

# Background and Objectives

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- Southern Company Services' Market Intelligence Team commissioned Aspen Systems Corporation to conduct the 2004 Residential Saturation Survey for Georgia Power Company. The purpose of this survey was to obtain quantitative data concerning: (1) the prevalence of various energy-using appliances in the homes of customers, (2) customer preferences and decision factors regarding energy choices, and (3) customer demographics. The results of this research will be used by Market Planning and Market Forecasting to set sales goals for electric end-use sales, to evaluate appliance saturation trends over time, to evaluate electricity's market share in several appliance markets, and to forecast future energy-supply requirements.
- The specific objectives of this quantitative research include:
  - Trends in housing characteristics (i.e., age of home, size of home, and availability of natural gas)
  - The saturation of appliance ownership and use across dwelling type and region (i.e., new single-family and existing single-family in the Metro vs. Non-Metro Atlanta regions and new multi-family, existing multi-family and mobile/manufactured homes.)
  - Types and ages of water-heating system, home-heating system, and cooling system
  - Shift in fuel types for replaced water-heating and home-heating systems

# Methodology

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- Data collection involved mailing survey questionnaires (see Appendix A) to 2064 randomly selected homes to achieve a targeted response of 804 interviews. The mailings and targets were divided equally among twelve segments (172 mailings / 67 targeted completions for each segment):
  - New single-family homes in the Metro Atlanta region
  - Existing single-family homes in the Metro Atlanta region
  - New multi-family homes in the Metro Atlanta region
  - Existing multi-family homes in the Metro Atlanta region
  - New mobile/manufactured homes in the Metro Atlanta region
  - Existing mobile/manufactured homes in the Metro Atlanta region
  - New single-family homes in the Non-Metro Atlanta region
  - Existing single-family homes in the Non-Metro region
  - New multi-family homes in the Non-Metro region
  - Existing multi-family homes in the Non-Metro region
  - New mobile/manufactured homes in the Non-Metro region
  - Existing mobile/manufactured homes in the Non-Metro region
- New homes are 5 years old or less, and existing homes are over 5 years old.

# Methodology

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- The initial mailing of questionnaires was followed by a postcard reminder mailing to non-responders. Because the response rate to these mailings was less than expected, Aspen initiated a telephone campaign to obtain additional completions.
  - Questionnaire mailing: April 12, 2004
  - Reminder postcard mailing: May 04, 2004
  - Reminder phone calls/completions: May 25, 2004 - July 7, 2004
- Aspen developed a set of rigorous quality-control (QC) checks that were programmed into the data-entry software used to tabulate responses provided on the returned questionnaires (see Appendix B). An example of these QC checks is ensuring that respondents didn't report: (a) they had a natural gas water heater, AND (b) natural gas is not available on their street.
- Follow-up telephone calls were made to customers whose questionnaires were rejected by the QC checks. These calls were made to obtain missing data and/or correct inconsistent responses.

# Methodology

- A total of 843 survey questionnaires were completed by Georgia Power customers:

Segment	Mailed	Initially Acceptable Returned Questionnaires	Acceptable after telephone follow-up	Mail Response Rate	Additional Completions via telephone	Total Completions	Adjusted Total Completions*
Metro Atlanta, New Single Family	172	28	2	17.4%	29	59	66
Metro Atlanta, Existing Single Family	172	31	4	20.3%	24	59	80
Metro Atlanta, New Multi-Family	172	10	4	8.1%	55	69	66
Metro Atlanta, Existing Multi-Family	172	14	5	11.0%	51	70	69
Metro Atlanta, New Manufactured Homes	172	34	2	20.9%	39	75	65
Metro Atlanta, Existing Manufactured Homes	172	20	2	12.8%	62	84	70
Non-Metro Atlanta, New Single Family	172	34	1	20.3%	32	67	66
Non-Metro Atlanta, Existing Single Family	172	34	10	25.6%	13	57	91
Non-Metro Atlanta, New Multi-Family	172	27	4	18.0%	47	78	63
Non-Metro Atlanta, Existing Multi-Family	172	30	0	17.4%	53	83	72
Non-Metro Atlanta, New Manufactured Homes	172	35	4	22.7%	30	69	59
Non-Metro Atlanta, Existing Manufactured Homes	172	41	5	26.7%	27	73	76
<b>Total Company</b>	<b>2064</b>	<b>338</b>	<b>43</b>	<b>18.5%</b>	<b>462</b>	<b>843</b>	<b>843</b>

