

LARGE FILING SEPARATOR SHEET

CASE NUMBER: 15-534-EL-RDR

FILE DATE: 3/30/15

SECTION: 2

NUMBER OF PAGES: 201

DESCRIPTION OF DOCUMENT:

APPLICATION

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Does your home have an attic?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	103	78.6	79.2	79.2
	No	27	20.6	20.8	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

Are your central air/heat ducts located in the attic?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	11.5	11.5	11.5
	No	88	67.2	67.7	79.2
	N/A	27	20.6	20.8	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

Does your house have cold drafts in the winter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	23.7	23.8	23.8
	No	99	75.6	76.2	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

Does your house have sweaty windows in the winter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	16	12.2	12.3	12.3
	No	114	87.0	87.7	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

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Do you notice uneven temperatures between the rooms in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	67	51.1	51.5	51.5
	No	63	48.1	48.5	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

Does your heating system keep your home comfortable in winter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	119	90.8	91.5	91.5
	No	11	8.4	8.5	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

Does your cooling system keep your home comfortable in summer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	115	87.8	88.5	88.5
	No	15	11.5	11.5	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

Do you have a programmable thermostat?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	81	61.8	62.3	62.3
	No	49	37.4	37.7	100.0
	Total	130	99.2	100.0	
Missing	99	1	.8		
Total		131	100.0		

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How many thermostats are there in your home?

	Frequency	Percent	Valid Percent	Cumulative Percent
1	119	90.8	91.5	91.5
2	4	3.1	3.1	94.6
3	2	1.5	1.5	96.2
Valid 4 or more	4	3.1	3.1	99.2
DK/NS	1	.8	.8	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

What temperature is your thermostat set to on a typical summer weekday afternoon?

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 69 degrees	1	.8	.8	.8
69-72 degrees	25	19.1	19.2	20.0
73-78 degrees	86	65.6	66.2	86.2
Valid Higher than 78 degrees	10	7.6	7.7	93.8
Off	5	3.8	3.8	97.7
DK/NS	3	2.3	2.3	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

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What temperature is your thermostat set to on a typical winter weekday afternoon?

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 67 degrees	13	9.9	10.0	10.0
67-70 degrees	58	44.3	44.6	54.6
71-73 degrees	31	23.7	23.8	78.5
Valid 74-77 degrees	15	11.5	11.5	90.0
78 degrees or higher	5	3.8	3.8	93.8
DK/NS	8	6.1	6.2	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

Do You Have a swimming pool, hot-tub or spa?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	20	15.3	15.4	15.4
Valid No	110	84.0	84.6	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

Would a two-degree increase in the summer afternoon temperature in your home affect your comfort

	Frequency	Percent	Valid Percent	Cumulative Percent
Not at all	44	33.6	33.8	33.8
Slightly	34	26.0	26.2	60.0
Valid Moderately, or	34	26.0	26.2	86.2
Greatly	18	13.7	13.8	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

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How many people live in this home?

	Frequency	Percent	Valid Percent	Cumulative Percent
1	29	22.1	22.3	22.3
2	46	35.1	35.4	57.7
3	23	17.6	17.7	75.4
4	16	12.2	12.3	87.7
5	10	7.6	7.7	95.4
6	5	3.8	3.8	99.2
7	1	.8	.8	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

How many of them are teenagers?

	Frequency	Percent	Valid Percent	Cumulative Percent
0	105	80.2	80.8	80.8
1	14	10.7	10.8	91.5
2	7	5.3	5.4	96.9
3	4	3.1	3.1	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

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How many persons are usually home on a weekday afternoon?

	Frequency	Percent	Valid Percent	Cumulative Percent
0	17	13.0	13.1	13.1
1	47	35.9	36.2	49.2
2	44	33.6	33.8	83.1
3	14	10.7	10.8	93.8
Valid 4	5	3.8	3.8	97.7
5	1	.8	.8	98.5
7	1	.8	.8	99.2
Prefer not to answer	1	.8	.8	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

Are you planning on making any large purchases to improve energy efficiency in the next 3 years?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	29	22.1	22.3	22.3
Valid No	90	68.7	69.2	91.5
DK/NS	11	8.4	8.5	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

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What is your age group?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-34	9	6.9	6.9	6.9
35-49	23	17.6	17.7	24.6
50-59	32	24.4	24.6	49.2
60-64	12	9.2	9.2	58.5
65-74	19	14.5	14.6	73.1
Over 74	32	24.4	24.6	97.7
Prefer not to answer	3	2.3	2.3	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

Please indicate your annual household income

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Under \$15,000	4	3.1	3.1	3.1
\$15,000-\$29,999	14	10.7	10.8	13.8
\$30,000-\$49,999	12	9.2	9.2	23.1
\$50,000-\$74,999	22	16.8	16.9	40.0
\$75,000-\$100,000	13	9.9	10.0	50.0
Over \$100,000	13	9.9	10.0	60.0
Prefer Not to Answer	52	39.7	40.0	100.0
Total	130	99.2	100.0	
Missing 99	1	.8		
Total	131	100.0		

Appendix J: Participants' Reasons for Program Satisfaction Ratings

Survey respondents were asked to rate their satisfaction with the Appliance Recycling Program on a five-point Likert scale; the distribution of responses to this question can be found in Figure 15. After giving their satisfaction rating for the program, respondents were then asked why they gave the rating they did. These verbatim responses are categorized and listed below.

One hundred and twenty-five customers (95.4% of 131) rated their overall satisfaction with the program as "very satisfied":

Recycled one refrigerator (N=60)

- *Because it was really convenient, pretty much hassle-free, and I haven't thought about it since I cashed the check. It was very easy.*
- *Because of the safety and the reputation of the company; I wouldn't have let somebody in that I didn't know anything about. I'm a widow and I live alone in my home. I don't let just anybody in. I knew I'd be safe with Duke. I've been dealing with them for many years now.*
- *It was easy and hassle-free.*
- *Everything was so efficient: 'bang-bang-bang,' just like they said it would happen.*
- *Everything went as promised. It is a very generous service to provide.*
- *I am happy that someone would take care of taking my refrigerator away.*
- *I actually got money and didn't have to pay.*
- *I got paid when they did all the labor.*
- *I like the idea that they're recycling, reusing parts where possible. I got an incentive out of it, and they came and took it away.*
- *I like the whole process; it was easy. The crew came on the scheduled date and time, they answered all the questions I had, they were efficient and weren't here long. I also like the recycling aspect as well. Americans just throw away too many things.*
- *I really liked the convenience and the idea of it. And, the whole recycling thing I liked.*
- *I think it's really important that Duke Energy is recycling these appliances and it's a great service to provide for the community. I don't know of anybody else providing this service.*
- *I was amazed at how quickly they got it. It was efficient.*
- *I was just glad to get rid of it. It saved me the problem of trying to get rid of it.*
- *I was very satisfied because everything went as described, there were no problems, it was convenient, and the collection team arrived on time and was quite pleasant.*
- *I was very satisfied because everything went quite smoothly with no delays.*
- *I was very satisfied because I didn't have to exert much effort, the program offered a monetary incentive, picked up the unit, and recycled it properly.*
- *I was very satisfied because I enjoyed getting an incentive check for recycling an inefficient refrigerator.*
- *I was very satisfied because I felt comfortable knowing the collection team was working on behalf of Duke and that the appliance would be recycled properly.*

- *I was very satisfied because I was happy to get rid of the refrigerator at no cost.*
- *I was very satisfied because it was an easy way to get rid of the appliance.*
- *I was very satisfied because it was easy to participate, and they paid me for the appliance.*
- *I was very satisfied because it's a good program. I appreciated receiving a check for recycling a useless old appliance.*
- *I was very satisfied because of the convenience and ease of participation.*
- *I was very satisfied because of the convenience of participation. A lady who works for my auto mechanic signed me up and everything went very smoothly.*
- *I was very satisfied because of the convenience of the program.*
- *I was very satisfied because of the convenience of the program, but I would have liked more information about what happens to the recycled appliances.*
- *I was very satisfied because of the convenience of the service, which took care of something that needed to be done. I also appreciated the monetary incentive.*
- *I was very satisfied because of the ease of participation and the monetary incentive.*
- *I was very satisfied because of the ease of participation and the professionalism of the collection crew, though they could have picked up the units a bit sooner and offered a slightly higher monetary incentive.*
- *I was very satisfied because taking old inefficient refrigerators out of service is a 'win-win' for everyone involved.*
- *I was very satisfied because the collection team picked up the appliance on time and I received a check. Everything went smoothly and as promised.*
- *I was very satisfied because the entire process went so smoothly.*
- *I was very satisfied because the entire process went so well.*
- *I was very satisfied because the program did everything it said it would.*
- *I was very satisfied because the program paid us to recycle an appliance, though we disliked having to call twice and wait around all day for the collection team that never arrived, due to the customer service representative neglecting to properly process our first pick-up appointment.*
- *I was very satisfied because the program was convenient.*
- *I was very satisfied because the program was so convenient.*
- *I was very satisfied because the whole process was so easy. The crew came and got the refrigerator and were gone in like five minutes.*
- *I was very satisfied because we properly recycled an old appliance and the collection team was very professional.*
- *I was very satisfied, but wish they would have informed their customers as to who won the contest for recycling the oldest refrigerator.*
- *I was very satisfied with the monetary incentive I received for getting rid of my old appliance.*
- *It was all very positive. It was getting recycled, I got money for it, and I didn't have to do anything with it.*
- *It was an easy process. Nothing to it really.*
- *It was easy to do and they gave me money for the refrigerator.*
- *It was easy, simple, convenient, and I got cash back.*
- *It was extremely convenient and easy for me. They made it real easy for me.*

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- *It was helpful.*
- *It was very convenient, easy to schedule, and we received a rebate check; it's a nice incentive.*
- *It was very easy.*
- *It went smoothly. We didn't have to keep calling people. It was reliable. We got money for it.*
- *I just called up and everything was set up on the first call. I didn't have to go out of my way to get everything done and it all went smoothly.*
- *I just needed to get rid of the refrigerator, so I gave the money back to the company.*
- *The ease of everything and the convenience; it was like clockwork.*
- *The entire experience was just fine from the phone call to the scheduling. Everything was as I expected it to be.*
- *The money; I got rid of it and I got money for it.*
- *The person I made the appointment with, and the people who came to pick up the refrigerator, were friendly and efficient. The program worked as advertised.*
- *They came when they said they were coming and we got the money. It all worked like clockwork.*
- *They gave me a call beforehand and came on time. They did what they said they would. Reliable.*
- *We need to recycle as much as we can.*
- *(N=2)*

Recycled one freezer (N=53)

- *I liked everything about the service. The people were friendly and it was effortless.*
- *I was very satisfied with everything about the program.*
- *This program recycles people's freezers and also gives them some money.*
- *They make it so easy for you; it's a no-brainer as far as I was concerned.*
- *Duke Energy is a reputable company to take charge of recycling these old inefficient appliances. I also liked the cash rebate incentive.*
- *Everything about the program was easy and the people were very friendly. When I tried recycling our dehumidifier through another organization there were a few problems.*
- *Everything came together like they said it would, from the signing up for the program to the pick-up day and getting the check in the mail, all elements were followed through perfectly. I especially liked that there was absolutely no inconvenience to me.*
- *Everything included in the program was done right. The pickup team were here on time, and I liked the cash incentive.*
- *Everything was easy to do and I felt good about recycling the freezer. The website was easy to use and I liked that people kept in touch. They made one call to confirm the appointment, one call the night before, and one call around the collection time to let us know that they were running 'late', which was just towards the end of the block of time they gave us, so not really late at all.*
- *Everything was fast and efficient. There were no problems.*
- *Everything was very efficient. The guys who came and picked up the freezer were nice guys and they got the freezer out very quickly.*
- *Everything worked exactly as planned.*

- *Everything worked out fine. It came at the right time for somebody to remove it and everything worked out fine.*
- *Everything worked out perfectly. The call was easy and then they came and took the freezer and I got a check for it.*
- *I got something for nothing.*
- *I had no problems with the program. I had tried to donate the freezer to Goodwill and St. Vincent De Paul and they wouldn't take it.*
- *I just liked the fact that Duke Energy offers this program to get rid of these old freezers properly, in an earth-responsible method. I also like that they sent a pick-up team to my house and picked up the freezer for me at no cost and then they even gave me some money for it.*
- *I like that Duke is willing to take the initiative to help their customers figure out best way to dispose of their old appliances. I like how this program saves energy and helps the community.*
- *I like that the appliances are being recycled. It was great to have such nice people come and get the freezer so quickly.*
- *I like that the appliances are being mostly recycled instead of going to some landfill. I liked that they came and got my freezer and gave me \$30 for it. I probably would have needed to spend that much or more to get someone to come and take it away.*
- *I liked getting paid for doing almost nothing, and I got the freezer removed from the house.*
- *I liked that it was such an easy program to participate in. I would recommend the program to others.*
- *I liked the convenience of it: that you were willing to pick it up, that it was responsibly recycled, they worked with my schedule to pick it up, and the guys who picked it up were very accommodating.*
- *I really didn't know what else to do with the freezer. The collection team was very nice and it was difficult for them to get the freezer out of the basement so I really appreciated their help.*
- *I think it was done quite efficiently.*
- *I thought it was easy using the online sign up with scheduling for the pick-up. I thought that the \$30 dollar incentive was another big factor that made this a great program. The pick-up team was very good too, they were fast and courteous.*
- *I was just happy to get rid of the freezer. It had been taking up space in the basement unplugged for a while. I'm looking into moving into a smaller house so I would have eventually had to get rid of it somehow and I really didn't know what I was going to do about it.*
- *I was paid to let someone remove the freezer we weren't using.*
- *I would recommend it to anybody. I like Duke Energy; this was a great program for people like me, who are older, and need help with removing appliances.*
- *It fulfilled everything I was looking for.*
- *It is just a good program because it gets people to get rid of their old inefficient appliances instead of passing them on to other people.*
- *It was easy.*

- *It was easy for me to have my freezer taken away, all I had to do was call to make the appointment and Duke took care of the rest. I really liked that the pick-up was free and I received an incentive for the freezer on top of the free pick-up. I have no complaints about the program at all.*
- *It was easy to do. I just called and someone came to get the freezer, and they gave me money for the freezer that I wasn't even using anymore.*
- *It was fairly easy to schedule, we got paid for doing it, I didn't have to hire a truck, it saved me money, and was fairly simple.*
- *It was such a good experience. It wasn't a problem. It was all done exactly the way they said it would be done, which made this a very good experience.*
- *It's a good program because it helped me get the big old freezer out of the house easily. I would have let them come and take the freezer away for free.*
- *It's a great program because it gets people like us to get rid of something that we aren't using or don't need to be using. The convenience of someone coming to the house really helped us decide to get rid of the freezer that was just sitting in the garage taking up space.*
- *Overall, the service was great.*
- *That someone came out to the house to pick up the freezer. I hadn't been using it and have been storing blankets in it for the last five years.*
- *The convenience of the home pick-up.*
- *The convenience of the home pick-up, and recycling the freezer was good for the environment.*
- *The drivers were exceptional and I was very happy to get rid of something that we weren't using.*
- *The entire program is a 'win-win': it's very easy to participate, and I really did not have to do anything. Also, to add an incentive along with free pick-up, that was great. I thought it was all awesome.*
- *The entire program was very convenient.*
- *The entire program was very easy for me. I had to do no work as far as paperwork or moving the freezer or any of my other furniture. The pick-up team did a nice job. I'm also very satisfied because I got a check for my old freezer.*
- *The entire program was very easy to take advantage of. I like that it was free to have the freezer taken away.*
- *The program did what it was supposed to do. Someone came out and picked up the freezer to be recycled.*
- *The program saved me money. I didn't have to pay someone to help me get rid of the freezer.*
- *They took care of it in good time and called ahead before the collection team arrived. There were no problems at any time.*
- *I am very, very satisfied. Now I know about this service and know that I will be able to use it in the future. I would recommend this program to other people.*
- *We recycle as much as we can and we think that's the way to go. Don't just dump it someplace.*

