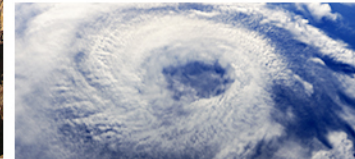# MEMD Calibration Research: Housing Baseline Study

Presented to EWR Collaborative

April 17, 2018

Status

- Scope redesigned:
  - Pilot phase (~20 sites) + Main Phase (~184 sites)
  - Optional Upper Peninsula Add-On (~101 sites)
  - Census data used to inform target quotas for demographic data
- Pending data requests with CE & DTE for additional demographic data to support quota execution
- Revised scope of work to be reviewed and approved

Sample Design – Pilot & Main Phase

Customer List	Climate Zone	Building Type	Strata Sample Size	Ownership Type	Income Qualified	Quota Targets (+/- 20%)
Consumers Energy + DTE	CZ-5	Single Family	46	Owned	Yes	15
					No	23
				Rented	Yes	3
					No	5
		Multifamily	56	Owned	Yes	2
					No	3
				Rented	Yes	20
					No	31
	CZ-6	Single Family	46	Owned	Yes	15
					No	23
				Rented	Yes	3
					No	5
		Multifamily	56	Owned	Yes	2
					No	3
				Rented	Yes	20
					No	31
Totals			**204**			**204**

- Geographically limited to the Lower Peninsula
- Results will be stratified by 'climate zone' and 'home type' (target 90/20 for each segment).
- Nested quotas will be targeted for 'home ownership' and 'income qualified status'.
- Quotas are estimates based on census data (2016 ACS 5-year).
- Targets are set at a minimum of two; target values are rounded-up.
- Variability estimators by home type are based on recent research in other jurisdictions.

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Sample Design – Pilot & Main Phase

Weather Station Quotas		Statewide		Lower Peninsula		
					site visit target	204
Climate Zone	MEMD Weather Station	Count of Housing Units	Share of Housing Units	Count of Housing Units - LP	Share of Housing Units per Climate Zone - LP	Quota Target - LP (+/- 20%)
CZ-5	MI_Alpena_County_Regional	9,087	0%	9,087	0%	0
CZ-5	MI_Detroit_City_Airport	2,031,404	45%	2,031,404	53%	55
CZ-5	MI_Lansing_Capital_City_A	724,466	16%	724,466	19%	19
CZ-5	MI_Muskegon_County_Arpt	616,473	14%	616,473	16%	17
CZ-5	MI_Saginaw_Tri_City_Intl	416,474	9%	416,474	11%	11
CZ-6	MI_Alpena_County_Regional	101,661	2%	101,661	18%	18
CZ-6	MI_Detroit_City_Airport	22,841	1%	22,841	4%	4
CZ-6	MI_Muskegon_County_Arpt	79,274	2%	79,274	14%	14
CZ-6	MI_Saginaw_Tri_City_Intl	100,266	2%	100,266	18%	18
CZ-6	MI_Sault_Ste_Marie_Sander	110,756	2%	21,321	4%	4
CZ-6	MI_Traverse_City_Cherry_C	237,390	5%	237,390	42%	43
CZ-7	MI_Sault_Ste_Marie_Sander	94,828	2%			0
	Total	4,544,920	100%	4,360,657	200%	204

- Weather station quotas will be flat (non-nested).
- Results can be normalized for aggregate reporting.

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Sample Design – Home Type

Home Type	Statewide		Lower Peninsula			Upper Peninsula		
			site visit target 204			site visit target 101		
	Count of Occupied Housing Units	Share of Occupied Housing Units	Count of Occupied Housing Units - LP	Share of Occupied Housing Units - LP	Quota Target - LP (+/- 20%)	Count of Occupied Housing Units - UP	Share of Occupied Housing Units - UP	Quota Target - UP (+/- 20%)
Single family*	2,987,945	77%	2,887,963	77%	158	100,352	81%	81
2 or more apartments	687,150	18%	667,910	18%	36	17,359	14%	14
Other**	185,299	5%	178,576	5%	10	6,760	5%	5
Total	**3,860,394**	**100%**	**3,734,449**	**100%**	**204**	**124,470**	**100%**	**101**

