \$100,000
- 53%** live with spouse/partner
- 28%** live alone
- 48%** are retired

\$1,310
Average mortgage

14%

plan to move in the next five years

can't afford property taxes
(**46%**)

want to leave Austin
(**45%**)

59%

need home repairs

landscaping maintenance
(**26%**)

new windows
(**24%**)

69% have the means to make repairs

RENTERS

- 51%** live in an apartment
- 24%** live in a single family home
- 31%** have an income less than \$25,000
- 5%** have an income over \$100,000
- 23%** live with spouse/partner
- 57%** live alone
- 38%** are retired

\$1,162
Average rent

56%

plan to move in the next five years

need less expensive housing
(**39%**)

rent and want to own
(**37%**)

In a focus group with seniors, participants expressed their desire to stay in their homes for as long as they can. Their concerns about staying in their home related to affordability (ability to pay property taxes) and their physical ability to maintain their yard and home exterior. This was mostly a concern for seniors who do not have family living in the community to help with these tasks.

Those who would like to downsize from a single family home have trouble finding alternatives: few senior-only developments exist and wait lists for affordable senior housing are long (18 months).

Note: n=741 senior homeowners and n=101 senior renters.

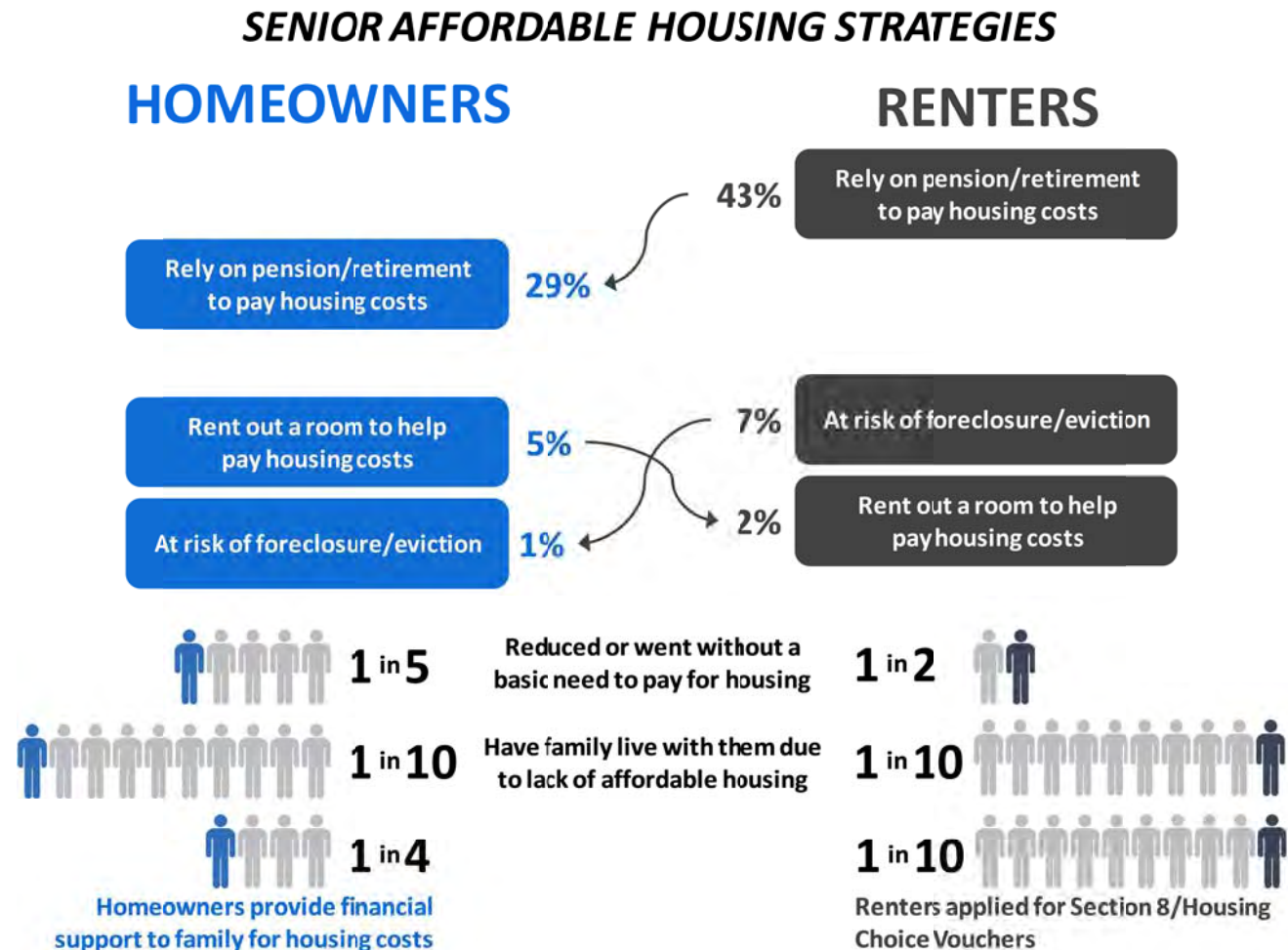
Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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Many seniors use their pension/retirement to pay housing costs. About one in 20 senior homeowners rent out a room in their home or apartment to help pay for their housing. One in 10 senior renters applied for public housing assistance (e.g., Section 8/Housing Choice Voucher) in the past year. Half of renters cut back on other household needs to afford their housing.