- *We tried to give the freezer away to friends and family, but no one was interested in it, so we weren't really sure what to do with it until we got the insert in our bill. I was happy to have somewhere to get rid of the freezer, and they even came to get it.*

Recycled multiple units (N=12)

- *Because the program was so effortless on our part and we got rid of these old, crappy appliances that came with our house. We brought our own and didn't need them.*
- *Everything went well with the program. Everyone was nice and the guys had both freezers out of the basement in about 15 minutes.*
- *I am very satisfied with this program because I did not have to move either of the appliances at all. The pick-up team did a very good job. I also liked the convenience of signing up and scheduling for the appliance pick-up online. The cash incentive was an extra perk as well.*
- *I had no problems doing it.*
- *I thought that it was a good program.*
- *I was very satisfied because it was convenient, they gave us a payment, and everything went exactly as it was described.*
- *I was very satisfied because it's a great service that helped me get rid of appliances I wasn't using.*
- *I was very satisfied because of the ease of participation and the monetary incentive.*
- *I was very satisfied because recycling the appliances is a good idea. Getting rid of the appliances has saved on energy costs. Also, participating in the program precluded me from having to put the units out curbside for pick up.*
- *It's a great program that we were able to do twice. Once to get rid of an old refrigerator that we didn't use and once to get rid of the house's main refrigerator when it stopped working well. The guys who came to get them were nice even though they had some trouble getting the appliances out.*
- *The program recycled the appliances and gave me money. Everything was so easy, setting up the appointment and then having someone do all the heavy lifting.*
- *When I called, it was simple, they set up a date, they called and confirmed it, and they came when I could be home. I was very satisfied.*

Six customers (4.6% of 131) rated their overall satisfaction with the program as "satisfied":

Recycled one refrigerator (N=4)

- *I was excited to get rid of the refrigerator so easily because I knew that getting it out of the house was going to be hard work and expensive.*
- *I was somewhat satisfied because it was nice to get rid of the inefficient refrigerator, but other appliance recycling programs offer more monetary incentive.*
- *I was somewhat satisfied because of the small amount of money they offered.*
- *I was somewhat satisfied because three weeks was a long time to wait for pick up.*

Recycled one freezer (N=1)

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- *It was just something that I needed to do. I needed to clean out the space and I knew about the program for a long time. I did it so someone else could use the freezer or sell it off for parts.*

Recycled multiple units (N=1)

- *It was good to get the freezers picked up.*

Appendix K: Regression Table

Unit	Slope	Intercept	Raw Savings	Weather Normalized Savings	Change
1	0.0223	1.1387	970	850	-120
2	0.2588	-13.3680	1955	824	-1132
3	-0.0703	9.2774	1539	2019	+479
4	-0.0027	4.1082	1426	1561	+135
5	0.0163	-0.4211	260	260	0
6	0.0084	4.3236	1794	1741	-53
7	-0.0195	3.5321	768	909	+141
8	0.0173	0.2077	524	444	-80
9	-0.0491	6.2254	965	1422	+457
10	0.2033	-10.8524	1353	576	-777
11	-0.0059	1.7441	481	564	+83
12	0.0326	-0.6218	589	410	-179
13	0.0074	0.2581	278	278	0
14	0.0003	1.7197	637	634	-4
15	-0.0027	2.2385	749	824	+75
16	0.0021	0.2067	128	128	0
17	-0.0049	1.2289	341	353	+12
18	-0.0080	5.7009	1870	2077	+207
19	0.0007	3.9239	1431	1445	+14
20	-0.0075	7.3815	2505	2549	+43
21	0.0676	-1.9489	1001	627	-374
22	0.0036	2.0887	858	899	+41
23	0.0405	-0.8755	688	475	-213
24	0.0485	-1.1351	833	539	-294
25	0.0023	3.1540	1207	1290	+83
26	0.0097	0.0590	260	260	0
27	-0.0225	4.6077	1089	1243	+154
28	0.0015	1.4762	576	612	+36
29	-0.0073	3.3718	1043	1175	+132
30	0.1230	-4.0926	1756	969	-787

Per Measure Impacts Summary for Appliance Recycling Ohio Duke Energy Customers

*The evaluation methodology provided net savings only. By design, gross savings are excluded from this methodological approach. The controlled quasi-experimental

design approach was selected to increase the reliability of the energy savings estimates. This approach provides net savings as the analytical output.

****There is no Freeridership value provided in this table due to the evaluation methodology employed**

Final Report

**Process Evaluation
of the Residential Smart Saver®
HVAC Program in Ohio and Kentucky**

**Prepared for
Duke Energy**

139 East Fourth Street
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May 16, 2014

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Final Report

**Process Evaluation
of the Residential Smart Saver®
HVAC Program in Ohio and Kentucky**

**Prepared for
Duke Energy**

139 East Fourth Street
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May 16, 2014

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Executive Summary

The key findings and recommendations identified through this evaluation are presented below. The evaluation includes information derived from qualitative interviews with program managers and implementation vendors, as well as through qualitative interviews with trade allies. Survey analysis arises from separate surveys of trade allies and residential customer participants.

On August 7, 2013 in Case 12-665 the Ohio Commission issued the following finding of fact (49) and order (50):

(49) Sixth, Evergreen recommends that Duke's future evaluation work should rely on primary data collected from Ohio customers and be completed as close as realistically possible to the program year being evaluated. Duke replies that its evaluations do rely on primary data collected from Ohio customers, with the timing dependent on program participation and approval of cost recovery. Duke notes that it has not always been possible to align the evaluation with a single calendar year.

(50) The Commission finds that Evergreen's recommendation is reasonable and should be adopted, although we note that it appears that Duke is already making efforts to comply with the recommendation to the extent feasible. (emphasis added)

As indicated in the record Duke Energy has begun working to comply with that recommendation by the Independent Evaluator for future reports to the extent feasible. However at the time of the August 2013 order Duke Energy had already filed evaluation plans as required under Commission Rules 4901:1-39-04 and 05 that govern program years 2012 and 2013. These evaluation plans were included in the update filings of May of 2012 and 2013 in Cases 12-1477 and Case 13-1129, as well as the new portfolio filing case 13-0431. Given Duke Energy's filed EM&V commitments and a desire to produce evaluation work "as close as realistically possible" to the program year being evaluated it must be appreciated that full compliance with this recommendation will be challenging in work already scoped and fielded before August 2013. Indeed many of the sampling plans and field studies were complete before the order issued in August of 2013. The Commission clearly understands this timing constraint as evidenced in their choice of wording, "to the extent feasible." Moreover, Duke Energy has run preliminary analyses of results with Ohio only data as well as sample augmented with Kentucky data. While there is some drop in precision, the precision for this process evaluation report are as follows:

Evaluation Component	Ohio n	Kentucky n	Precision of OH/KY Combined, as Reported	Precision of OH Results, if Kentucky Data were to be Removed
Participant Surveys	136	25	90% +/- 6.4	90% +/- 7.0

Key Findings from the Management Interviews

- The Smart Saver Residential HVAC program is a mature, well-run program with a robust and well-informed trade ally network that spans Duke Energy's service territory in Ohio and Kentucky. Program design is well considered and provides financial incentives at the moment of highest influence in order to encourage the adoption of more efficient equipment.

- The transition from the previous third party vendor to GoodCents was achieved without interruption of daily operations. The partnership between Duke Energy and GoodCents is strong, and GoodCents' depth of experience in HVAC program administration is readily apparent in the active engagement of trade allies in the field, as well as in the smooth functioning of rebate processing and call center activities.
- Despite the well-run nature of the program, its participation numbers are not meeting Duke Energy's goals. During 2012, the program drew 2,978 rebate applications toward a target of 4,057, representing 73% of goal and an average of 65 measures per week. Year-to-date performance appeared to be slightly lower for 2013 with the trade ally network delivering 1,596 rebate applications at an average of 53 measures per week by June 30, 2013 toward an annual goal of 4,260 (37%).
- The Ohio program goal for 2012 was set at 3,397 applications, while the actuals were 4,036, representing 119% of goal for the year and an average of 88 measures per week. For 2013 the goal is 3,562 applications with year to date performance of 1,739 applications during the same time period. This represents 49% of the annual goal and an average of 58 applications per week.
- The 2012 Kentucky program goal was set for 1,385 rebate applications for qualifying equipment. Actual performance achieved 621 rebate applications, representing 45% of goal, with an average of 14 measures per week. The 2013 goal is set for 1,459 rebate installations. As of June 30, 2013 the program had delivered 298, representing 20% of goal with an average of 10 measures per week.
- Reasons for this level of performance were not specific, but may include: less federal tax credits which in previous years were supplementing the Duke Energy rebates, the January 1, 2013 elimination of the gas furnace rebates in Ohio, and in Kentucky lower than anticipated heat pump sales due to fuel switching to gas furnaces due to their cheaper perceived operating costs.

Key Findings from the Trade Ally Interviews

- While trade allies are very satisfied with the program and eager for it to continue, they offered an extensive list of observations regarding areas for improvement.
- The most significant areas needing improvement focused on the level of detail required on the rebate applications and the rigor with which even minor clerical errors cause applications to be rejected.
- Trade allies also expressed concerns about the program practice of sending notifications about errors and rejections directly to customers without first allowing the trade ally sufficient to provide them an opportunity to rectify the situation.
- Rebate levels are generally considered appropriate as they are. Although several trade allies did request higher incentives. Many trade allies doing business in Ohio requested that furnace rebates be reinstated, even if at higher efficiency levels. Others requested new rebate offerings for additional types of equipment, including other heat pumps, mini-splits, high efficiency boilers, and programmable thermostats.
- Wait times for most rebate checks fit within the program's advertised four to six week timeframe. The majority of trade allies find the wait times acceptable. A few examples of longer wait times were noted, but these seem to have occurred during the 2012 transition

phase when rebate applications were being sent to the former third party vendor and then forwarded to GoodCents.

- Overall trade allies are happy with the program and they report that they would sell fewer high efficiency units if the program were terminated. They generally consider the program's rules to be reasonable business requirements that must be observed in order to obtain the incentives.

Key Findings from the Trade Ally Survey

- Among the trade allies surveyed, a near majority (47%) filed less than 20 rebate applications per year, while 20% of trade allies filed 100 or more per year, including one trade ally that filed 1,302 rebate applications. The median number of applications filed was 20. Numerous trade allies indicated that their rebate volume had declined since the rebates for gas furnaces in Ohio had been eliminated.
- Trade ally estimates showed that roughly 60% of their customers were replacing failed units versus 40% replacing still functioning units.
- Forty three percent of trade allies estimated that approximately one in four of their customers had heard of the Smart Saver program before it was discussed at the point of sale. The mean estimate of customer awareness was 28%.
- Nearly one third (32%) of trade allies rated the rebates influence on customer purchases of high efficiency equipment as an 8, 9, or 10. Other factors considered more influential than the rebate included: the overall purchase price, the trade ally's reputation, the unit's efficiency rating, potential monthly bill reductions, and equipment operating costs.
- Although trade ally representatives and phone support providers scored well in the qualitative interview section, among survey respondents the timeliness and responsiveness of GoodCents staff were cited as reasons for dissatisfaction.
- Nonetheless, overall trade allies report that they are satisfied with the program, with two thirds (67%) rating the program an 8, 9 or 10, and rendering a mean satisfaction score of 7.8. Difficulty of the new paperwork was the primary reason cited for diminished scores.
- A small number of trade allies reported that the program caused more hassle than it was worth and hence they or others in their companies do not actively promote the rebates.

Key Findings from the Participant Surveys

- Most customers first learned about this program from a trade ally (78.9% or 127 out of 161), and trade allies filled out (80.1% or 129 out of 161) and submitted (80.7% or 130 out of 161) rebate forms for the majority of surveyed participants.
 - See *Awareness of the Smart Saver Program and Receiving Rebates for Participation in Smart Saver* on pages 74 and 76.
- Only 13.0% (21 out of 161) of surveyed customers sought more information about the program; the most common way these customers sought more information was to go to the Duke Energy website (47.6% or 10 out of 21). Only three customers (1.9% of 161) reported having questions that remained unanswered. While participating in the program, 6.2% (10 out of 161) contacted Duke Energy with questions, and only one reported that their questions were not answered (10.0% of 10 contacting Duke Energy, or 0.6% of 161 total respondents).

- See *Gathering Information about Duke Energy's Smart Saver Program* on page 74.
- Fewer than one survey participant in ten (8.7% or 14 out of 161) has had problems receiving their rebate, and another 1.9% (3 out of 161) say they have not received their rebates yet¹. Though the specifics vary from person to person, generally the problems are described as delays in receiving rebates due to delays in submitting paperwork or getting paperwork approved. Some blame "communication issues" between trade allies, Duke Energy and/or the customer.
 - See *Receiving Rebates for Participation in Smart Saver* on page 76.
- Customers give this program high satisfaction ratings, with averages ranging from 8.2 to 8.5 on a 10-point scale for specific aspects of the program, and an overall mean satisfaction rating of 8.8 for the program overall. On average, these customers also rated their satisfaction with Duke Energy at 8.5 out of 10. However, customers who received rebates for installing new heat pumps are significantly less satisfied with the amount of the rebate (7.9 out of 10) than customers who installed central air conditioners (8.6 out of 10).
 - See *Customer Satisfaction with the Residential Smart Saver Program* on page 80.
- Customers in Ohio were also asked to rate their satisfaction with the program on a five-point scale: 91.2% (124 out of 136) gave ratings of "somewhat" or "very" satisfied, while only 1.5% (2 out of 136) reported being "somewhat" or "very" dissatisfied with the program.
 - See *Program Satisfaction Ratings in Ohio* on page 92.
- Customers were asked what they liked most and least about this program. More than two-thirds (70.8% or 114 out of 161) mentioned the incentive rebate as their favorite thing, followed by the ease of participation (11.8% or 19 out of 161) and the program incentive allowing the purchase of a better unit (10.6% or 17 out of 161). A large majority of customers could not name a least favorite aspect of the program (77.6% or 125 out of 161), while the most frequently-mentioned least favorite things are that the rebate is too small (6.8% or 11 out of 161) and waiting too long for the rebate (5.0% or 8 out of 161).
 - See *Customer's Favorite and Least Favorite Aspects of Smart Saver* on page 92.
- When asked what could be done to increase interest and participation in this program, the most frequent recommendations from customers are to increase general advertising (36.0% or 58 out of 161), include more information with monthly bills (28.0% or 45 out of 161), increase involvement with trade allies (16.1% or 26 out of 161) and offer a larger incentive (11.2% or 18 out of 161).
 - See *Improving Participation in Residential Smart Saver* on page 94.
- More than a quarter of surveyed customers (29.8% or 48 out of 161) report that they have taken additional energy efficiency actions inspired by participating in the Smart Saver HVAC program. The most common activities include using more efficient lighting (7.5%

¹ The evaluation team and Duke Energy have confirmed that these customers have all been issued rebate checks.

or 12 out of 161), upgrading other appliances (6.2% or 10 out of 161), upgrading windows and doors (6.2% or 10 out of 161) and adding insulation (5.6% or 9 out of 161). Overall, the average rating of influence of the program on these actions is 4.6 on a 10-point scale, indicating moderate influence.

- See *Energy Efficiency Actions and Upgrading Other Appliances* on page 96.
- A third of surveyed customers (34.8% or 56 out of 161) have also added other new appliances to the household in the past year. The most common installations for customers who received program rebates for central air conditioning installations are furnaces (26.3% or 21 out of 80), while for customers who received rebates for installing new heat pumps the most frequently installed other appliances are refrigerators (8.6% or 7 out of 81), water heaters (7.4% or 6 out of 81), clothes washers (6.2% or 5 out of 81) and stoves/ovens (6.2% or 5 out of 81).
- See *Energy Efficiency Actions and Upgrading Other Appliances* on page 96.

Process Evaluation Recommendations

Below is a list of key recommendations. For a full set of evaluation recommendations see the Evaluation and Findings Summaries at the end of each section of this evaluation.