*Includes detached and attached
**Includes mobile and all other

- Modest differences between LP and UP (~4%)

- Weights will be used to scale final study results

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Sample Design – Income Qualification

	site visit target	204				site visit target	101	
	Statewide		Lower Peninsula			Upper Peninsula		
Income Qualified	Count of Households	Share of Households	Count of Households - LP	Share of Households - LP	Quota Target - LP (+/- 20%)	Count of Households - UP	Share of Households - UP	Quota Target - UP (+/- 20%)
Yes*	1,531,321	40%	1,471,769	39%	80	59,552	48%	48
No**	2,329,073	60%	2,264,184	61%	124	64,889	52%	53
Total	**3,860,394**	**100%**	**3,735,953**	**100%**	**204**	**124,441**	**100%**	**101**

* Household income less than $40,000 / yr
** Household income greater than or equal to $40,000 / yr

- Modest differences between LP and UP (~9%)

- Weights will be used to scale final study results

Sample Design – Home Ownership

	Statewide		Lower Peninsula			Upper Peninsula		
					site visit target 204			*site visit target* 101
Ownership Type	Count of Occupied Housing Units	Share of Occupied Housing Units	Count of Occuped Housing Units - LP	Share of Occupied Housing Units - LP	Quota Target - LP (+/- 20%)	Count of Occupied Housing Units - UP	Share of Occupied Housing Units - UP	Quota Target - UP (+/- 20%)
Owned	2,732,051	71%	2,638,276	71%	144	93,775	75%	76
Rented	1,128,343	29%	1,097,677	29%	60	30,666	25%	25
Total	**3,860,394**	**100%**	**3,735,953**	**100%**	**204**	**124,441**	**100%**	**101**

	Lower Peninsula		Upper Peninsula	
	SF	MF	SF	MF
Owned	85%	9%	87%	6%
Rented	15%	91%	13%	94%

- Slight differences between LP and UP (~4%)
- Weights will be used to scale final study results

Sample Design – Education

	Statewide		Lower Peninsula			Upper Peninsula		
					site visit target **204**			site visit target **101**
Education Level	Count of Households	Share of Households	Count of Households - LP	Share of Households - LP	Quota Target - LP (+/- 20%)	Count of Households - UP	Share of Households - UP	Quota Target - UP (+/- 20%)
High school graduate or less*	1,531,321	36%	1,338,716	36%	73	51,026	41%	41
Some college or more**	2,329,073	64%	2,397,248	64%	131	73,404	59%	60
Total	**3,860,394**	**100%**	**3,735,964**	**100%**	**204**	**124,430**	**100%**	**101**

*Includes equivalency
**Includes associate's degree

- Modest differences between LP and UP (~5%)

- Closely aligned with Income – will not be used for quota / data scaling.

Sample Design – Optional Phase

Customer List	Climate Zone	Building Type	Strata Sample Size	Ownership Type	Income Qualified	Quota Targets (+/- 20%)
To be determined	CZ-6 & CZ-7	Single Family	45	Owned	Yes	19
					No	20
				Rented	Yes	3
					No	3
		Multifamily	56	Owned	Yes	2
					No	2
				Rented	Yes	25
					No	27
Totals			**101**			**101**

- Geographically limited to the Upper Peninsula
- Results will be stratified by 'home type' (target 90/20 for each segment).
- Nested quotas will be targeted for 'home ownership' and 'income qualified status'.
- Quotas are estimates based on census data (2016 ACS 5-year).
- Variability estimators by home type are based on recent research in other jurisdictions.
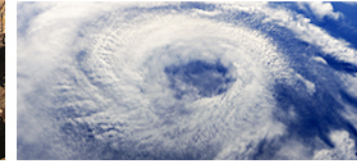
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