A sizeable proportion of senior homeowners (24%) provide financial support to other family members to help pay their housing costs.



Note: n=741 senior homeowners and n=101 senior renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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Persons with Disabilities

Persons with disabilities participated through the online Housing Choice Survey, a paper survey distributed to service providers and community centers and in a focus group hosted by ARCIL. In both surveys, respondents were asked whether they or any person in their household have a disability of any type—physical, mental, or developmental.¹ A total of 574 households that include a member with a disability are represented in this analysis (473 from the online survey and 101 from the paper survey).

¹ In some cases, the person responding to the survey may be representing the housing situation and needs of a child or spouse or other household member, so the age and employment data presented do not necessarily reflect those of the individual with a disability.

PERSONS WITH A DISABILITY HOUSING CHOICES & NEEDS

64% homeowners

36% renters

HOMEOWNERS

9 in 10



live in a single family home

- 3%** have an income less than \$10,000
- 9%** have an income of \$10,000 to \$25,000
- 59%** have an income over \$65,000

Average mortgage \$983

RENTERS

1 in 2  live in an apartment

1 in 5  live in a single family home

1 in 5  live in a duplex/triplex/fourplex

32% have an income less than \$10,000

28% have an income of \$10,000 to \$25,000

8% have an income over \$65,000

Average rent \$820

1 in 4



of all homeowners and renters live in housing that DOES NOT meet their accessibility needs

Note: n=337 homeowners and n=190 renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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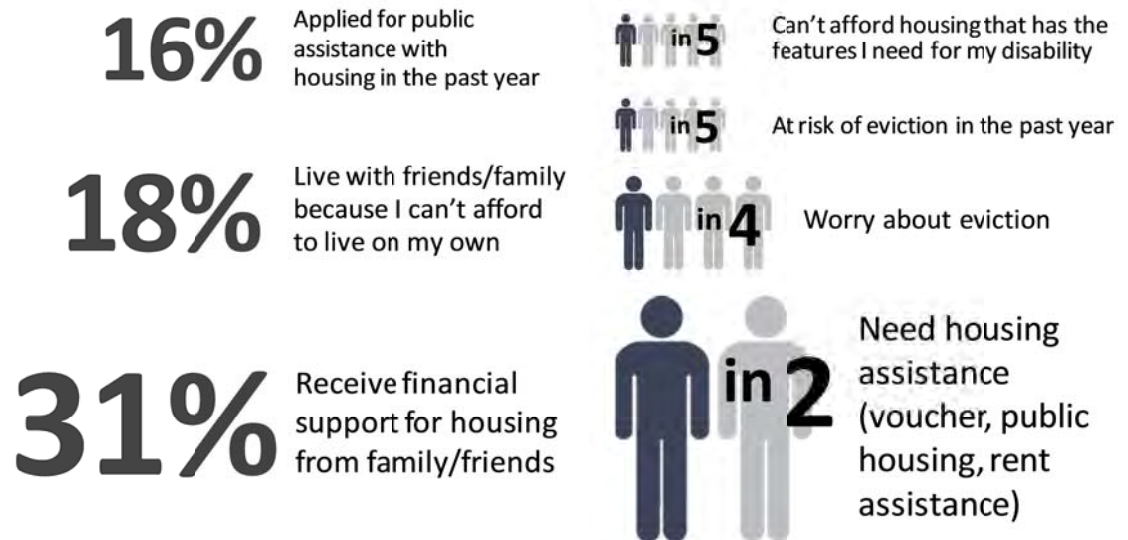
Overall, most homeowners with disabilities (90%) live in single family homes, while 50 percent of renter households live in apartment buildings and 20 percent live in single family homes. One in four of the households that include a member with a disability live in housing that does not meet their accessibility needs. Many of the needed modifications include improvements to bathrooms (e.g., grab bars, higher toilets, replacing tubs with showers), wheelchair access to entrances, and modifying fire alarm systems for deaf household members. Renter households with a member with a disability are much more likely to have very low incomes than homeowner households—one in three renters have household incomes less than \$10,000.