Key Recommendations from the Management Interviews

- Consider separating or eliminating the EMC fan requirement. Doing so would help to increase the installation of high efficiency heat pumps and air conditioners since it would eliminate lost opportunities where customers are willing to upgrade air conditioners or heat pumps, but not willing to pay to upgrade still functioning furnace blowers. This would be particularly helpful in areas where oil or natural gas-fired furnaces are prevalent.
- Consider test piloting a tiered rebate system whereby higher efficiency equipment garners higher financial incentives.
- The GoodCents web portal provides online self-service tools that can reduce the number of trade allies phoning the call center, however trade ally adoption of the web portal appears low. Therefore we recommend increasing trade ally awareness of web portal and its features. We also encourage the installation and use of web tracking software, such as Google Analytics, to monitor its internet traffic.
- Consider boosting residential customer awareness of the program via news stories, direct marketing and educational outreach at home shows and other events where homeowners congregate.
- Monitor the newly implemented internet-based feedback system to provide additional insights directly from customers and trade allies as those survey results become available.

Key Recommendations Provided During Trade Ally Interviews

The recommendations immediately below are based upon direct feedback from trade allies.

- Simplify the rebate application forms, or educate trade allies regarding which details on rebate applications are required, which are optional, and why requested information is necessary.

- In light of the fact that the serial numbers from the old units are difficult to obtain, consider eliminating that requirement, or at least marking that data field as optional.
- Consider using the customer's service address as the primary means of identification instead of the account number, since obtaining the account number leads to privacy concerns, clerical mistakes, and delays caused by customers not providing the required information.
- If AHRI numbers are required then provide an easier-to-use alternative to the AHRI website such as a chart or database that makes finding the requisite information easier to obtain.
- Modify the layout of the printed forms to provide larger writing spaces for data entry.
- Allow extensions to the rebate application deadline upon request.
- Trade allies felt they were not given an opportunity to redress errors and rebate rejections prior to GoodCents sending notification letters directly to customers. Therefore, increase trade ally education about the current method for redressing errors and extend the response time for a trade ally return phone call before letters are mailed.
- Increase the information provided on the web portal regarding the information needed to approve rebate applications, and the estimated arrival date of rebate checks.
- Batch trade ally checks together and mail them in a single envelope.
- Educate trade allies about where they can download a digital PDF rebate application forms.
- Consider expanding rebate coverage to other technologies.

Key Recommendations Provided During Trade Ally Surveys

The recommendations immediately below are based upon survey findings and trade ally opinions.

- Simplification of the rebate application— or at least better explanations about what is required and why— may help to improve satisfaction among trade allies. It may also increase rebate levels since a small number of trade allies reported discontinuing their participation due to their dislike of the new paperwork.

Introduction and Purpose of Study

Summary Overview

This document presents the process evaluation report for Duke Energy's Residential Smart Saver® HVAC Program as it was administered in Ohio and Kentucky. The evaluation was conducted by TecMarket Works and subcontractor Matthew Joyce.

Summary of the Evaluation

This document presents the process evaluation report for Duke Energy's Smart Saver HVAC Program as it was administered in Ohio and Kentucky. The evaluation was conducted by TecMarket Works and Matthew Joyce. The interview and survey instruments were developed by TecMarket Works and Matthew Joyce. The customer survey was administered and analyzed by TecMarket Works. Matthew Joyce conducted in-depth interviews with program managers and trade allies, as well as the trade ally survey.

Evaluation Objectives

This report's objectives are to document program operations and provide insights to help Duke Energy and other interested parties to evaluate the program as it is currently administered. The report evaluates current processes, considers trade ally perspectives, and assesses participant feedback in order to diagnose issues and present recommendations for changes intended to increase energy savings, improve operational efficiencies, and enhance trade ally and customer satisfaction.

Description and Purpose of Program

The Duke Energy Residential Smart Saver HVAC program encourages the installation of higher efficiency heating and cooling units in new and existing homes. Residential customers receive rebates of \$200 on qualified purchases, with an additional \$100 incentive going directly to the participating HVAC contractor or dealer. New home builders who install qualified equipment are eligible for rebates of \$300.

Duke Energy contracts with a third-party vendor, GoodCents, that is responsible for daily administration of the program, including HVAC dealer and contractor recruitment, call center operations, rebate application processing and payments, and quality assurance. Participating trade allies discuss the program with Duke Energy customers who are considering the purchase of a replacement air conditioner or heat pump. At the point of sale, the trade ally presents the \$200 incentive for selecting the high efficiency equipment option. After the trade ally installs the qualifying unit, they fill out a rebate application form and submit it with a copy of the invoice and a certificate from the American Heating and Refrigeration Institute (AHRI). GoodCents processes the paperwork and distributes the respective \$100 and \$200 checks by mail within 45 days. New home builders can opt to keep their \$300 incentives or pass them along to the home buyers.

Program Eligibility

Equipment

New equipment eligible for a Smart Saver rebate includes²:

- Air conditioners (AC) of 14 SEER³ or greater with an electronically commutative (ECM) fan on the indoor unit
- Heat pumps (HP) that are at least 14 SEER with an ECM fan on the indoor unit
- Geothermal heat pumps that are 10.5 SEER with an ECM fan on the indoor unit

These efficiency standards comply with the US Department of Energy's standards for split air conditioning systems and heat pumps set for an effective date of January 1, 2015.

The program does not mandate pricing requirements, nor does it specify the brand of HVAC equipment. However, it does limit the types of systems permitted under program rules. These include: heat pump or AC split systems, HP or AC single package (self-contained) systems, and geothermal heat pumps, including direct geo exchange systems. Ineligible systems include: through-the-wall room HP or AC, window HP or AC, mini split and multi split HP or AC, portable HP or AC, evaporative AC, natural gas or oil furnace, or boilers.

Customers

Incentives for qualifying equipment are available to Duke Energy electric customers with active accounts who reside in individually metered single family homes, condominiums, townhomes, duplexes or manufactured homes on permanent foundations. Apartments, mobile homes, and multi-family homes (three or more units) are not eligible.

Trade Allies

Qualifying trade allies must complete a one-page program application form and provide a copy of a current certificate of insurance and a tax identification number via an IRS W9 form, and a Kentucky contractor's license number if they operate in that state. Once registered, trade allies can file rebate applications in more than one Duke Energy service territory provided that they comply with licensing rules for that state.

Customers who opt to self-install a qualifying HVAC system are also eligible for the incentive, if they complete the trade ally registration form and submit the required documentation.

Program Goals and Participation

While the Smart Saver HVAC Program has been operational in Ohio and Kentucky for many years, a new vendor, GoodCents, undertook administration of daily program operations beginning on February 15, 2012. For the purposes of this evaluation, February 15, 2012 is considered the starting period for the management section of the evaluation.

² The Smart Saver program offers additional incentives for HVAC maintenance and building envelope retrofits under a separate regulatory filing.

³ Seasonal Energy Efficiency Ratio (SEER)

For the time period of February 15 to December 31, 2012, Duke Energy set an Ohio program participation goal of 3,397 rebate applications for qualifying equipment. Actual program performance during that time achieved 4,036, representing 119% of goal for the year and an average of 88 measures per week. During that same time frame the goal for Kentucky was 1,385 applications, while the actuals were 621, representing 45% of goal, with an average of 14 measures per week.

For the 2013 calendar year the program participation target for Ohio was 3,562 applications with year to date performance of 1,739 applications. This represents 49% of the annual goal and an average of 58 applications per week. In nearby Kentucky, the goal was set for 1,459 qualifying rebate installations during the same time period. As of June 30, 2013 the program had delivered 298, representing 20% of goal with an average of 10 measures per week. Year over year performance for Ohio and Kentucky are shown in the table below.

Table 1. Annual Program Performance toward Goals

State	Year	Goal	Actuals	% of Goal	Average # measures per week
OH	Feb 15 – Dec 31, 2102	3,397	4,036	119%	88
OH	Jan 1 – Jun 30, 2013	3,562	1,739	49%	58
KY	Feb 15 – Dec 31, 2102	1,385	621	45%	14
KY	Jan 1 – Jun 30, 2013	1,459	298	20%	10

Methodology

Overview of the Evaluation Approach

The process evaluation consists of three elements: management interviews, trade ally interviews, and participant surveys.

Study Methodology

Management Interviews

Between June and September of 2013, TecMarket Works interviewed three representatives from Duke Energy, including the product manager, assistant product manager, and marketing coordinator. Three representatives from GoodCents were also interviewed, including the sales manager, rebate director, and the director of business solutions, who oversees call center operations subcontracted to ProCore Solutions.

In order to identify any implementation issues and discuss opportunities for improvement, these interviews considered:

- program design,
- execution,
- operations,
- trade ally activities and perspectives,
- interactions between staff, trade allies, and customers,
- data tracking and transfer methods, and
- personal experiences.

Interview guides were used to ensure a full and complete battery of questions were addressed with the interview subjects. Sample interview guides are shown in *Appendix A: Management Interview Instrument*.

Trade Ally Interviews

During August and September of 2013 TecMarket Works interviewed ten participating Residential Smart Saver trade allies from Ohio and ten from Kentucky. Interviews were conducted with company representatives who identified themselves as the person within their company who has the most experience with the program. Job positions included: owner, general manager, office manager, sales manager, and lead salesperson.

These qualitative interviews covered program operations and changes over time, aspects of trade allies' involvement, incentive levels, covered technologies, program requirements for participation, and the program's influence on high efficiency unit sales from the trade allies' perspectives. Interviews were conducted by telephone and lasted between 15 and 45 minutes. The interview guide can be found in *Appendix B: Trade Ally Interview Instrument*.

Trade Ally Survey

To supplement the qualitative interviews, TecMarket Works also completed a quantitative study via a telephone survey of 80 Residential Smart Saver trade allies selected at random from a

combined list of 313 participating Ohio trade allies and 51 Kentucky trade allies. The survey instrument can be found in *Appendix C: HVAC Trade Ally Survey Instrument*.

Participant Surveys

This survey focused on customers who, according to program tracking records, received a rebate from Duke Energy for the purchase of a new, more efficient central air conditioner or heat pump between the dates of January 1, 2012 and June 28, 2013.

Data collection methods, sample sizes, and sampling methodology

Management Interviews

Interviews and follow up exchanges were conducted by phone with six staff members from Duke Energy and GoodCents. Conversations ranged from half an hour to two and half hours. The interview instrument can be seen in *Appendix A: Management Interview Instrument*.

Trade Ally Interviews

Ten Residential Smart Saver trade allies were interviewed by telephone in August and September of 2013 from a list of 313 participating Ohio trade allies and 51 Kentucky trade allies. Those interviewed represented a spectrum of participation levels, ranging from between one and 1,302 rebate applications per year. A copy of the interview questions can be seen in *Appendix B: Trade Ally Interview Instrument*.

Trade Ally Survey

Eighty Residential Smart Saver trade allies were randomly selected for a telephone survey from a list of 364 trade allies whose businesses are based in Ohio and Kentucky. Those interviewed represented a spectrum of participation levels, ranging from between one and 1,302 rebate applications per year. A sample survey can be seen in *Appendix C: HVAC Trade Ally Survey Instrument*.

Participant Surveys

A sample list of 13,990 customer records was provided by Duke Energy (participants' rebated installation dates range from January 2012 to June 2013). After removing duplicate records, opt-outs, non-residential accounts and records with missing contact information, the sample size was 5,424 dial-able records (4,666 records for Ohio and 758 records for Kentucky). Surveys were conducted by telephone.

Number of completes and sample disposition for each data collection effort

Management Interviews

Between June and September of 2013, six out of six management interviews were completed representing a 100% completion rate.

Trade Ally Interviews

From a combined list of 364 records, 20 trade allies were contacted for qualitative phone interviews in August and September of 2013.

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Trade Ally Survey

From a combined list of 364 records, 80 trade allies were contacted for a quantitative phone survey in August and September of 2013.

Participant Surveys

From the sample list of 5,424 usable records, 1,593 participants were called between July 23 and August 14, 2013, and a total of 161 usable telephone surveys were completed yielding a response rate of 10.1% (161 out of 1,593). Of the 161 completed interviews, 81 were conducted with participants who received rebates for installing new heat pumps, and 80 were conducted with participants who received rebates for new central air conditioning.

Summary of the Evaluation Data

The process evaluation findings presented in this report were analyzed using interview and survey data obtained from participants and stakeholders in the HVAC program as presented in Table 2 below.

Table 2. Evaluation Date Ranges

Evaluation Component	Start Date of Participation	End Date of Participation	Dates of Data Collection	Dates of Analysis
Duke Energy and Vendor Interviews	Feb 2012	Sept 2013	June - Sept 2013	Aug – Sept 2013
Trade Ally Interviews	Feb 2012	Sept 2013	Aug – Sept 2013	Sept 2013
Trade Ally Surveys	Feb 2012	Sept 2013	Aug – Sept 2013	Sept 2013
Participant CAC Surveys	Jan 3, 2012	July 5, 2013	July 23 – Aug 12, 2013	Aug – Sept 2013
Participant Heat Pump Surveys	Jan 3, 2012	July 5, 2013	July 24 – Aug 14, 2013	Aug – Sept 2013

Expected and achieved precision

Participant Surveys

The survey sample methodology had an expected precision of 90% +/- 6.4% and an achieved precision of 90% +/- 6.4%.

Management Interviews

Program Operations and Oversight

The Duke Energy Smart Saver HVAC Program is a joint effort between Duke Energy and GoodCents, a third party vendor from Atlanta, GA. Duke Energy provides the overall administration of the program, including strategic guidance, vendor oversight, utility-based marketing to residential customers, rebate payment auditing, and overall quality assurance.

Trade ally relations and day-to-day implementation is contracted to GoodCents, which handles all operational functions including: trade ally outreach and recruiting, trade ally marketing materials, call center support for trade allies and customers, rebate application processing, quality assurance, and payment processing.

Although the Smart Saver HVAC Program has operated in Ohio and Kentucky for years, Duke Energy opted to switch third party vendors after an extensive RFP process. GoodCents was awarded the contract in 2011, and on February 15, 2012 it assumed operational control of all program activities in Ohio, Kentucky, Indiana, North Carolina, and South Carolina. Only those activities in Ohio and Kentucky are discussed within this evaluation.

Duke Energy Marketing

Because new HVAC equipment purchases happen infrequently and because new sales are often prompted by malfunctions of existing equipment, Duke Energy does not devote significant budget to marketing the program directly to its residential customers. The utility's website offers information about the program and provides a toll free phone number to a GoodCents-staffed call center that provides additional information.

The program's initial web page is reachable within two clicks of the home page via standard website navigation. The program's main web page is visually simple with a single graphic of a programmable thermostat and six primary links leading to additional information. The first link leads to more information about the \$200 customer incentive for new equipment installations, while two links provide further information on other rebates for an HVAC Health Check (\$50) and Insulate and Seal (\$100-\$250), which are not covered in this evaluation⁴. Additional links take site visitors to web pages discussing energy efficiency tips, how to find a participating contractor, and how to become a trade ally.

The HVAC Install web page provides multiple tabs with a program overview, eligibility requirements and program rules, frequently asked questions, and still deeper links for more information regarding heating costs and comparisons and an online energy savings calculator.