\* Segment after adjustment based on questionnaire response to questions asking dwelling type and age of home

# Methodology

- The total sample size (843) provides statistical accuracy of  $\pm 5.0\%$  at the 95% confidence level\*. Statistical accuracy for sub-group analyses within this report will decrease (the error range will increase) with lower sample sizes (i.e., at the segment level, or where fewer responses are made).
- The data for total company were weighted as follows to represent the total residential customer population\*\*:

Total Company							
	Metro Atlanta New Single Family	Metro Atlanta Existing Single Family	Metro Atlanta New Multi- Family	Metro Atlanta Existing Multi- Family	Metro Atlanta New Mobile/ Manufactured	Metro Atlanta Existing Mobile/ Manufactured	
Residential Customers (N)	51,339	474,318	46,976	246,981	631	10,506	
Sample (n)	66	80	66	69	65	70	
Weighting Factors:							
N	3.22%	29.73%	2.94%	15.48%	0.04%	0.66%	
n	7.83%	9.49%	7.83%	8.19%	7.71%	8.30%	
N/n	0.411	3.133	0.376	1.892	0.005	0.079	
Total Company							
	Non-Metro Atlanta New Single Family	Non-Metro Atlanta Existing Single Family	Non-Metro Atlanta New Multi- Family	Non-Metro Atlanta Existing Multi- Family	Non-Metro Atlanta New Mobile/ Manufactured	Non-Metro Atlanta Existing Mobile/ Manufactured	Total Company
Residential Customers (N)	81,210	459,344	17,636	116,390	13,665	76,240	1,595,236
Sample (n)	66	91	63	72	59	76	843
Weighting Factors:							
N	5.09%	28.79%	1.11%	7.30%	0.86%	4.78%	100%
n	7.83%	10.79%	7.47%	8.54%	7.00%	9.02%	100%
N/n	0.650	2.667	0.148	0.854	0.122	0.530	

\*A 95% confidence level indicates that if a relevant population statistic (e.g., 46% Male) was estimated from a sample of a particular size an infinite number of times, that the estimate would be within +/- the error percentage 95% of the time.

# Methodology

- Survey data from the four single family home segments were weighted as follows to represent all single family homes:

	Single Family Homes				Total
	Metro Atlanta New Single Family	Metro Atlanta Existing Single Family	Non-Metro Atlanta New Single Family	Non-Metro Atlanta Existing Single Family	
Residential Customers (N)	51,339	474,318	81,210	459,344	1,066,211
Sample (n)	66	80	66	91	303
Weighting Factors:					
N	4.82%	44.49%	7.62%	43.08%	100%
n	21.78%	26.40%	21.78%	30.03%	100%
N/n	0.221	1.685	0.350	1.434	

- Survey data from the two new single family home segments were weighted as follows to represent all new single family homes:

	New Single Family Homes		Total
	Metro Atlanta	Non-Metro Atlanta	
Residential Customers (N)	51,339	81,210	132,549
Sample (n)	66	66	132
Weighting Factors:			
N	38.73%	61.27%	100.00%
n	50.00%	50.00%	100.00%
N/n	0.775	1.225	

# Methodology

- Survey data from the two existing single family home segments were weighted as follows to represent all existing single family homes:

	Existing Single Family Homes		
	Metro Atlanta	Non-Metro Atlanta	Total
Residential Customers (N)	474,318	459,344	933,662
Sample (n)	80	91	171
Weighting Factors:			
N	50.80%	49.20%	100.00%
n	46.78%	53.22%	100.00%
N/n	1.086	0.924	

- Survey data from the four multi-family home segments were weighted as follows to represent all multi-family homes:

	Multi-Family Homes				Total
	Metro Atlanta New Multi-Family	Metro Atlanta Existing Multi-Family	Non-Metro Atlanta New Multi-Family	Non-Metro Atlanta Existing Multi-Family	
Residential Customers (N)	46,976	246,981	17,636	116,390	427,983
Sample (n)	66	69	63	72	270
Weighting Factors:					
N	10.98%	57.71%	4.12%	27.20%	100%
n	24.44%	25.56%	23.33%	26.67%	100%
N/n	0.449	2.258	0.177	1.020	