In focus groups and open-ended responses to the survey, participants emphasized that finding housing that is both affordable on very low incomes *and* accessible is very difficult in Austin, akin to finding a needle in a haystack. The limited availability of affordable *and* accessible housing results in some people with disabilities sacrificing

needed accessibility features in order to simply afford housing. For others, finding affordable housing close to fixed route bus stops was challenging. Focus group participants emphasized that there is no “one size fits all” approach to housing, due to the diverse needs of persons with disabilities. For some, having supportive services provided by the landlord distorts the landlord/tenant relationship into an intrusive and paternalistic situation. These participants urged that supportive services not be provided by landlords, but rather by a separate agency.

Based on the survey analysis and focus group discussion, renter households that include a member with a disability are more likely to need housing assistance and experience worry and concerns about maintaining housing. One in five cannot afford housing that has the features they need for their disability.

RENTERS WITH A DISABILITY HOUSING CONCERNS & SUPPORTS



Note: n=232 renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

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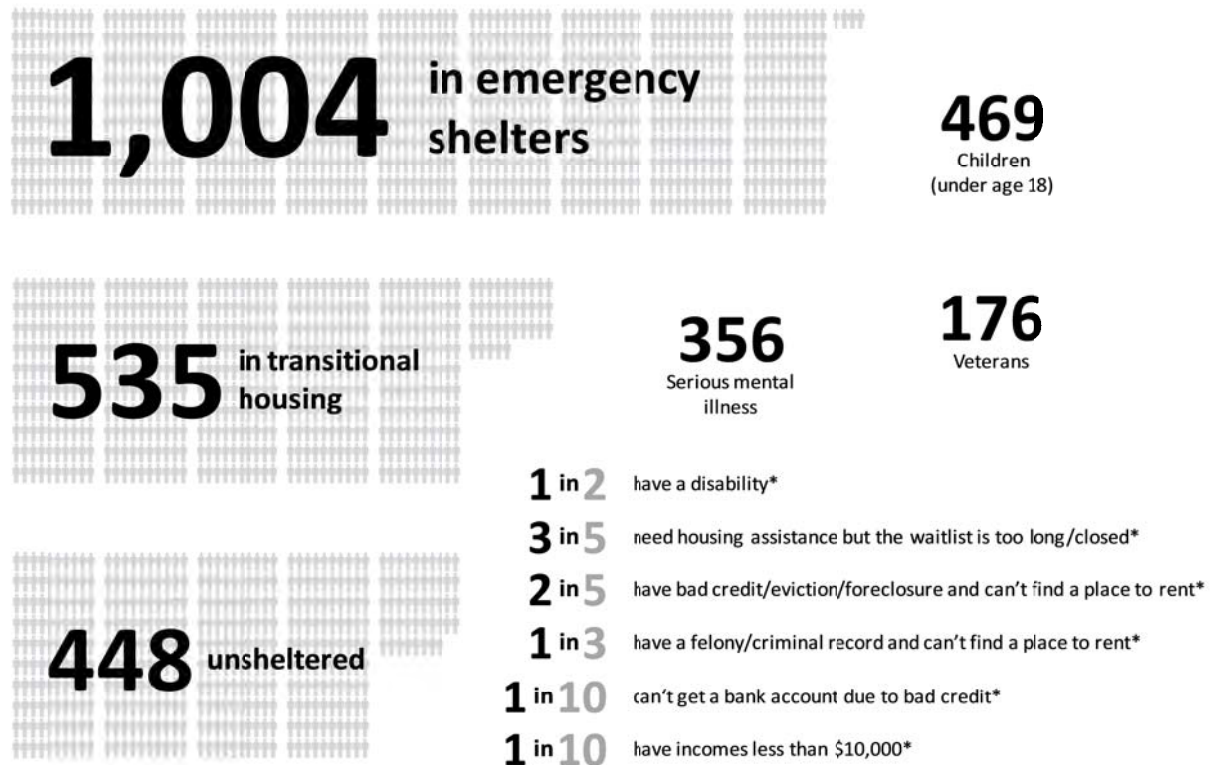
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Persons Experiencing Homelessness