Duke Energy's website tracking data reveals that the Kentucky Smart Saver HVAC pages had 1,006 visitors and an average time of 35 seconds on the page during the interval between June 1 and December 31, 2012 when records were tracked. Between January 1 and September 20, 2013 the program had 4,373 web page visits for an average of 55 seconds on the page. During 2012, referrals from Duke's Energy online services (OLS) accounted for half (50%) of all page visits,

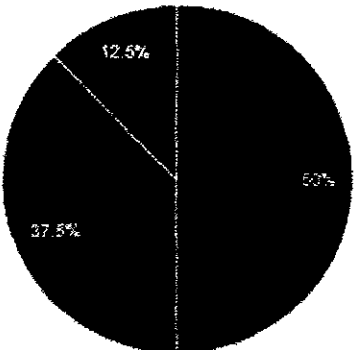
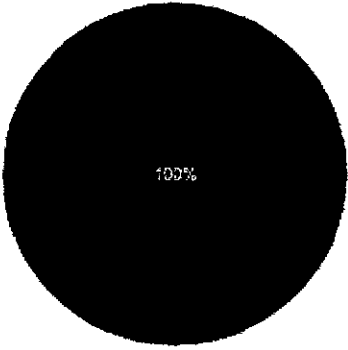
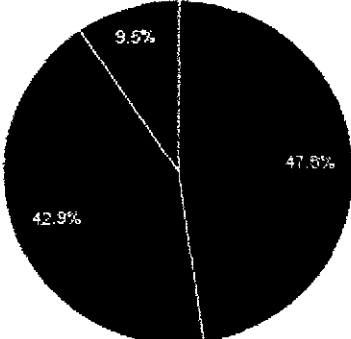
⁴ The evaluation of the Residential Smart Saver Additional Measures program will be conducted separately.

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while direct entry of the URL (38.7%) and organic search (via Google, Yahoo, etc.); 12.5% accounted for the remainder. In 2013 direct entry of the program URL accounted for 100% of site visits. This finding seems improbable, but is accurate, according to Google Analytics website tracking records.

During 2013, Ohio web page visits totaled 13,818 with an average of 55 seconds per page. Traffic sources included direct entry of the URL (47.6%), organic search (42.9%), and referrals from OLS (9.5%). No website tracking data was provided for 2012. The table below provides a graphic comparison of traffic sources.

Table 3. Website Traffic Sources

KY Web Traffic June 1 to Dec 31 2012	KY Web Traffic Jan 1 to Sept 20, 2013												
<p>■ referral ■ direct ■ organic</p>  <table border="1"> <caption>KY Web Traffic June 1 to Dec 31 2012</caption> <thead> <tr> <th>Traffic Source</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>referral</td> <td>50%</td> </tr> <tr> <td>direct</td> <td>37.5%</td> </tr> <tr> <td>organic</td> <td>12.5%</td> </tr> </tbody> </table>	Traffic Source	Percentage	referral	50%	direct	37.5%	organic	12.5%	<p>■ direct</p>  <table border="1"> <caption>KY Web Traffic Jan 1 to Sept 20, 2013</caption> <thead> <tr> <th>Traffic Source</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>direct</td> <td>100%</td> </tr> </tbody> </table>	Traffic Source	Percentage	direct	100%
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Traffic Source	Percentage												
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<p>NA</p>	<p>■ direct ■ organic ■ referral</p>  <table border="1"> <caption>OH Web Traffic Jan 1 to Sept 20, 2013</caption> <thead> <tr> <th>Traffic Source</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>direct</td> <td>47.6%</td> </tr> <tr> <td>organic</td> <td>42.9%</td> </tr> <tr> <td>referral</td> <td>9.5%</td> </tr> </tbody> </table>	Traffic Source	Percentage	direct	47.6%	organic	42.9%	referral	9.5%				
Traffic Source	Percentage												
direct	47.6%												
organic	42.9%												
referral	9.5%												

Trade Ally Network

Overview

Duke Energy's network of trade allies—state licensed and registered HVAC dealers and contractors—serves as the primary promotional vehicle for the Smart Saver HVAC Program. Trade allies act as the initial point of contact for Duke Energy residential customers who are interested in purchasing new HVAC equipment. The trade allies introduce Duke Energy

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customers to the program as they educate homeowners about the benefits of selecting high efficiency equipment and the financial incentives offered by their utility to reduce the customer's overall purchase cost and thus encourage adoption. The Duke Energy rebate is often presented in conjunction with other financial incentives, such as rebates offered by manufacturers and any state and federal tax credits. If the customer opts to purchase qualifying equipment, then after the installation has been completed, the trade ally prepares the rebate application on behalf of the customer and sends it to GoodCents for processing and payment. Once approved, the customer will receive \$200 and the trade ally will earn \$100. Checks are mailed within 45 days of receiving the rebate applications.

The nature of using trade allies to present the program to Duke Energy's customers influences program freeridership because in most instances customers are unaware of the rebate and undoubtedly some percentage of customers would opt to acquire the more efficient equipment regardless of the financial incentive offered by Duke Energy. As a result, freerider analysis focuses on the actions of the trade ally and what they report their customers would likely elect to buy without the rebate. This is discussed in more detail in the *Trade Ally Survey* section of this evaluation.

Transition to New Vendor

As noted earlier in this evaluation, GoodCents assumed operational control of Duke Energy's previously existing program on February 15, 2012. This handoff from the previous third party vendor presented opportunities and challenges during the transition period.

One new opportunity was the chance to change the program's trade ally record keeping. The previous third party vendor provided GoodCents with the existing program records, including a flat file containing the contact information of all trade allies that had previously registered to participate in the program. Duke Energy took the opportunity to update these trade ally contacts by requiring trade allies to reregister to participate in the program by providing up-to-date contact information and a clear indication regarding whether the trade ally incentive checks were to go to the company or directly to the employee. The utility also changed the sign-up rules. Now in addition to the previously required a tax identification number via an IRS W9 form, the registrants must provide proof of insurance, as well as a Kentucky contractor license number, if they operate in that state.

This decision necessitated that GoodCents contact every name on the list to inform them of the changes. As a result GoodCents reached out to all viable contacts via mail, website notices, call center scripting updates, as well as email, telephone, fax, and personal visits by GoodCents trade ally representatives. The messaging welcomed the trade allies to the new program, informed them of the need to reregister, noted the new terms and conditions, explained the new rebate application process, and provided directions for how to obtain and submit the new forms.

Duke Energy originally anticipated that this transition phase would take 60-90 days, but trade ally compliance was slower than originally scheduled. Both Duke Energy and GoodCents reported that the majority of trade allies made the transition readily enough, but among the remainder there was confusion and resistance, particularly amidst those who continued to ignore repeated notices delivered each time they submitted a rebate application to the old third party vendor's address or fax number. As a result the transition period took until December 31, 2012,

which was when Duke Energy and GoodCents stated that they would no longer accept rebate applications from trade allies that had not reregistered for the program. The end of the year was deemed a reasonable cut off. Any trade allies who did not comply were thereafter considered inactive in the program. Any subsequent rebate applications submitted by inactive trade allies were rejected with a notification being sent to both the trade ally and the Duke Energy customer explaining that the rebates would remain in a "pending" status until the trade ally registered for the program.

GoodCents also provided Duke Energy with other enhancements for the program, including a web portal for trade ally use, an expanded trade ally web search tool, and increased quality assurance field staffing (see *Quality Assurance*).

The trade ally web portal, found at <http://www.dukeressmartsaver.com>, provides a number of online services to assist trade allies who are working with the Smart Saver program. Once the trade allies register for the program, they can use the web portal to peruse program requirements, find training materials, order marketing collateral, submit rebate applications, and review the status of previously submitted applications. They can also update their contact information, tax ID, or insurance documentation, and apply to participate in the other Smart Saver programs: Health Check and Insulate and Seal. The web portal also offers announcements, newsletters, and updates regarding changes in the program. The web portal is maintained by GoodCents. Unlike the Duke Energy website, the vendor does not track web traffic statistics. Nonetheless, awareness of the portal and use by trade allies appears to be limited despite the rich set of tools provided and the potential to save time and money through their adoption.

Another enhancement to the program was an updated internet search tool featured on Duke Energy website. The tool enables customers to enter their zip codes and then search for a list of participating trade allies in their areas who participate in Duke Energy's Smart Saver HVAC rebate programs. This provides a helpful service to customers and marketing exposure for trade allies.

Trade Ally Recruiting and Relationship Management

Now that the trade ally registration records have been cleaned and updated, Duke Energy reports that there are 313 Ohio trade allies and 51 Kentucky trade allies participating in the program as of July 31, 2013. A number of these trade allies operate in both states. Some Indiana trade allies also operate in these territories, although they not included in the statewide tallies since for tracking purposes each business is only counted once based upon its official address. As no accurate initial tally of trade allies existed at the time GoodCents took over program operations, it is impossible to determine how much the program has grown since February 15, 2012. Duke Energy and GoodCents representatives estimate that they have added approximately 16 new trade allies to the Ohio network and 2 or 3 to the Kentucky network. This represents a 5% growth rate, which seems a reasonable estimate given 1) the culling of inactive participants, 2) the maturity of the program and 3) the existing market penetration Duke Energy had obtained during previous years of operation.

To maintain Duke Energy's existing trade ally relationships and to establish new ones, GoodCents employs a staff of six trade ally representatives (TARs) to manage the program throughout Duke Energy's Indiana, Ohio, Kentucky, North Carolina, and South Carolina

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territories. Of these, one TAR operates in Ohio, while another covers Kentucky. Both these TARs also serve portions of Duke Energy's Indiana service territory.

The TARs engage with HVAC manufacturers, distributors, trade associations, and other groups to obtain lists and otherwise identify new potential trade allies. TARs then use email, phone, and in-person visits to reach out to prospective and existing trade allies to promote the program and encourage prospects to join the network. Strategy dictates that the TARs focus first on contacting those prospective HVAC firms with the greatest market reach, but they also engage with smaller businesses that may only have the potential to file a few rebate applications each year. As a part of that process, TARs educate the would-be trade allies about why selling energy efficiency helps their business and how partnering with Duke Energy helps to distinguish them from their competitors. Among the talking points frequently mentioned to prospective trade allies are:

- Easy to join,
- No contract required,
- No fees to participate,
- Increased visibility via listing on the Duke Energy website,
- Improved image and increased customer trust by being affiliated with Duke Energy,
- Differentiation from contractors who are not part of the Duke Energy trade ally network,
- Direct dealer payments that offset costs of filing rebate paperwork,
- Knowledge of and access to multiple Duke Energy rebates,
- The ability to make a larger sale by reducing the overall cost for customers to obtain a higher efficiency unit, and
- The advantage of bundling the Duke Energy rebate with other manufacturer rebates and government tax incentives for even greater savings.

Signing up for the program can be accomplished via a paper application or an online submission process. Upon receipt, GoodCents enters the data, confirms licensing and insurance requirements, and performs a background check on the applicants. Approvals occur every Monday. The trade ally's contact information is added to the searchable listing on the Duke Energy website at the same time. Access to the trade ally web portal can be initiated as soon as the new member has been approved.

Once new companies join the trade ally network, the TARs ensure that they understand the program and the incentive requirements, as well as the proper process for submitting rebate applications for approval and payment. If necessary, TARs can guide them through the program paperwork and help to resolve any difficulties that arise during the rebate process or during quality assurance activities in the field.

To ensure that the TARs can assist the trade allies in all technical and business aspects of the Duke Energy program, GoodCents requires that its TARs obtain and hold certifications from 1) the Building Performance Institute (BPI), a trade association for building science professionals, and 2) North American Technician Excellence, Inc. (NATE), a non-profit certification program for the HVAC industry. Likewise, GoodCents also trains its TARs in sales and marketing so they can advise and coach their respective trade allies to have more successful point of sale conversations with residential customers.

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In the rare event of a trade ally or customer complaint, TARs must respond within one business day and resolve the issue within three business days. No exceptions to this policy have occurred, and all TAR activities were reported by Duke Energy and GoodCents to be operationally effective. TecMarket Works considers this level of support to be an exemplary best practice for this field.

While each TAR is assigned a specific geographic region, they attend weekly group teleconferences or live meetings with the Duke Energy product manager and their supervisor in order to receive training updates, discuss recent developments in their territories, and review progress toward individual and team goals regarding monthly and annual targets for "Duke Energy market stimulation."

GoodCents TAR annual goals for 2013 in Kentucky included a combined 1,459 rebate applications for replacement heat pumps and air conditioners, and 45 trade ally contacts (although this contact goal also includes potential conversations regarding the separately filed but jointly managed HVAC Health Check and Tune and Seal programs). As of June 30, 2013 trade allies had submitted 298 applications, representing 20% of the year end goal. Between February 15 and December 31, 2012, trade allies submitted 621 applications toward a GoodCents target of 1,385, representing 45% of program goal.

For Ohio, the 2013 annual goals were set at 3,562 combined rebate applications for replacement heat pumps and air conditions and 77 trade ally contacts. As of June 30, 2013, 1,739 applications had been turned in. This represented 49% of the annual goal. During 2012, a total of 4,036 applications were submitted, which is 119% of goal.

Applications & Rebates

GoodCents processes rebate applications for Duke Energy's service territory across five states: Indiana, Ohio, Kentucky, North Carolina, and South Carolina.

Rebate Applications

The rebate application process requires trade allies to provide a two-page application form, matching certificate obtained from AHRI, and a copy of the customer invoice.

PDF copies of the rebate application form can be downloaded from the program's online trade ally web portal and from an in-text link on the Smart Saver website found at <http://www.duke-energy.com/indiana/savings/hvac-install.asp>. The rebate application form can be filled out electronically or it can be printed out and filled in by hand.

The rebate applications forms collect more information than merely 1) the trade ally's contact information, 2) the customer's name, service address and contact information, and 3) the customer's Duke Energy account number. In addition to this basic information, which is collected on the first page of the application, the GoodCents form also requires the trade ally to provide a second page of detailed information regarding the new unit being installed, the old unit being removed, and specific details regarding the customer's home characteristics. The required equipment details include the make, model, and serial number of the new and used units, as well

as the tonnage, efficiency ratings, and AHRI numbers of both systems. Also required are household characteristics including the type of home (single family, home/condo, etc.), year of construction, square footage, number of stories above grade, foundation type, duct location, and number of HVAC systems in the home. A sample rebate application form is shown in *Appendix D: Sample Rebate Application Form*.

The additional information collected on the forms is used by Duke Energy and GoodCents for a variety of reasons, including better understanding changing market trends such as gauging the likelihood of early HVAC equipment replacement. However according to the trade allies that we spoke with, the reasons they need to supply this level of detail are less than clear to many of them, which has caused complaints among some participants. These findings are discussed in more detail in the *Rebate Applications and Associated Paperwork* section below.

Trade ally rebate applications must be accompanied by a copy of the customer invoice. The Duke Energy program does not specify that invoices need to be signed by customers nor that the invoices must be paid at the time the paperwork is submitted. Nonetheless, TecMarket Works identified some confusion about this among GoodCents staff and among some of the trade allies that we spoke with. As a result, some trade allies reported that they were spending extra time gathering customer signatures; waiting for customer payments before filing for the rebates; and in some instances falsely marking unpaid invoices as having been paid when the paperwork was submitted. These things can be eliminated or at least significantly diminished if the program's invoice requirements are clarified and communicated to GoodCents staff and participating trade allies.

Rebate Processing and Payment

Trade allies can submit their applications and supporting documents online via the web portal, email, fax, or mail. Although GoodCents did not provide actual data regarding trade ally preferred avenues for submitting their application paperwork, the GoodCents rebate director estimated that 80% of them use the fax number, while 15% use email and 4% opt for mail. The remaining 1% utilizes direct online submissions via the web portal, which is the only method that bypasses the need to manually transfer the data from the forms to the GoodCents system.

To keep turnaround times short, GoodCents has three days to enter the submitted applications into its system. For each new application, the rebate processing team 1) verifies the Duke Energy account number and customer name, 2) confirms that the AHRI certificate matches the serial number and model number on the invoice, and 3) that the system meets the program requirements.

Once entered into the GoodCents system, each application is categorized as 1) complete and qualified, 2) missing information, or 3) does not qualify. Complete and qualified applications are bundled together for payment. Incomplete applications result in "status pending" letters to trade allies and customers, while non-qualifying applications generate rejection letters. In each case, the letters state the issue that requires attention, suggest the necessary remedy, and set a deadline of 45 days for resolving the matter. The rebate processing team posts status updates on the trade ally web portal and makes phone calls in an effort to obtain the missing information and rectify the situation as quickly as possible.