# Methodology

- Survey data from the two new multi-family home segments were weighted as follows to represent all new multi-family homes:

	New Multi-Family Homes		
	Metro Atlanta	Non-Metro Atlanta	Total
Residential Customers (N)	46,976	17,636	64,612
Sample (n)	66	63	129
Weighting Factors:			
N	72.70%	27.30%	100.00%
n	51.16%	48.84%	100.00%
N/n	1.421	0.559	

- Survey data from the two existing multi-family home segments were weighted as follows to represent all existing multi-family homes:

	Existing Multi-Family Homes		
	Metro Atlanta	Non-Metro Atlanta	Total
Residential Customers (N)	246,981	116,390	363,371
Sample (n)	69	72	141
Weighting Factors:			
N	67.97%	32.03%	100.00%
n	48.94%	51.06%	100.00%
N/n	1.389	0.627	



# Methodology

- Survey data from the four mobile/manufactured home segments were weighted as follows to represent all mobile/manufactured homes:

	Mobile/Manufactured Homes				Total
	Metro Atlanta New Mobile/ Manufactured	Metro Atlanta Existing Mobile/ Manufactured	Non-Metro Atlanta New Mobile/ Manufactured	Non-Metro Atlanta Existing Mobile/ Manufactured	
Residential Customers (N)	631	10,506	13,665	76,240	101,042
Sample (n)	65	70	59	76	270
Weighting Factors:					
N	0.62%	10.40%	13.52%	75.45%	100%
n	24.07%	25.93%	21.85%	28.15%	100%
N/n	0.026	0.401	0.619	2.681	

- Survey data from the two new mobile/manufactured home segments were weighted as follows to represent all new mobile/manufactured homes:

	New Mobile/Manufactured Homes		Total
	Metro Atlanta	Non-Metro Atlanta	
Residential Customers (N)	631	13,665	14,296
Sample (n)	65	59	124
Weighting Factors:			
N	4.41%	95.59%	100.00%
n	52.42%	47.58%	100.00%
N/n	0.084	2.009	

# Methodology

- Survey data from the two existing mobile/manufactured home segments were weighted as follows to represent all existing mobile/manufactured homes:

	Existing Mobile/Manufactured Homes		
	Metro Atlanta	Non-Metro Atlanta	Total
Residential Customers (N)	10,506	76,240	86,746
Sample (n)	70	76	146
Weighting Factors:			
N	12.11%	87.89%	100.00%
n	47.95%	52.05%	100.00%
N/n	0.253	1.688	

- Survey data from the six Metro Atlanta home segments were weighted as follows to represent all Metro Atlanta homes:

	Metro Atlanta						Total
	New Single Family	Existing Single Family	New Multi-Family	Existing Multi-Family	New Mobile/Manufactured	Existing Mobile/Manufactured	
Residential Customers (N)	51,339	474,318	46,978	246,981	631	10,506	830,753
Sample (n)	66	80	66	69	65	70	416
Weighting Factors:							
N	6.18%	57.09%	5.65%	29.73%	0.08%	1.26%	100%
n	15.87%	19.23%	15.87%	16.59%	15.63%	16.83%	100%
N/n	0.390	2.969	0.356	1.792	0.005	0.075	

# Methodology

- Survey data from the six Non-Metro Atlanta home segments were weighted as follows to represent all Non-Metro Atlanta homes:

	Non-Metro Atlanta						Total
	New Single Family	Existing Single Family	New Multi-Family	Existing Multi-Family	New Mobile/Manufactured	Existing Mobile/Manufactured	
Residential Customers (N)	81,210	459,344	17,636	116,390	13,665	76,240	764,485
Sample (n)	66	91	63	72	59	76	427
Weighting Factors:							
N	10.62%	60.09%	2.31%	15.22%	1.79%	9.97%	100%
n	15.46%	21.31%	14.75%	16.86%	13.82%	17.80%	100%
N/n	0.687	2.819	0.156	0.903	0.129	0.560	