A total of 43 men and women experiencing homelessness participated in the paper survey and 14 participated in a focus group held at ARCH. The 2014 Austin Point-in-Time (PIT) count estimates that 1,004 residents are staying in emergency shelters, 535 in transitional housing and 448 are unsheltered. Many are children, have serious mental illnesses and/or are disabled.

Barriers to housing include criminal records, lack of bank accounts, bad credit and very low incomes (less than \$10,000). In focus groups, participants described how past mistakes (criminal convictions, evictions, poor credit) create a near impassible barrier to becoming housed, particularly in Austin's tight rental market where landlords can be choosy. Some suggested that a program similar to those that incentivize employers to hire ex-cons be created to incentivize landlords to provide housing to renters who are perceived as high risk.

AUSTIN'S HOMELESS: CHARACTERISTICS & HOUSING BARRIERS



*Housing Choice Survey data

Note: n=43 homeless residents.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey and the 2014 Austin Point-In-Time Count.

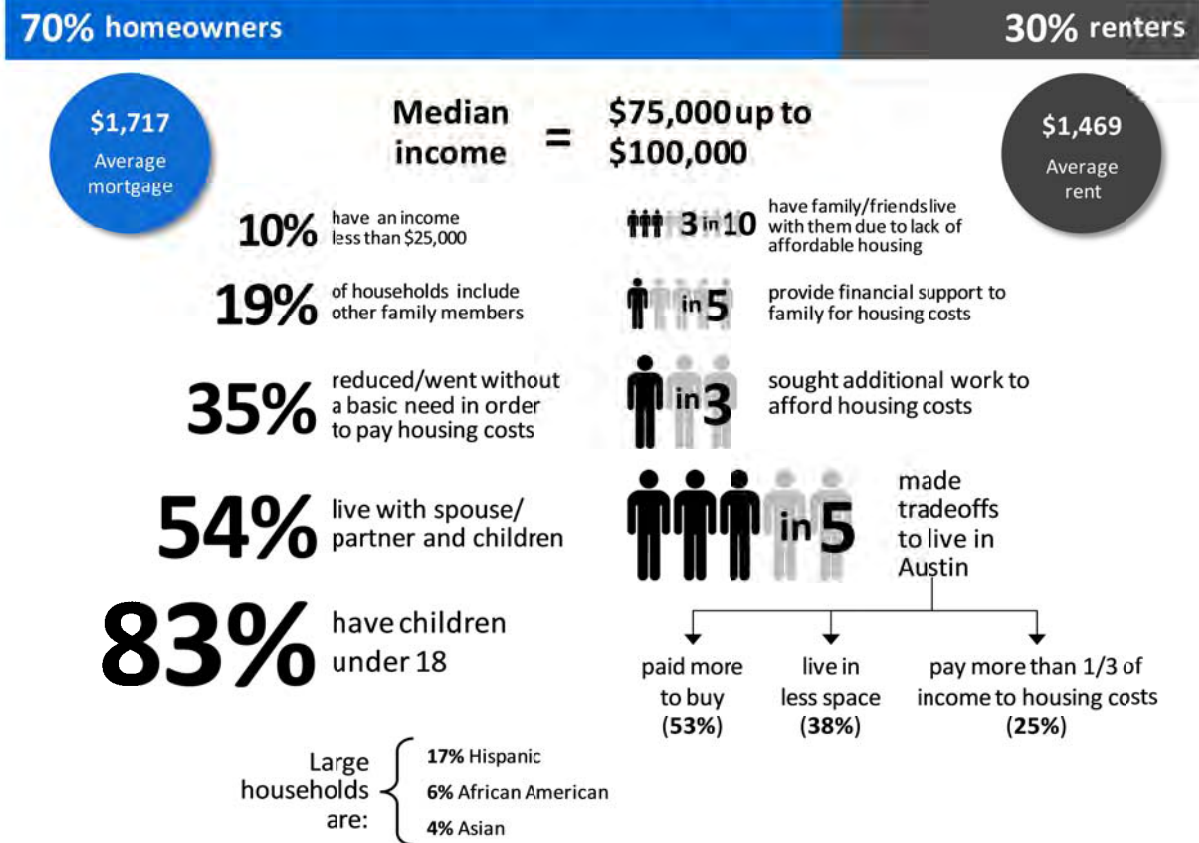
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Large Households (5 or More Members)