During the 2012 transition period, program rules allowed trade allies to submit rebate applications to the old fax number and mailing address of the previous vendor. These applications were logged by the former vendor and then bundled and mailed to GoodCents on a weekly basis. As a result, 14 or more extra days of processing and mailing time could be added for handling these applications. If applications were emailed to the old vendor, those digital application forms were automatically redirected to GoodCents. With this extra step eliminated as of January 1, 2013, rebate processing times are now generally less than two weeks.

Under the current rebate processing system, GoodCents batches all approved rebate applications and sends them to the Duke Energy program manager for review on a weekly basis. By agreement, the utility has five days to approve the applications. After which, GoodCents authorizes Wells Fargo to cut and mail checks to customers and trade allies. Service level agreements (SLA) require that GoodCents issue checks within 10 days of determining that the application is complete and qualified. However, this 10-day period includes the five days that Duke Energy has to conduct final approval.

Since the end of the transition period when all new rules were fully in effect, check payment times have dropped markedly. In May 2013, the number of days between the day the application was submitted to the day the rebate check was mailed averaged 15.9 days. That average went down to 13.8 in June of 2013, and dropped again to an average of 12.1 days in July of 2013. Actual processing times for many trade allies and customers are often 10 days or less, since these average times combine the time it takes to process all applications that are submitted, including the extra time that it takes to conduct quality assurance inspections (which can take up to 30 days). Once the time for quality assurance is deducted from that average, GoodCents has met the time-to-mailing requirement "most of the time." It has consistently met or bested its SLA for application processing.

While these processing times are longer than the average of eight days under the previous program vendor, the current overall wait times for payment are noticeably shorter than the 45 day payment timeframe advertised to trade allies and customers. While most customers seem satisfied with these timeframes, GoodCents indicates that its field and phone representatives have heard complaints among some trade allies who were familiar with the faster payment times in the past. This finding is discussed in more detail in the *Rebate Checks* section below.

Quality Assurance

The program maintains multiple layers of quality assurance. As discussed above, the first level applies to accuracy of the rebate submissions. If an application is incomplete or incorrectly filled out, it is placed in "pending" status while the trade ally is contacted to rectify the situation. However, even complete applications for qualifying equipment are subject to further review.

Program rules stipulate that prior to payment all participating trade allies are subject to periodic onsite quality control inspections of the equipment to ensure compliance. In practice, GoodCents consistently inspects the first five applications that every new or re-registering trade ally submits. After trade allies complete that probationary phase their rebate applications are pooled together with those from all other trade allies and a random sample of 5% of all rebate applications are inspected in each state service territory. This quality assurance applies at the level of the

participating HVAC company. It is not tracked at the level of individual sales people and HVAC installers.

According to GoodCents records, during the month of May 2013, Ohio trade allies filed for 223 air conditioners and 151 heat pumps, totaling 374 applications. Of these GoodCents inspected 19, which is exactly 5%. In Kentucky trade allies installed 34 air conditioners and 20 heat pumps for a total of 54 applications. Of these 19 (15%) were inspected. This is higher than 5% quota due to the need to inspect the first five units for probationary companies.

To handle this volume of inspections, GoodCents staffs four quality control inspectors throughout Duke Energy's five state service territory, including one inspector based in Indianapolis and another in Cincinnati. These NATE and BPI certified inspectors visit the customer's home to ensure that a qualifying unit has been installed and that the make, model, and serial number match the application. Inspectors are given 30 days to conduct their site visit, although most are completed sooner than that. GoodCents indicates that their inspection success rate is "98-99%" with the vast majority of noncompliance issues arising due to a mismatch or typo on the paperwork. On a very rare occasion, the paperwork may have been filed before the unit was actually installed. If an installation does not pass the quality control inspection, the trade ally is notified. They then have 30 days to submit the correct paperwork or otherwise remediate the problem and request another inspection. If the inspection fails again the trade ally would be placed on program probation and receive additional program training. No contractors have been suspended since GoodCents began administration of the program.

While Duke Energy retains the option to conduct its own quality assurance testing, the product manager has not felt the need to do so. However, the utility does take customer satisfaction seriously. To that end, in May of 2013 it initiated a voluntary satisfaction survey, whereby customers are invited to provide feedback on the program via an internet-based form. At the time of the process evaluation interviews, only a handful of responses had been submitted so analysis of the data was not yet possible.

Call Center Operations

A single dedicated toll free phone number provides call center support for all participating trade allies and customers in Duke Energy's five service territories. Upon answering calls, customer service representatives (CSRs) first identify the program and then seek to determine if the caller is a customer or a trade ally. With this established they commonly field frequently asked questions about how to complete the application form, qualifying equipment, incentives offered, and the status of rebate payments. For rebate status questions the CSRs can check the GoodCents rebate database which is updated daily. For more specific inquiries regarding rebate application issues, the questions are referred to the rebate process team at GoodCents.

Although GoodCents maintains overall contractual responsibility for trade ally and customer contact activities, actual call center operations are subcontracted to ProCore Solutions of Marietta, GA. The transition from the prior call center provider to ProCore Solutions occurred simultaneously with the transition to GoodCents. On February 15, 2012 the previously established toll free phone number was transferred to the new operational unit. Both Duke

Energy and GoodCents report that the transition was seamless from the point of view of inbound callers.

Because the program changed very little in the transition, ProCore's CSRs were provided with help files and well proven scripts developed under the previous call center provider. The CSRs also received advance training regarding not only for the program specific measures and requirements, but also a primer on residential energy building science, the comfort and whole house benefits of each measure offered, and the increased savings opportunities for implementing multiple measures.

Call center service level agreements require 90% of calls to be answered within 20 seconds and an abandon rate of less than 5%. No issues with these metrics were reported. While there is no metric for call handling time, calls average between four and a half to five minutes for English language conversations and one to one and a half minutes for Spanish conversations. No explanation was provided as to why the Spanish conversations were of a noticeably shorter average duration.

All calls are recorded and call quality is carefully monitored by ProCore supervisors, the GoodCents director of business operations, and the Duke Energy product manager, each of whom can access the recordings online. This quality assurance team meets monthly to engage in co-calibration sessions during which each party scores the same call so that results can be compared and qualitative observations standardized. Meanwhile, ProCore and GoodCents monitor additional calls at random. These quality assurance measures have resulted in some changes in scripting and call handling practices, but the improvements have predominantly been in response to issues arising from how to best deal with Smart Saver's additional measures, which are not being reviewed for this evaluation.

Working Relationships

The Duke Energy product manager indicated he is in daily contact with GoodCents representatives, while formal meetings occur on a scheduled basis. The program's management teams from Duke Energy and GoodCents meet monthly to set strategy, review performance, and adjust accordingly. Call center activities are also reviewed on a monthly basis. While the Duke Energy product manager joins the GoodCents trade ally representative meeting each week to stay abreast of current developments in the field.

The program's online data tracking and reporting systems are updated daily so the Duke Energy product manager can view a snapshot of key performance metrics at any time. Monthly reporting consists of trade ally and customer feedback, and financial reconciliation reports, including which checks have been cashed. Service level performance is also monitored monthly, although it is formally assessed on a quarterly basis.

Overall business relationships and communications are reported to be positive and functional. GoodCents indicates "Duke is fairly open to some of our out-of-box thinking, and we're willing to try different things." Duke Energy states: "Our working relationship is good. We don't always agree, but both companies want a successful program, and we continually work to find how to be aligned."

Evaluation Findings and Recommendations

Evaluation Findings

The Smart Saver Residential HVAC program is a mature, well-run program with a robust and well-informed trade ally network that spans Duke Energy's service territory in Ohio and Kentucky. Program design is well considered and provides financial incentives at the moment of highest influence in order to encourage the adoption of more efficient equipment.

While not without its challenges, the transition from the previous third party vendor to GoodCents was achieved without interruption of daily operations. The partnership between Duke Energy and GoodCents is strong, and GoodCents' depth of experience in HVAC program administration is readily apparent in the active engagement of trade allies in the field, as well as in the smooth functioning of rebate processing and call center activities.

Despite the well-run nature of the program, its participation numbers are not meeting Duke Energy's goals for 2013. Performance during 2012 was stronger, particularly in Ohio which at the time still featured the rebate for high efficiency furnaces throughout 2012. That rebate was eliminated due to changes in funding availability associated with a residential rider for natural gas in Ohio.

Actual performance numbers for Ohio during 2012 show that the program drew 4,036 rebate applications (for air conditioners, heat pumps, AND gas furnaces) toward a target of 3,397, representing 119% of goal and an average of 88 measures per week. Year-to-date performance between Jan 1 and June 30 of 2013 is tracking slower, with the trade ally network delivering 1,739 rebate applications (for air conditions and heat pumps, but NOT furnaces) at an average of 58 measures per week by June 30, 2013 toward an annual goal of 3,562 (49%).

Actual performance numbers of Kentucky indicate that during 2012 trade allies submitted 621 rebate applications (for air conditioners and heat pumps) toward a goal of 1,385, representing 45% of goal and an average of 14 per week. Performance between January 1 and June 30, 2013 showed 298 applications toward a goal of 1,459, which is an average of 10 per week and 20% of goal.

Reasons for the limited performance appear to be manifold. Duke Energy notes that heat pump sales have dropped noticeably in Kentucky as a higher percentage of customers are opting to fuel switch to gas furnaces due to lower perceived operating costs. This was less of a problem in Ohio during 2012 when the program offered rebates for gas furnaces. In both Ohio and Kentucky, challenging economic conditions among residential customers are also causing them to opt for extended equipment repairs rather than equipment replacement. Furthermore, a reduction in federal stimulus dollars for the HVAC market appears to be having a contributory financial effect. On a more limited, but directly controllable level, equipment requirements for an ECM fan may be influencing customer decisions. And trade ally concerns over rebate processing times and confusion regarding paperwork requirements may also be having a small effect.

Recommendations

Upon assuming administration of the program, GoodCents provided a number of notable improvements, including all the tools provided on the trade ally web portal. Likewise, Duke Energy's decisions to update trade ally contact information, track trade ally participation levels, and eliminate the pre-funding process have all increased visibility and enhanced oversight of program transactions. Therefore, the following recommendations should be considered additional suggestions to further improve the program.

- Consider increasing overall program energy savings by eliminating the indoor ECM motor requirement in favor of increased efficiency ratings on the new outdoor equipment.
- Alternately, consider separating the EMC fan requirement. Doing so would help to increase the installation of high efficiency heat pumps and air conditioners since it would eliminate lost opportunities where customers are willing to upgrade air conditioners or heat pumps, but not willing to pay to upgrade still functioning furnace blowers. This would be particularly helpful in areas where oil or natural gas-fired furnaces are prevalent.
- Another option for equipment and incentive changes includes the potential for a tiered rebate system whereby higher efficiency equipment garners higher financial incentives.
- *The nature of the HVAC marketplace is such that the effectiveness of the rebate amounts offered by the program is influenced by shifting economic conditions and the additional financial offsets of supplemental incentives offered by the federal government, manufacturers, other utilities, and the trade allies themselves. Therefore, TecMarket Works encourages close monitoring of this context in order to adjust rebate offerings as necessary to achieve program energy savings targets while maintaining overall cost effectiveness.*
- The trade ally web portal provides participating HVAC contractors and dealers with a foundational set of tools that can not only simplify their interactions with the program, but also lower program administration costs by reducing the number of trade allies phoning the call center to check the status of rebates and eliminating the need to manually enter application data by using the online submission system. However, trade ally adoption levels of the web portal appear to be low. Therefore we recommend that GoodCents TARs widely promote use of the web portal among trade allies. We also encourage the installation and use of web tracking software, such as Google Analytics, in order to monitor internet traffic patterns and the volume of the trade allies visiting the website, since such insights may provide opportunities for further improvements.
- Confusion regarding the erroneous need for trade allies to submit paid or signed customer invoices can be eliminated through increased clarification and communication about the specific requirements for program paperwork.
- While the program is designed to work directly with trade allies in order to provide the highest degree of influence at the point at which customers are making their purchasing decision, other opportunities for heightened awareness and interest are also possible.

Therefore, Duke Energy may consider increasing its marketing and educational outreach to residential customers, either via direct marketing, at events where home owners congregate, such as home and garden shows, or through news stories or guest columns in print and digital media.

- We also encourage the program management team to look to the newly implemented internet-based feedback system to provide additional insights directly from customers and trade allies as those survey results become available.

Trade Ally Interviews

During August and September of 2013, TecMarket Works conducted phone interviews with participating Smart Saver trade allies, including 10 each in Ohio and Kentucky. Those interviewed identified themselves as the person within their company who has the most experience with the program. Job positions included: owner, general manager, office manager, sales manager, and lead salesperson.

Topics of these qualitative interviews covered program operations and changes over time, aspects of trade allies' involvement, incentive levels, covered technologies, program requirements for participation, and the program's influence on high efficiency unit sales from the trade allies' perspectives. Interviews lasted between 15 and 45 minutes. The interview guide can be found in *Appendix B: Trade Ally Interview Instrument*.

While feedback regarding the program was positive overall, all the trade allies that we interviewed found at least one area for improvement and most of them provided multiple examples. Areas for improvement included: the complexity of the rebate applications, consistency of enforcement, timing of payment checks, the service level of trade ally representatives, incentive levels, and equipment covered by the program. The results of these interviews are reported below.

Rebate Applications and Associated Paperwork

The rebate applications and associated paperwork were by far the largest source of trade ally complaints about the Smart Saver HVAC program. While detailed feedback is provided below, one central point resounds throughout: trade allies do not understand or appreciate why they are being asked to provide the level of detailed information required during the rebate application process. This lack of understanding fosters resentment and, in some extreme cases, a refusal to participate in the program. Therefore, in addition to making any specific changes as may be dictated by the below comments, TecMarket Works suggests that at a minimum, Duke Energy and GoodCents mount an effort to educate trade allies about which details are required, which are optional, and why the requested information is necessary. This educational effort alone may well help to alleviate a majority of trade ally complaints.

The Rebate Application Form

The size of the data entry boxes on the rebate application form caused a number of trade ally complaints. Below are statements quoted from the interviews.

- *The paper forms need to be bigger since the boxes are too small to fill out.*
- *The forms are poorly designed and should be redone.*

To rectify this situation a number of trade allies suggested that the program provide blank PDF documents that permit data entry. While such a blank PDF form can be downloaded from the trade ally web portal and the Duke Energy website, this trade ally was unaware of its existence, as were others that we spoke with during interviews and the survey discussed in *Trade Ally Survey* section below.

- *They should make the forms be digital PDFs. They're easier to fill out, read, save, and transfer.*

Required Information on Application Form

Feedback regarding the type and amount of information required on the form was extensive. It fell into two primary categories: HVAC-specific information and customer-specific information regarding their account numbers and home characteristics. Concerns ranged from challenges with the impracticality of locating serial numbers and other identifying information from the old units that are being replaced to issues obtaining customer account numbers and details regarding the home's age and its square footage. In some cases, even though a trade ally installed a qualifying unit, customer noncooperation resulted in no rebate application being filed. Representative quotes are shown below.

HVAC-Specific Information

A repeated issue of consternation among trade allies is the requirement that they provide the serial number and other identifying information on the old unit.

- *It's not practical to find and provide the old unit information. Our removal guys are task oriented when they're ripping them out. They're not thinking about paperwork and probably never will.*
- *The paperwork stinks. I try to be complete and accurate, but sometimes I just can't get the information they want. The markings on the old units are often faded beyond recognition.*
- *It used to be so easy. You just certified what you installed. Now they want the old equipment model/serial number and SEER rating. On something 30 years old, we often can't find that. Sometimes that number is literally not readable on a unit that old. Now they want the square footage on the house, how old the house is, and the duct work location. I don't know why they need all that information.*
- *They seem to ask for a lot of information without explaining the context of why they need it. We used to get \$300 for furnaces and another \$300 for AC. Then at the end of the year they stopped the furnace rebates so we stopped filling out that part of the paper work. But then we started getting rejected because we were not including it. Why do we need to include it, if they're not paying the rebate on it?*

Customer Account Numbers and House-Specific Information

- *The new paperwork has been something of an issue. It asks for things like year, heating square footage and stories above grade. We don't know those and they don't make sense. Why should we need to know heating square footage if we are installing air conditioning? My sales people don't keep track of these details.*
- *The old forms were so much easier to fill out. On the new forms we have to get the Duke account number and that delays it. The extra information they ask for slow us up since people don't want to give out the information on square footage and age of their home. I don't see why they need that. It seems intrusive to the customers.*

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- *Sometimes homeowners don't fill out their part of the paperwork in time and they want extensions. That makes us look bad, even though it is their fault. You should allow extensions upon request.*
- *Basically it seems like they just decided that the information would be nice to have without considering the impact it has on people's time and their work flow.*

AHRI Numbers

While no trade allies expressed confusion about the program's requirement to provide documentation from AHRI, several did complain about the amount of effort required in order to obtain the requisite details from the AHRI website.

- *The AHRI and serial numbers are impossible to get. They just not available anymore for a 20 year old unit.*
- *AHRI web access is a problem.*
- *It's kind of difficult because I might not have that AHRI system with overall efficiency of the combined equipment.*

Paid Invoices

The erroneous belief that trade allies need to submit paid invoices along with their rebate applications was a point of difficulty for some trade allies. The program does require a copy of invoices, but it does not require the invoices to be paid at the time the rebate application is submitted. This confusion reveals a lack of clarity regarding the actual program requirements for the invoices that must accompany the rebate applications.

- *I can understand the need to send in a copy of the invoice, but our company has problems since we use duplicate forms and the company copy of the form doesn't come out very readable once it's been photocopied or faxed. So it's sort of an on-going problem or trying to make them more readable.*
- *I think the program is fine otherwise. It's frustrating to have to give all the piddly little things on the paperwork. Now we have to mark paid in full, and submit a copy of the invoice that has the pulled serial number written in hand. We wouldn't otherwise bother with those kinds of details just for our business. So the little things they keep coming back with are bothersome and it's become a much bigger job. The process just needs to be simpler.*

General Issues

While not citing specific areas for improvement, several trade allies made general comments about the inconvenience of the amount paperwork required during the rebate process.

- *Information they ask for is more time consuming than necessary. There are so many coordinating pieces that have to come together.*

- *We used to have an easier time with the forms when there was more openness about what was needed. I'd like it to be one page.*
- *The paperwork is a bit hinky. They should make it more self-explanatory.*
- *Make it less difficult with the forms.*
- *Change over to new applications was a bit problematic. I like an easier application if they could.*
- *It doesn't take a lot of time. Once we got used to it, it's not hard.*
- *The process is cumbersome. It has to all be done in a certain way and it's kind of a pain. I have to have the sheets that show equipment that qualifies with matching equipment.*

Submissions and Corrections of Rebate Applications

Compliance Requirements

After the level of detail required on the rebate application forms, the next most significant cause for dissension among trade allies was the program's strict compliance rules regarding the exact information required on the form. In some cases, trade allies reported being rejected due to clerical errors, incongruence of detail, and minor inaccuracies; in some instances for what seemed to be overly bureaucratic or petty details such as missing middle initials in customer names. Below is a representative quote:

- *They're too particular about making the paperwork exactly match the Duke account name down to the middle initial. I mean come on, if everything except the initial is the same, do they really think it's a different person? They should relax the rules on that part at the least.*

Despite these strict compliance requirements, other trade ally feedback reveals that the rules are not consistently enforced as shown by the comments below.

- *I just don't bother to include the AHRI numbers on the forms. Nor do I bother with the account numbers, and so far all my forms have been processed.*

Submission and Confirmation

Trade allies had few opinions about the rebate submission process. Two people offered suggestions for improvement, and these may have been due to a lack of familiarity with what was actually available with existing systems.

- *The new website seems to be updated regularly, but it is less than informative. It shows pending correct documentation but doesn't explain what is needed. Sometimes the GoodCents people will call and sometimes they won't so I need to call them. I wouldn't know if there was an issue unless I looked. So they should increase the amount of information on the website and set up some sort of a consistent system for notifying people about what is needed.*

- *They should make the forms be digital PDFs. They're easier to fill out, read, save, and transfer.*

Help with Corrections and Compliance

Despite the rigorous attention to detail required during the rebate submission process, trade allies praised the helpfulness of the representatives that they spoke with regarding any necessary corrections. Only one person felt critical of the phone support provided. All others were positively disposed to the customer service they received as shown by the comments below.

- *They aren't very helpful on the phone. When you're busy, you don't have time for bickering over tiny details. Just talk to me and tell me what you need. And they don't sometimes.*
- *Couple times I filled out paperwork wrong, and had to follow up. They didn't contact me. By then the customer's involved and it's a problem.*
- *I haven't really needed to call many times but it's okay. Smart Saver in Georgia is really pretty good.*
- *No issues at all.*
- *I have to follow up a lot. The people themselves are kind and helpful and they always call me back. They are great.*
- *They do call if there's a problem or concern and they are good.*
- *In the beginning we would call when we had questions and they are great.*
- *The GoodCents people are good on the phone.*
- *Their people are more communicative. The phone people are quite good.*
- *The phone and field people are great.*
- *They've improved in terms of helping us with any corrections that we need. The phone people are good.*
- *Sometimes when I send something in they disagree with something need to be changed, they call me and make me do something different that I didn't have to do before. They are great though. I've had no problems with them.*
- *Okay. I don't call much.*

Sending Noncompliance Notices to Customers

A small number of trade allies expressed concerns about the way that the program handles notifications regarding noncompliance. The main issue was that notifications sent directly to customers caused the trade allies challenges with their own customer relations. Although one quote to this effect is shown here, other similar thoughts were mentioned as parts of quotes shown elsewhere in this document.

- *If there is a problem with the rebate then GoodCents sends us and them [the customer] a letter. Then customers get mad at us and tell us we made a mistake, threatening us that if Duke doesn't pay them then we will need to. It's a mess that could be avoided if they'd just ask us first.*

Rebate Checks

Wait Times

Trade allies indicate that the waiting period between the points when they send in the rebate application paperwork and when the checks arrive typically varies from four to six weeks, with some trade allies reporting times of between six and eight weeks.⁵ For most respondents this seems a reasonable timeframe. For others, the perceived waiting period seems too long. For some people this occurred when rebate applications were being sent to the previous vendor and thus required forwarding.

Although this evaluation did not confirm the wait times by reviewing the application dates and the date of the rebate distributions, past experience in these types of studies indicate that trade allies and customers expect rebates to be promptly processed and paid and that wait times of a couple of weeks are acceptable, however wait times of longer than a couple of weeks begins to impact satisfaction scores.

Representative quotes regarding wait times include:

- *The checks seem a little slow coming and once in a while customers call us to ask when they'll arrive. We tell them we don't know. To manage their expectations we tell them it can take up six weeks. Otherwise customers are very positive about the program. We even had one referral because a customer was happy about their Duke rebate and told a neighbor.*
- *My main pet peeve is that my customers ask us all the time when their incentives are coming. We never know. We tell them four to six weeks, but the only way to find out is to email GoodCents and ask. Then they email back and then we can tell the customer. That's just not efficient. They should make it easier.*
- *In the first six months when GoodCents took over they were slow in processing checks. Sometimes up to two months it seems. But since June of 2012 we've been getting them within four to six weeks.*
- *I haven't heard any recent problems. They say four to six weeks so I tell people six to eight weeks and that's helped.*
- *If the application goes in correctly, it comes back fairly quickly. A lot is not how quickly they turn it back, but how backlogged we are.*

⁵ Earlier in the report, it was indicated that the total processing time from receipt of application to data entry to approval to the time the incentive checks were sent out was 13 business days. This 4-6 week wait time is therefore reasonable given that it includes time spent in transit for inbound and outbound mail.

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- *The timing isn't bad. They say it takes about six to eight weeks to get the checks and that's usually accurate.*
- *It's much better than it was. It used to be eight to ten weeks and now it's usually within 30 days.*
- *It seems like we see ours within a month. It's fine.*
- *Sometimes the rebates take forever. Some get paid within a month but other times take much longer.*
- *We get our \$300 within 30 days.*
- *Sometimes the mail times seem slow. We see checks dated August 1 that arrive in the mail more than three weeks later.*
- *The payment process and timing are fine. (3)*

Rebate Checks

One trade ally also made comments about actual checks themselves. She appreciated the added detail provided on the checks, and made a suggestion that if several rebate checks were being sent at the same time that they be batched together in same envelope for mailing. Below is her direct quote.

- *Check processing is quick and easy. That has changed for the better. The checks they used to send didn't give much detail and now it has the name and property address. That helps. I would say they should just put them in one envelope though and not 20 or 30 separate envelopes when they need to send out that many all to one company. That's crazy. It costs them more in postage and it takes more time for me to open them.*

Covered Technologies

We also talked to the trade allies about the technologies covered by the program and other technologies that they felt should be included. The most frequent refrain cited throughout all the interviews was a request to resume rebates on gas furnaces, even if at higher efficiency levels. Otherwise, general opinion held that the current SEER level ratings for air conditioners and heat pumps was appropriate, although some trade allies felt that ECM motor requirement was problematic and a few requested additional coverage for heat pumps.

- *The type of equipment they cover is fair. Lowering efficiency standards would defeat purpose of it, but I'd like to see more flexibility on the types of equipment, like matching systems even if there is an ECM.*
- *They sometimes mean something different than we think with an ECM motor. You have to make sure this equipment meets their stipulation. Vectren gives an extra \$20 for a programmable thermostat. That makes a difference. Duke should cover that too.*
- *The equipment covered by the program is about right, but they should bring back rebates on high efficiency furnaces. They should also increase the rebates for geothermal. Dayton Power and Light pays \$1600. At \$200 Duke isn't even in the ball park.*

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- *The 14 SEER rating is about right. Obviously we'd like it at 13, but it's better than 15. Although I do think they could offer more for geothermal heat pumps.*
- *I think Duke should resume offering rebates for high efficiency furnaces. They should also offer rebates for boilers if they're high enough efficiency. I don't have any issues with the ECM fans. Those make sense to me.*
- *It's just the top end stuff now. It used to be anything over 90 got rebates and now it doesn't. And now you need ECM variable speed motors so it's not as good.*
- *I would love it if they put back the high efficiency furnaces at 90%. Even 95% and above with ECM motors. That would help a lot. If customers buy a furnace and an AC they'll get money back and 12 months to pay for it. Those are very nice.*
- *It's a shame about the gas furnaces. If customers replace the furnace and it has an ECM they still can't get the rebate because it's gas.*
- *It's sad they dropped the gas furnaces from qualifying, and we are only working with AC. The furnace still needs to be changed out but in a lot of cases it won't qualify for Duke even though it's high efficiency.*
- *It would be nice to go back to the furnaces. That would help a lot.*
- *Gas furnace should be covered at 90%. That made it a lot easier to get the rebate going and there was more profit on the product. Duke should go back to 90% or better with 14 SEER and ECM motor.*
- *I think they should cover all heat pumps, not just the 15 SEER. And go back to the gas furnaces.*
- *Gas furnaces. On AC with 15 SEER you need a two stage motor anyway. Lot of the criteria you have to look at to tell if it qualifies (coil, blower, furnace, indoor, outdoor).*
- *Gas furnaces should be covered. (3)*
- *Duke should bring back rebates on high efficiency furnaces.*
- *The equipment covered by the program is good, although they should bring back the rebates on furnaces. Why not do rebates at 95% efficiency now?*
- *The equipment covered is the right choice, but we want them to bring back rebates on gas furnaces.*
- *The equipment covered is fine.*

Incentive Amounts

A few trade allies suggested raising incentive levels, but overall they were satisfied with the incentive amounts offered by program. Incentive amounts were explored in more detail during the quantitative survey process. Those findings are discussed in the *Trade Ally Survey* section below.

- *Duke would get more customers going for the high efficiency units if they raised the incentive levels. The Greater Cincinnati Energy Alliance and the Kentucky Home*

Performance Program used to have a lot of federal money available for high efficiency units, air sealing, attic insulation, and blower door testing. They used to pay \$4,200, then \$2,000, \$1,500, \$1,000, and now it's down to \$500. So a bigger amount from Duke would help. Of course, people are getting tax credits too.

- *Vectren's rebate for 95% furnace is a lot more. If Duke kept the \$200 for the 14 SEER and the heat pump and added more rebate for higher efficiency that would make a big difference. AEP in Columbus gives \$350 for 14 SEER, so that makes them more attractive.*
- *It should be larger since they have to wait for a long time to get that rebate and then it takes a long time to get back the extra cost of the equipment. Some customers it could take 30 years to recoup that cost.*
- *It's a pretty good number. Even \$250 for the homeowner and the 95% furnace would be good.*
- *The incentive amounts seem about right. Duke is the only utility that pays contractors part of the rebate. So that's very much appreciated.*
- *They're fine. They always have been fine. I think they are very generous*
- *It could be more of course, but it's fine.*
- *It's not a great deal for the customer, but everything helps to encourage higher efficiency. It's fine. I think it helps a bit, but it's not going to be the deciding factor for most customers.*
- *Great that it's both. It helps us financially too.*
- *We do a lot of work in rural areas and people have less money, so it's nice.*
- *It helps and is okay. Of course I would love it if it was more.*
- *The \$100 contractor incentive is fine. I used to hate the paperwork, but I'm used to it now. The big thing was that they changed the rules without telling us what the new rules were. They should have made that clearer. I think is probably where the resentment comes from among trade allies.*
- *The Duke rebate is just one more sales tool. As a standalone it doesn't do much, but when coupled with other rebates and tax credits it makes a difference. Without Duke's program, we'd sell the same equipment, but maybe we'd sell more low efficiency units and fewer high efficiency ones.*
- *The rebates for new installs are fine.*
- *Everyone wants more money but the rebate amounts seem fine.*
- *The rebate levels are fine. (2)*

GoodCents Trade Ally Representatives

GoodCents field representatives received generally positive reviews for being pleasant, supportive, and responsive to the trade allies. Two people mentioned that they had not been

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visited since GoodCents took over program administration. These and other comments are shown below.

- *Our new GoodCents reps have been awesome. The phone support people are also quite good.*
- *Very good. No problem. They're very good.*
- *I haven't had a whole lot of need, but when I have had a difficulty I find him very responsive. They are wonderful.*
- *It's great having one go-to person. I didn't have that before.*
- *He is very responsive to me and I really appreciate that.*
- *I never appreciated them before, but our new guy is great.*
- *They're fine. They leave card and are supportive and always ask if we need anything to give them a call.*
- *Our field rep is fine.*
- *I've talked to him a couple times mainly when they changed the paperwork. He's fine.*
- *[Name withheld] is helpful mostly.*
- *Their representatives seem OK. They come by once or twice per year and drop off brochures.*
- *In the last two years we've had two rep visits from guys trying to explain the new \$50 rebate program and what we need to do. I guess they cover the install program too, but there isn't much to say about it.*
- *I can't say about their trade reps since I'm always selling in the field when they'd be visiting our offices.*
- *I can't remember seeing anyone.*
- *Haven't seen anyone for two years.*

Time in the Program

We asked interviewees how long they had been participants in the program and what had changed during that time. Participation time frames ranged from three years to more than a decade. The primary changes noted included the shift in program administrators, increased rebate paperwork, and the elimination of the rebates for gas furnaces. Their thoughts are included the following.