In interviews and focus groups, some participants reported that larger households (with 5 or more members) can have difficulty finding suitable affordable housing to purchase or rent in Austin. Most of these households (83%) include children under the age of 18 and one in five has other adult family members. The majority of large households that responded to the survey are homeowners (70%). The majority made tradeoffs to live in Austin, including paying more to purchase a home, living in less space than preferred and paying more than one-third of their income to housing costs.

LARGE HOUSEHOLDS: HOUSING CHOICES, NEEDS & CHARACTERISTICS



Note: n=213 large households.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

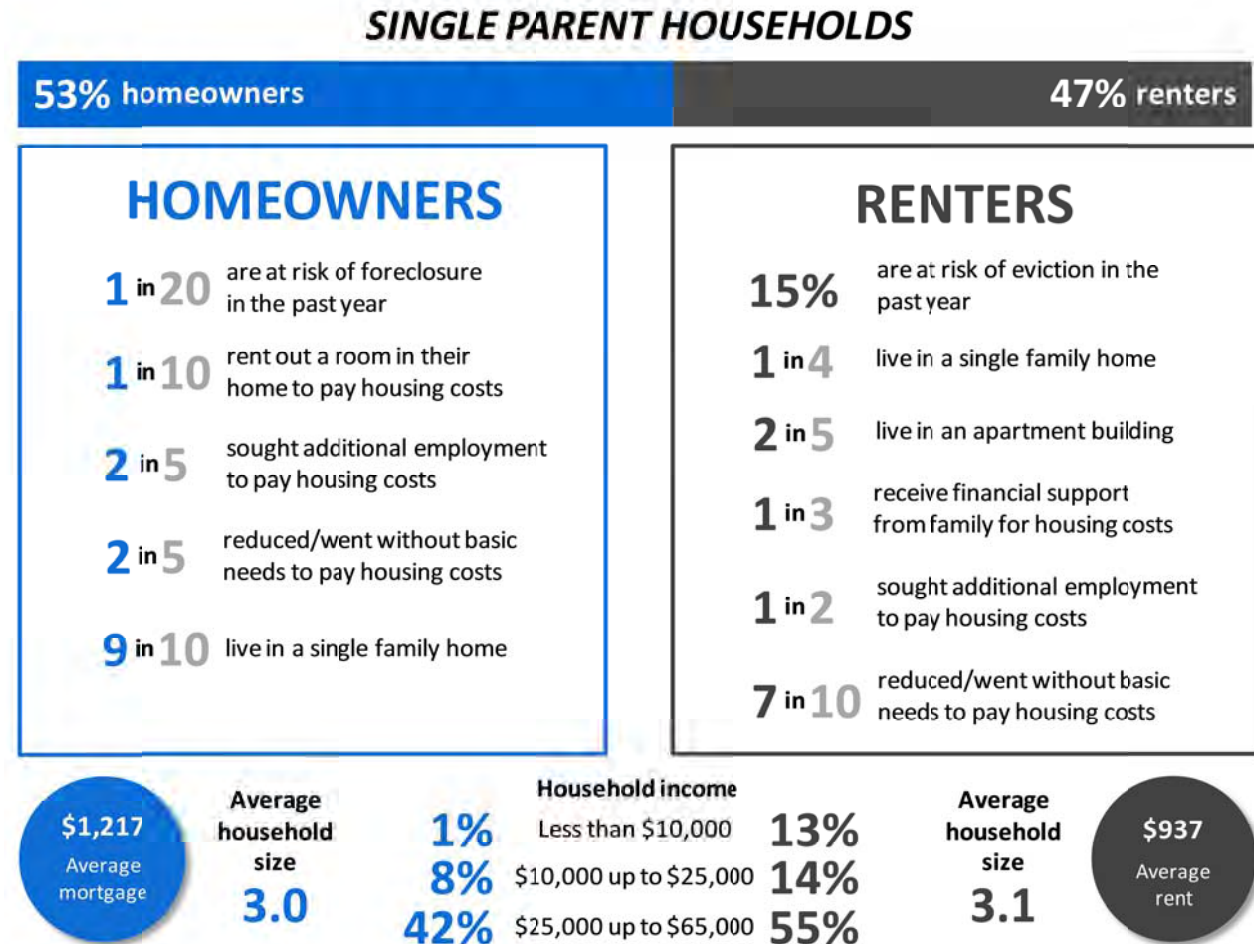
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Single Parents