- *Since it started. We're one of the top Westinghouse dealers. The forms change all the time and it's hard to get into the system. Plus the websites don't have the option for the form available.*
- *We've probably been involved since its inception. We are under different ownership for the last three years, but have been in business since 1964. The transition went fine. No noticeable change from our perspective.*

- *We've been in business 35 years and have been with since the beginning. They switched administrators and it's been getting better since then. But since they dropped the gas furnaces that's not as good.*
- *I've been in the program for more than a decade. The transition to the new administrator was a pain, particularly learning the new requirements and paperwork, but now that it's over it's OK.*
- *We have been a part of the Duke program since 2005. The transition to Good Cents went smoothly. It took a little while to understand the new requirements but it's smooth now.*
- *We joined in 2007. They don't pay on about half of what we sell that used to qualify, and they've made it more difficult to file the application. It's more time consuming now and they ask for more detail than before.*
- *We've been in the program for six years. And aside from the new paperwork the change to GoodCents has been an improvement.*
- *Ever since it started in 2007 or 2008. Before, you could get \$200 for furnace as long as it was 90% or better, and the \$200 for AC was if it was 14 SEER. Now they dropped the furnace. Other than that the new paperwork is biggest change.*
- *We've been in the program for five years. The GoodCents people are better than [the old administrator].*
- *About four or five years. The paperwork has gotten longer and they quit the gas furnaces.*
- *Four years now. Not that much has changed except that the forms could be better and gas furnaces don't qualify anymore.*
- *We started the program in late 2011. The transition to Good Cents went fine. The paperwork has gotten much more complicated.*
- *We joined the program three years ago and we really like it. The transition was confusing. The requirements were different and the paperwork was too. But that's behind us now and we're comfortable with it. So no complaints about that anymore.*

Why Trade Allies Participate

As may be expected based upon the program's design, the main reasons that trade allies participate in the program are 1) the extra \$200 in financial help provided to the customer when buying a higher efficiency (and often higher profit margin) unit; and 2) for the direct \$100 incentives that they get for selling higher efficiency equipment. Other reasons included customer expectations and participating in a community that is focused on positive change. Trade allies' individual responses include:

- *AC drives our business and the sales situation is more difficult with AC. So the rebate gives customers incentive to buy, and we get a financial reward too. It shows that Duke is trying to help people save energy, which is a benefit.*
- *It definitely helps us sell some customers that might not otherwise go over the edge. We like the double rebates. Customers get something and we get something too.*

- *We receive a financial benefit. That's making people more aware of higher efficiency products.*
- *It makes people in the marketplace be more aware. And you feel like you're in a community that is trying to improve something.*
- *The additional revenue. We share the reward with customer.*
- *The customer gets \$200 and we get \$100.*
- *It helps to move people to get higher efficiency units. It adds up together with other incentives.*
- *There's money for us too.*
- *Customers like it. It's a selling feature. Cash back is always a plus.*
- *It's not lot, but it helps to be able to offer that rebate.*

Program's Influence on Trade Ally Businesses

Trade allies indicated that the program has had a modest influence on the type of equipment they sell. Influence was strongest among HVAC trade allies who sell to middle income customers, while somewhat less among those trade allies who sell to wealthier customers with greater buying power for more efficient units.

- *The program helps us sell more higher efficiency units with ECM fans. Without it, we'd sell fewer high efficiency units.*
- *We don't carry a lot of inventory, but the perception that green high efficiency units are beneficial is influential. We make sure we carry those that qualify.*
- *The program hasn't necessarily influenced the equipment we carry, but it has increased the numbers of higher efficiency units we sell. Without the program, we'd sell fewer high efficiency units.*
- *The program hasn't influenced the line of equipment that we carry, but it has increased our sales of higher efficiency units. Sometimes that \$200 really makes the difference. Duke should definitely continue to offer the program.*
- *We've handled same brand for over 50 years. And we get whatever the customer wants.*
- *We just order what we need.*
- *The program doesn't influence sales particularly, but I think Duke should continue to encourage higher efficiency.*

We then asked the trade allies if their business would change if the program were no longer offered. We posed the question: "If the program were to be discontinued, what would happen to the volume of sales of the high efficiency models?" Trade ally responses varied from anticipating fewer sales to indicating it would make little difference.

- *It would definitely impact our business. Duke would be impacted too. We promote Duke through this program so our services reach our mutual customers. People would tend to look elsewhere if they didn't offer rebates.*
- *If it disappeared it would be a big problem for us. It would be harder to sell and customers might start going to lower efficiency equipment to save money.*
- *The rebates make a big difference. Our goal is to keep the purchase price of the house down so without the rebates I doubt we'd offer customers the higher efficiency equipment. So it benefits our customers and it makes us look a little better by offering the higher efficiency equipment.*
- *Overall, I think Duke should continue to offer it, but I don't think they actually need to offer it. It doesn't make that much difference. If Duke didn't offer the program, we'd still sell high efficiency units to people who wanted them. But if people can't afford the low efficiency furnace then the \$200 isn't going to help much to get them to move up to high efficiency.*
- *Duke's rebates are doing a great job of increasing sales of high efficiency equipment and peak load reductions. Without that, it would hinder us. The government will eventually take the tax credits away too so then it would really affect us.*
- *Yes it would impact us. Half the customers who qualify today would maybe not have bought a high efficiency unit without the rebate. They would still buy, but not high efficiency.*
- *We would have to offer some other alternative or let customers go. People don't want to part with their money and we need to get them to do that one way or another. Or you're not going to stay in this business. So we would have to offer them something ourselves.*
- *The program really helps us to higher efficiency equipment.*
- *The rebates definitely help to nudge people toward higher efficiency units.*
- *We would lose a bit, but not that much.*
- *Not horribly much.*

At the risk of stating the obvious, trade allies see their primary goal as generating a profit by installing and repairing HVAC equipment. Providing their customers with higher efficiency units at lower prices is an important secondary aim, and one that provides a competitive business advantage. For this reason, virtually everyone we spoke with expressed a desire that the program continue. These findings lend support to the program goal to increase market share of higher efficiency equipment via rebates and incentives.

Other Suggestions

Trade allies also made a few other suggestions for the program that did not fit in the above mentioned categories, including more free brochures, on-bill financing, the ability to pay the trade ally the customer's \$200 when proof was provided that the same amount had been deducted from the customer invoice, and the desire for specific key account representatives. Specific remarks included.

- *Duke might send out info via their bill stuffers, but basically customers don't know about the program unless we tell them. So we could use more free brochures and marketing information. They give us money to buy them, but we do a lot of rebates and we need more. It'd be best if their sales people would just come by and ask if needed anything and then drop more off.*
- *When we do things with the Greater Cincinnati Energy Alliance we can literally deduct that from the amount the customer has to pay us and then we file the paperwork. Then the Energy Alliance pays us the full amount within one week. If Duke did something like that, it would be great.*
- *Perhaps they could offer financing on their bills to pay for the higher efficiency equipment.*
- *They should set up a key account representative system for their biggest trade allies. We do over 200 applications each year. So that would make it much easier for us to deal with just one person who understands our business.*

Evaluation Findings and Trade Ally Recommendations

Evaluation Findings

The trade allies we spoke with were overall very satisfied with the program and eager for it to continue. Nonetheless they offered up an extensive list of observations regarding areas for improvement.

The most significant areas needing improvement focused on the level of detail required on the rebate applications and the rigor with which minor clerical errors cause applications to be rejected. Of concern was the impracticality of obtaining serial numbers off the old units being replaced, particularly since time and weather caused the numbers to be unreadable on outdoor units. Obtaining customer account numbers is also problematic for trade allies. The paper forms themselves were also deemed difficult to fill in, and someone requested the ability to use digital forms, not realizing that they were already available online via the trade ally web portal. Another paperwork related issue involved the erroneous belief that the program requires trade allies to include copies of paid invoices.

The level of detail required on the rebate applications appears to be inconsistently enforced with some trade allies being rejected, which others passed inspection without including a customer account number. Trade allies also expressed concerns about the program practice of sending notifications about errors and rejections directly to customers without first notifying only the trade ally in order to provide them an opportunity to rectify the situation. Despite this, the level of phone support that GoodCents provides to rectify mistakes was almost universally praised. GoodCents field representatives were also considered to be responsive, and informative.

Rebate levels are generally considered appropriate as they are. Although several trade allies did request higher incentives. Many trade allies doing business in Ohio requested that furnace rebates be reinstated, even if at higher efficiency levels. Others requested new rebate offerings for equipment not currently covered by the program, including additional types of heat pumps, mini-splits, high efficiency boilers, and programmable thermostats.

Wait times for most rebate checks fit within the program's advertised four to six week timeframe with some wait times extending to eight weeks. The majority of trade allies find the wait times acceptable. A few examples of longer wait times were noted, but these seem to have occurred during the 2012 transition phase when rebate applications were being sent to the former third party vendor and then forwarded to GoodCents. One trade ally requested that checks to her company be bundled and sent in batches, rather than sending 30 individual checks at a time.

Overall trade allies are happy with the program and they report that they would sell fewer high efficiency units if the program were terminate. They generally consider the program's rules to be reasonable business requirements that must be observed in order to obtain the incentives. Further findings are discussed in the trade ally survey section below.

Trade Ally Recommendations

The list below presents the actual recommendations for specific program changes and enhancements suggested by the trade allies that we interviewed.

- Simplify the rebate application forms. Or if not, then at least provide an annotated sample form with detailed explanations and have GoodCents field representatives educate trade allies regarding which details on rebate applications are required, which are optional, and why requested information is necessary.
- In light of the fact that the serial numbers from the old units that are being replaced are difficult to obtain consider eliminating that requirement, or at least marking that data field as optional.
- Consider using the customer's service address as the primary means of identification instead of the account number.
- If AHRI numbers are required then provide an easier-to-use alternative to the AHRI website such as a chart or database that makes finding the requisite information easier to obtain.
- Temper the strict requirements that rebate application be "an exact" match, so that stray marks, customer middle initials, and obvious typos do not cause rejection notices when these types of minor inconsistencies exist
- Modify the layout of the printed forms to provide larger writing spaces for data entry.
- Allow extensions to the rebate application deadline upon request.
- Extend the timeframe for trade allies to redress errors and rejections prior to sending notifications directly to customers.
- Increase the information provided on the web portal regarding the information needed to approve rebate applications.
- Provide additional information on the web portal regarding the estimated arrival date of rebate checks.
- Batch trade ally checks together and mail them in a single envelope.
- Educate trade allies about where they can download a digital PDF rebate application forms.

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- Increase the rebate levels for heat pumps, particularly geothermal units.
- Expand rebate coverage to other technologies, including boilers, mini-splits, and other high efficiency systems.
- Provide \$20 rebates for programmable thermostats.
- Establish the ability to pay the trade ally the customer's \$200 when proof is provided that the same amount had been deducted from the customer invoice
- Provide customer financing of HVAC purchases rebated through the program.
- Consider reinstating gas furnace rebates, even if at higher efficiency levels.
- Set up a key account representative system for their biggest trade allies.

Trade Ally Survey

To supplement the qualitative interviews discussed above, TecMarket Works completed a quantitative survey 79 Residential Smart Saver trade allies, including the 20 trade allies interviewed for the section above, plus an additional 59 selected at random from a list of 364 participating trade allies whose businesses are based in Ohio or Kentucky. Those interviewed self-identified as the person within their company most familiar with and qualified to speak about the Smart Saver HVAC program. A sample of the telephone survey instrument can be found in *Appendix C: HVAC Trade Ally Survey Instrument*.

Trade Ally Activity Level

The survey was designed to assess the opinions of trade allies with a broad range of participation levels. Trade ally activity levels during the previous twelve months ranged from those submitting between zero and 1,302 rebate applications. Among those we spoke with, nearly half (46.9%) of trade allies file 20 or less rebate applications per year, while at the other end of the spectrum 20.2% of trade allies file 100 or more rebate applications per year. The mean number of applications was 76.9, while the median was 20 and the mode was 10. In other words, a high number of trade allies file a relatively small number of rebate applications each year, while relatively few trade allies are responsible for a large number of applications. This finding corroborates observations regarding the program's mix of participation levels made by Duke Energy and GoodCents during the management interviews.

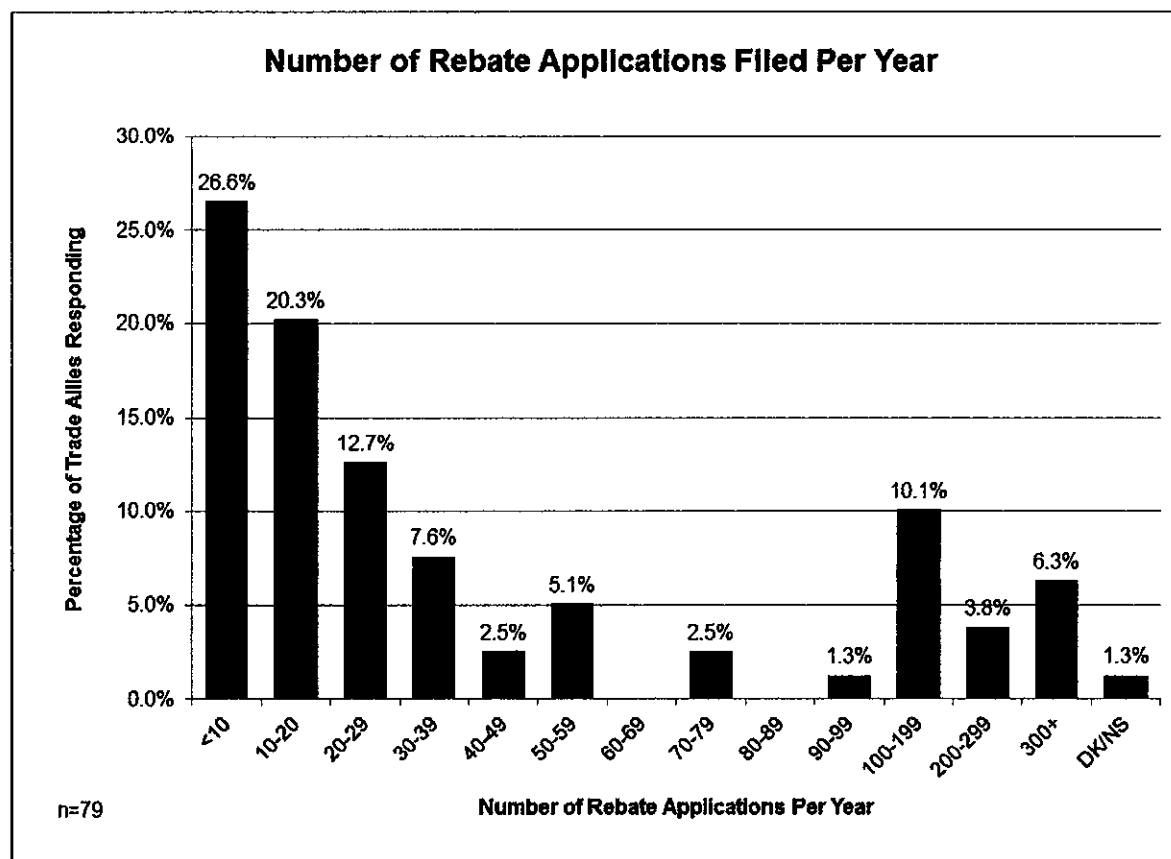


Figure 1. Trade Ally Activity Levels

While we only asked for a numeric response to this and the following survey question, some trade allies shared voluntary comments to provide additional information to help characterize their replies. Their verbatim remarks are listed below.

- *I don't like the new rebate form. It is too demanding and intrusive. From 2008 to 2011, we used to do 100 Smart Saver rebates per year and now we don't offer them unless the customer specifically requests it.*
- *I stopped promoting the program ever since it began requiring customers to purchase both an AC unit and a furnace to qualify.*
- *It seems like a lot of my customer base doesn't go for the higher SEER equipment.*
- *Since they took out the gas furnaces, it has gone way down. This year we've only done 10 to 15.*
- *We're down since Duke stopped the gas furnaces and now it's only AC.*
- *It's dropped quite a bit this year because they quit paying on gas furnaces.*
- *We're down considerably this year due to the gas furnaces being taken out.*
- *I used to do more before they discontinued offering the furnace rebate.*

- *Most of our customers are within the Vectren and DP & L service area (as opposed to Duke).*
- *It depends on the year, and most of our customers aren't served by Duke.*
- *We service a large area with 3 separate branches so it's hard for me to estimate this.*
- *Give or take, it depends on how many units we put in and we've only been doing it for the last couple of years.*
- *It really depends on the year. We've had maybe 10 in the last 12 months.*
- *We also have an office in Cincinnati and Dayton too. And we're expanding into northern Kentucky.*
- *At minimum.*
- *About 20 last year, I think.*
- *We primarily do commercial work.*

Replacement of Failed Units versus Still Functioning Units

Next we asked survey respondents to estimate the percentage of their customers who were replacing failed units compared to those who upgrading units that were still functioning.⁶ Estimates for failed units and still functioning units were asked in separate questions and are shown as different color bars in the figure below. Overall 44.3% of trade allies indicated that at least three quarters of the equipment that they replace has failed, while an additional 15.2% reported that between half and three quarters of the equipment they replaced had failed. This compared to a mere 7.6% of trade allies who indicated that half to three quarters of the units that they replaced were still functioning, and 8.9% who said that more than three quarters of the equipment they sold replaced still functioning units. The differences arose primarily based upon the communities served by the trade allies. As may be expected, those trade allies that worked in relatively wealthy areas dealt with customers who were more eager to upgrade for greater efficiency, improved comfort, quieter operations, and other reasons, while those trade allies who worked in moderate to lower income areas saw a high percentage of customers who preferred to wait until the units failed before paying to replace them.