Like their neighbors, many of Austin's single parent households adopt various strategies to manage the cost of housing. Half of single parent renters sought additional employment to help pay for housing costs. Seventy percent had to forgo basic needs to pay housing costs.

Single parent owners are much higher income than single parent renters and far fewer have relied on economic strategies to pay housing costs. Single parent renters are 2.5 times more likely than homeowners to have household incomes of less than \$25,000.



Note: n=105 single parent homeowners and n=85 single parent renters.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.

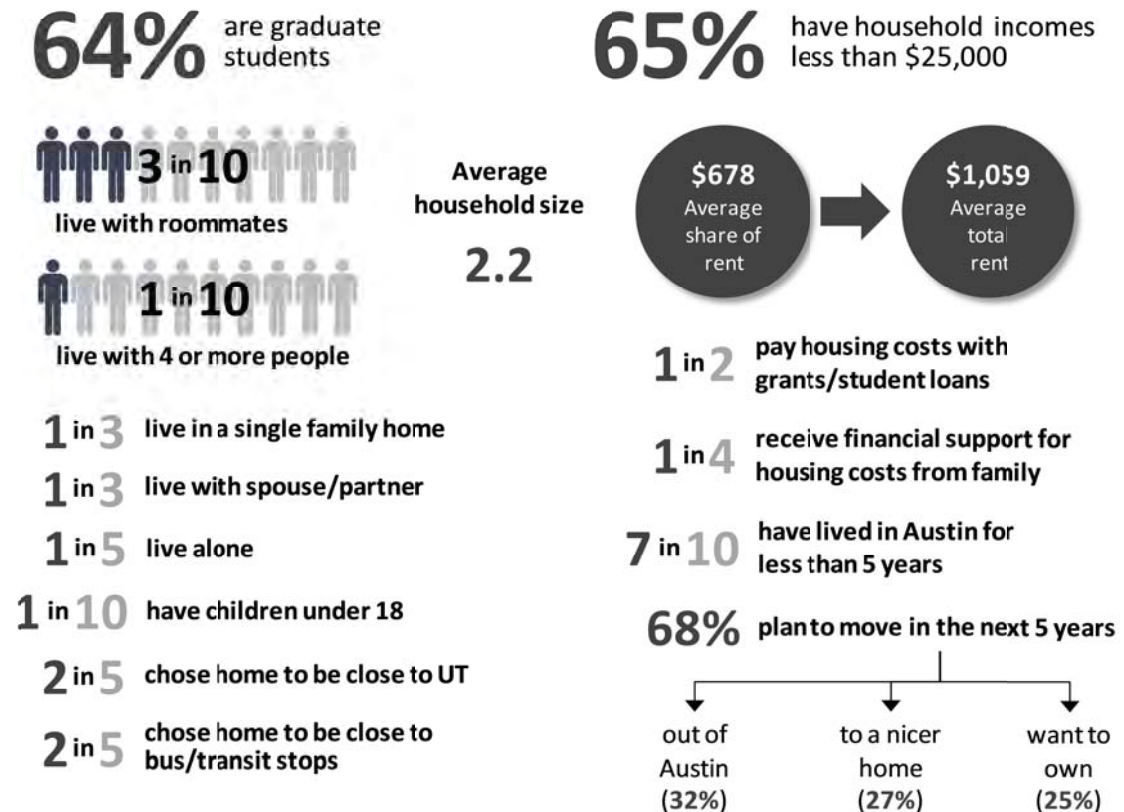
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Students

In many respects, Austin is a university town. Students who choose to live off campus add additional pressure to the housing market. Those students who responded to the Housing Choice Survey tend to be graduate students (64%). Half use student loans or grants to pay their share of the rent or mortgage. Nearly all are renters, and the average share of the rent per student is \$678. Most are new to Austin, having moved to the city within the last five years. Proximity to UT and bus and transit stops are important factors in choosing a home for two in five students respectively.

STUDENTS LIVING IN AUSTIN



Note: n=240 students.

Source: BBC Research & Consulting from the 2014 Austin Housing Choice Survey.



AE Weatherization Program job status as of September 1, 2015

Referrals			Unscreened		Screened			
Referrals	Duplicates	Loaded to SF	Homeowners	Renters	Unable to Serve	Unable to Contact	Able to Serve	Total Screened
11,239	2,037	9,202	3,959	1,360	2,372	840	671	3,883

AE Weatherization Contractors	Clients Assigned	Assessments in Process and Completed	Inspections Passed	Inspections Failed	Homes Invoiced YTD	Homes with DO	Amt Obligated YTD	Amt Paid YTD
Airtech	66	66	47	8	47	66	\$230,271	\$110,536
American Conservation	101	101	72	13	68	101	\$456,616	\$243,252
American Youth Works	22	22	11	4	10	22	\$71,278	\$28,144
City Conservation	106	106	86	21	84	106	\$405,034	\$263,072
Climate Mechanical	22	22	17	11	15	22	\$81,280	\$46,592
Conservation Specialist	43	43	42	0	42	43	\$164,921	\$139,994
Go Green	81	81	68	16	67	81	\$283,090	\$187,973
McCullough	60	60	18	4	12	60	\$245,803	\$49,979
Valdez	30	30	25	7	18	30	\$98,905	\$52,787
Total	531	531	386	84	363	531	\$2,037,198	\$1,122,329

Note 1: Of the 531 homes, 46 are renters

Note 2: 2015 values will include costs incurred for AWU reimbursement of water related improvements, unvouchered AP transactions and Refrigerator Recycling costs. These values may change after financial audited values are confirmed and may not be reflected in the weekly report generated by the department for the weatherization program.



AELIC 8-13 In AE response to NXP/Samsung RFI No. 1-24, AE stated it would provide the "EGRSO" expenditures by program activity from FY 2009 to FY 2014. FY 2014 program expenditures were missing from AE's response. Please provide the FY 2014 program expenditures in the same format AE utilized for the expenditures by program activity from FY 2009 to FY 2013.

ANSWER:

As stated in AE's Response to NXP/Samsung RFI No. 1-24, Economic Growth & Redevelopment Services Office (EGRSO), ceased to be a part of the Austin Energy Fund in 2014 and thus became established as an independent City of Austin department named the Economic Development Department ("EDD"). As such, the FY 2014 expenditure for economic development is a single line item transfer to the EDD. Austin Energy does not possess expenditures by program for FY 2014. Additionally, the EDD has multiple sources of revenue and does not track program expenditures by revenue source.

Please refer to the City of Austin FY 2016 Budget for a description of programs funded by the Economic Development Department. The budget is available at the following website.

https://austintexas.gov/financeonline/finance/financial_docs.cfm?ws=1&pg=1

Prepared by: DK
Sponsored by: Mark Dombroski

AELIC 8-14 Were the revenues collected for late payment penalties credited to (i.e. subtracted from) the customer costs in the COS such as are reflected in Figure 5.7, p.5-10, Bates Stamp P. 113? (Reference: AE response to NXP/Samsung RFI No. 1-71). If not, how were these revenues addressed in the COS? Please identify where these revenues were addressed in the COS by named reference and column(s) identification and by Bates Stamp page(s).

ANSWER:

Yes, please refer to WP E-5.1 line 2. The total other revenue amount can be found on Schedule A line 33.

Prepared by: MM
Sponsored by: Mark Dombroski

AELIC 8-15 Please explain the 5% late payment penalty fee charged residential customers. In your explanation please address whether the penalty fee is cost based and include any cost studies or analyses relied upon by AE in deriving the 5% late payment penalty fee. Also please include in your explanation the identification of any costs AE incurs that is reimbursed by the late payment penalty fee.

ANSWER:

If a customer of a City of Austin utility — including Austin Energy, Austin Water, or Austin Resource Recovery — makes a payment after the due date of the invoice for utility services, the City of Austin assesses a 5% late payment penalty according to City of Austin Code §15-9-137(c), Payment Requirements and Late Payment Penalty. The fee is assessed on the customer's next monthly bill invoice for utility services. The late payment fee is a pricing signal used by companies to encourage their customers to pay their bills on time. For the typical Austin Energy residential customer, the approximate nominal amount of a late payment fee that is attributable to the electric service portion of the invoice is \$5.00.

Austin Energy is not aware of a cost-based analysis of the 5% fee. The fee was adopted pursuant to Austin City Council Ordinance No. 040805-02 and became effective on August 16, 2004. Austin Energy notes that the fee is consistent with Public Utility Commission of Texas rules regulating the assessment of a penalty on delinquent bills. While the regulation does not apply to Austin Energy as a municipally owned utility, PUC Substantive Rule 25.28(b) permits Competitive Retailers to assess a penalty of up to 5% for late payment.

Prepared by: BE
Sponsored by: Kerry Overton

AELIC 8-16 Were the revenues collected for new service connections credited to (i.e. subtracted from) the customer costs in the COS such as reflected in Figure 5.7, p. 5-10, Bates Stamp P. 113? (Reference: AE response to NXP/Samsung RFI No. 1-71). If not, how were these revenues addressed in the COS? Please identify where these revenues were addressed in the COS by named reference and column(s) identification and by Bates Stamp page(s).

ANSWER:

Yes, please refer to WP E-5.1 line 49. The total other revenue amount can be found on Schedule A line 33.

Prepared by: MM
Sponsored by: Mark Dombroski

AELIC 8-17 Has AE received or obtained any studies, reports, or analyses that provide demographic data on its residential customers since TY 2009, the test year that supported its last rate case?

ANSWER:

Austin Energy has not received any studies, reports or analyses that provide demographic data on its residential customers since TY 2009. Austin Energy conducted its own analysis using publicly available data. Please see Austin Energy's Response to AELIC RFI Nos. 8-7.

Prepared by: JG/LJ
Sponsored by: Overton/Kimberly

AELIC 8-18 If the answer is yes to RFI No. 8-17, please identify and provide a copy of each such study, report, and/or analysis.

ANSWER:

Not applicable.

Prepared by: JG/LJ
Sponsored by: Overton/Kimberly

AELIC 8-19 Mark Dreyfus spoke at a March 29, 2016 meeting involving the House of Worship rates. In response to a question relating to electric cars, Mr. Dreyfus states that infrastructure costs are affected and will be affected with AE customers' uses of electric cars. Does AE agree with that statement? If so, please explain. In your explanation please address how the infrastructure is or is anticipated to be affected and address how the components of the infrastructure such as meters and transformers, production and transmission facilities are affected; and, also, how AE's costs are or are anticipated to be impacted.

ANSWER:

On March 29, 2016, Austin Energy Vice President for Regulatory Affairs and Corporate Communications Mark Dreyfus spoke at the invitation of the Faith Energy Action Team (FEAT). During that one-hour presentation and discussion, Mr. Dreyfus recalls receiving a question related to electric vehicle infrastructure. Mr. Dreyfus gave an extremely brief response. Upon reflection of the presentation, however, Mr. Dreyfus does not recollect the specific question or the substance of his extremely brief response.

Whether and the extent to which the use of electric vehicles will affect infrastructure costs such as meters and transformers, production and transmission facilities will depend upon the scope, timing, and distribution of the adoption of electric vehicles. At this time, Austin Energy is experiencing minimal infrastructure impact. The majority of dedicated electric vehicle chargers are found behind existing customer meters, whether that be a residence or public space, and draw at 3.3-6.6 kW (similar to a household clothes dryer). Austin Energy has started to roll out fast chargers and recently deployed its third DCFast charger in Austin. These devices draw at 50 kW and may require limited infrastructure improvements. Austin Energy's current projection calls for a roll-out of 6-10 more DCFast Chargers over the next 24 months in Austin.

Austin Energy is involved in several studies and pilots assessing the impact of EV charging on AE's infrastructure and load. The most recent is to roll out a new Plug-in Electric Vehicle Charging time-of-use rate to encourage home charging during off peak periods (adopted by City Council in the FY2016 budget). Austin Energy is also working with Pecan Street to study a high EV adoption neighborhood, Mueller, on potential clustering of EV drivers and its potential impact on transformers. Austin Energy was part of a US Department of Energy pilot with AutoGrid to test residential EV Demand Response feasibility using open standards. Although there are potential impacts of the spread of EVs in AE's territory, there is also opportunity for customer value services and grid reliability with new technologies, including pairing those technologies with the inherent energy storage capability of EVs.

Prepared by: MKD
Sponsored by: Mark Dreyfus