⁶ Note that combined survey responses do not necessarily total 100% since a small number of contractors indicated they also worked in new construction, which was not captured as a separate percentage in the survey.

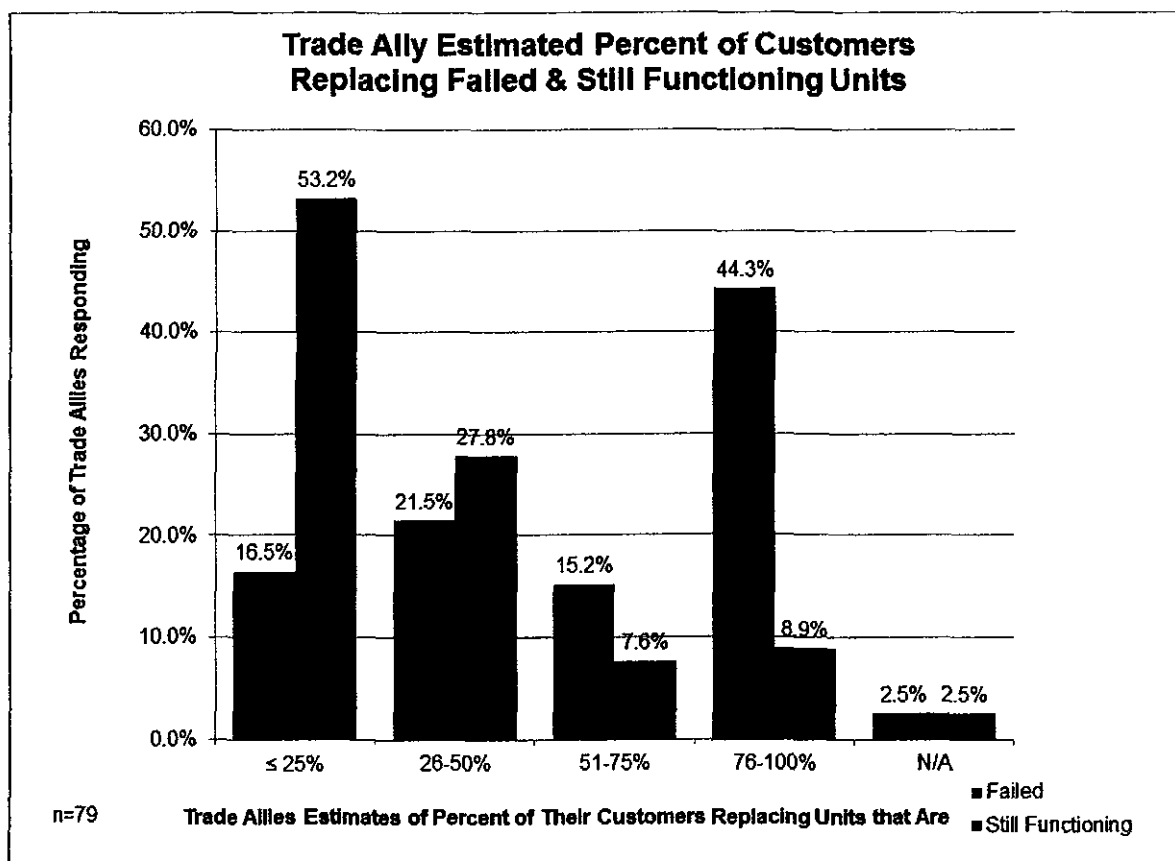


Figure 2. Condition of Units Most Typically Replaced

Additional feedback is noted below.

Failed Units

- *All of them are failed.*
- *Most of them don't upgrade before they need to.*
- *The percentage fluctuates throughout the year.*
- *We do get some that are just upgrading.*
- *We work only in new construction. (3)*
- *We work only on new construction projects.*

Still Functioning Units

- *Almost all of the equipment that we replace is over 10-years-old, but I'd say all of them are still working.*
- *The repairs are just too expensive. At this point, it's better to replace the units to something that is more efficient.*

- *These customers usually have units that are still functioning in some capacity, but are at the age where they should be replaced.*
- *They're starting to go bad and need repairs, but instead of paying for costly repairs they go for new units in most cases.*
- *We also do about 5% new construction.*
- *We work only in new construction. (3)*

Percentage of High Efficiency Equipment Rebated Through Program

In order to determine how fundamental the program's rebates were to trade ally business, we asked survey respondents to characterize the total volume of their businesses' high efficiency sales that were rebated through the program (Figure 3). Responses ranged from 1% to 100% of the high efficiency equipment that they sold being rebated through the program, with a mean of 53%.

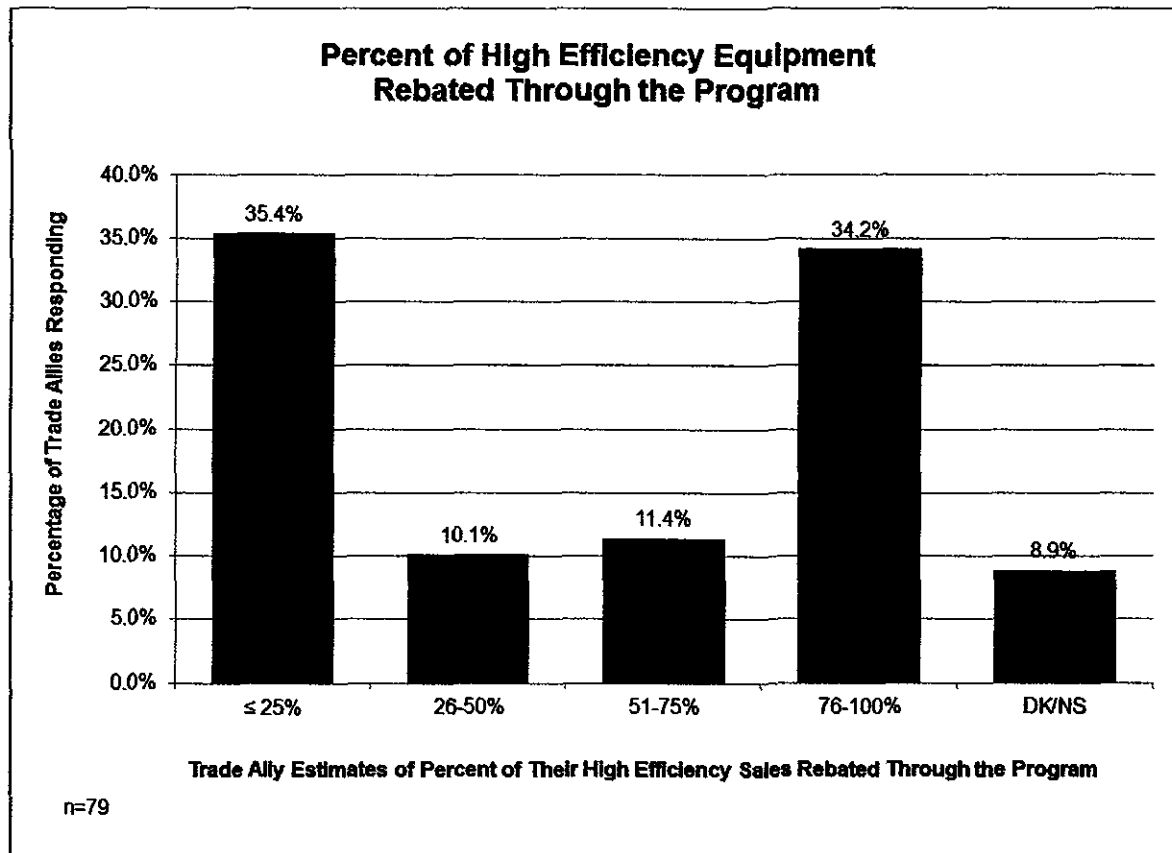


Figure 3. Percentage of Equipment Rebated Through the Program

Data distribution reveals that responses tend to cluster toward both ends of the spectrum. On the high end of the spectrum some 34.2% of trade allies filed rebates for at least three quarters of their higher efficiency sales. While on the less frequent end of the spectrum, a near similar

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number of trade allies (35.5%) filed rebates for less than one quarter of their high efficiency sales. Stated reasons for why the filed so few rebate applications for high efficiency equipment were limited, since a specific follow up question was not a part of the survey. However, voluntary responses focused on three notable reasons: the trade allies work predominantly in other utility service areas and hence are not selling to Duke Energy customers; the elimination of the Duke Energy furnace rebate hurt their applications numbers; and a dislike for the new rebate paperwork.

Actual comments gleaned during responses to this question are shown below.

- *The percentage could have been higher but many of our customers receive alternate rebates through Dayton Power & Light instead.*
- *The majority of our customers are DP&L.*
- *Since Duke is no longer rebating giving the furnace rebates, I have less customers for this.*
- *The percentage was higher in previous years before Duke discontinued offering the rebate for furnaces.*
- *I used to do a lot more Smart Saver rebates but now have all but ceased (unless a customer specifically requests it). The new rebate form requiring model and serial numbers is too time-consuming and not worth the labor.*
- *100% of our residential work was rebated through the program.*
- *We do a lot of new homes that don't do the rebate.*
- *That's an estimate.*

Estimated Customer Awareness of Rebate Prior to Contacting Trade Ally

One quarter (25.3%) of trade allies estimated that fewer than 1 in 10 of their customers were familiar with the Smart Saver program before it was discussed at the point of sale. This compared to only 1.3% of trade allies who felt that 9 out of 10 of their customers had already heard of the program. Overall trade allies reported that an average of slightly more than 1 in 4 customers (mean 28%) were aware of the program. The actual range of trade ally estimates spanned from zero to 100% of customers being aware of the program. A full breakdown is shown in Figure 4 below.

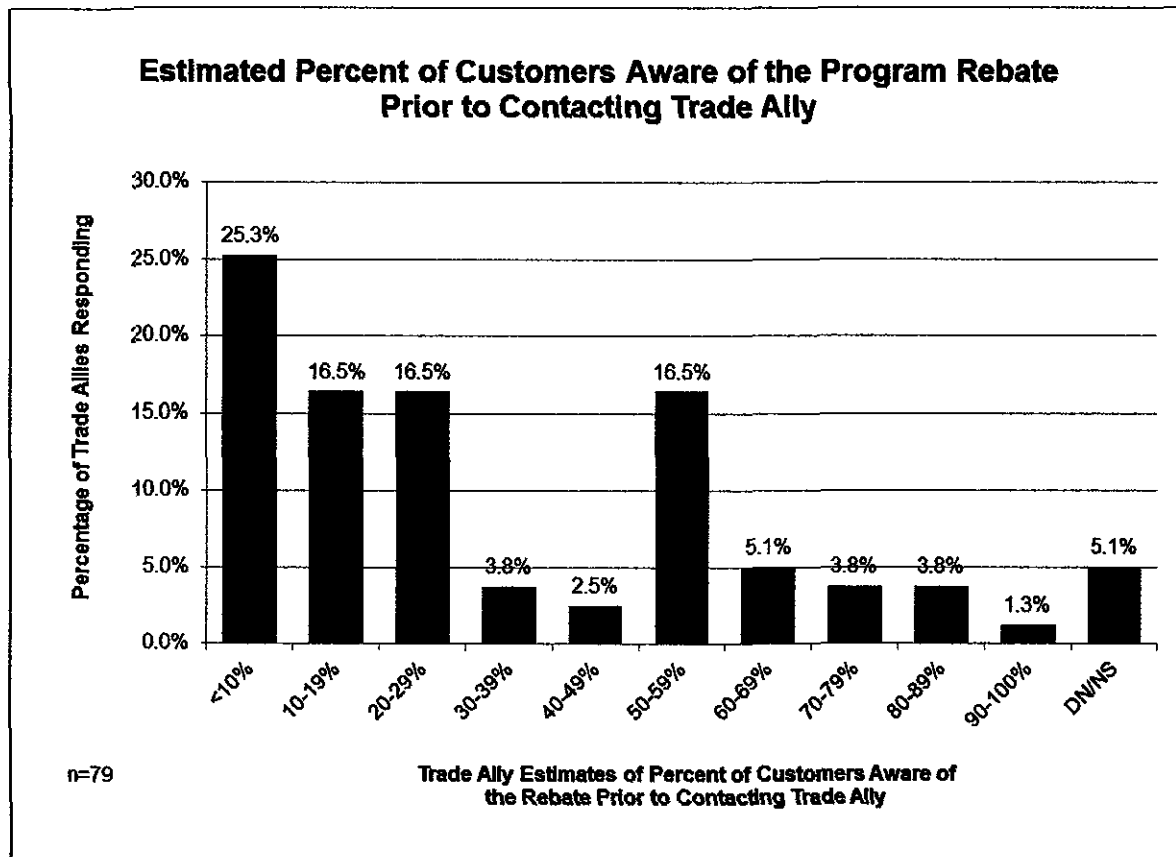


Figure 4. Estimated Customer Awareness of the Program

According to the survey respondents that we spoke with, they consistently reported that they explain the program and the rebate amounts to customers during their sales processes. And the most commonly cited reason for customers being previously aware of the program was that the some other trade ally had previously spoken with the customer. A few trade allies felt that customers were aware of the program due to their own research efforts or due to Duke's Energy's marketing efforts. Their supplemental remarks are listed below.

- *I don't get too many people who ask for it specifically.*
- *I think it's 50/50 on how many people know about the program.*
- *I was able to tell the rest of them that didn't already know about it. We were pleased to be able to offer this as part of the estimate for them.*
- *Most of them we told about it. We give that information along with our package each time.*
- *Most of the time the only way they are aware is if they get multiple bids.*
- *Other trade allies are telling customers who get multiple bids.*
- *People talk with other contractors too.*

- *People have heard about the program and questions about it are pretty common.*
- *Some customers are surprised. Many of the people that are calling in are aware of it.*
- *Some customers could be aware of it, but it doesn't come up since we basically install the units in all our new homes and the customers don't get the rebates. We do.*
- *We do use the rebate as a selling feature. We include it on all bids.*
- *We're seeing more educated buyers looking for higher-end equipment and they've done research usually.*
- *All my customers thoroughly research their options when choosing geothermal units.*
- *When he gives the customers the price estimates, he shows them a list of all the rebates available, so I can't be sure which rebates the customer was already aware of.*
- *Very little.*
- *Maybe.*
- *DK/NS*

Estimated Percentage of Customers Who Would Have Purchased Higher Efficiency Equipment without the Rebate

The Smart Saver program is designed so that trade allies introduce the rebates to customers during the sales process. By presenting the information at the point during which customers are considering making the purchase, the rebates are intended to have maximum influence. To determine how effective the rebates actually are, the survey asked trade allies estimate how many customers they thought would have purchased a high efficiency unit without the rebate. Among those trade allies we spoke with, more than half (51.9%) estimated at 9 out 10 of their customers would have made a similar purchase without the Duke Energy rebate. Trade ally responses actually ranged from 1%-100%. The mean response was 78%, while the median was 90% and the mode was 100%. A full breakdown is shown in Figure 5.

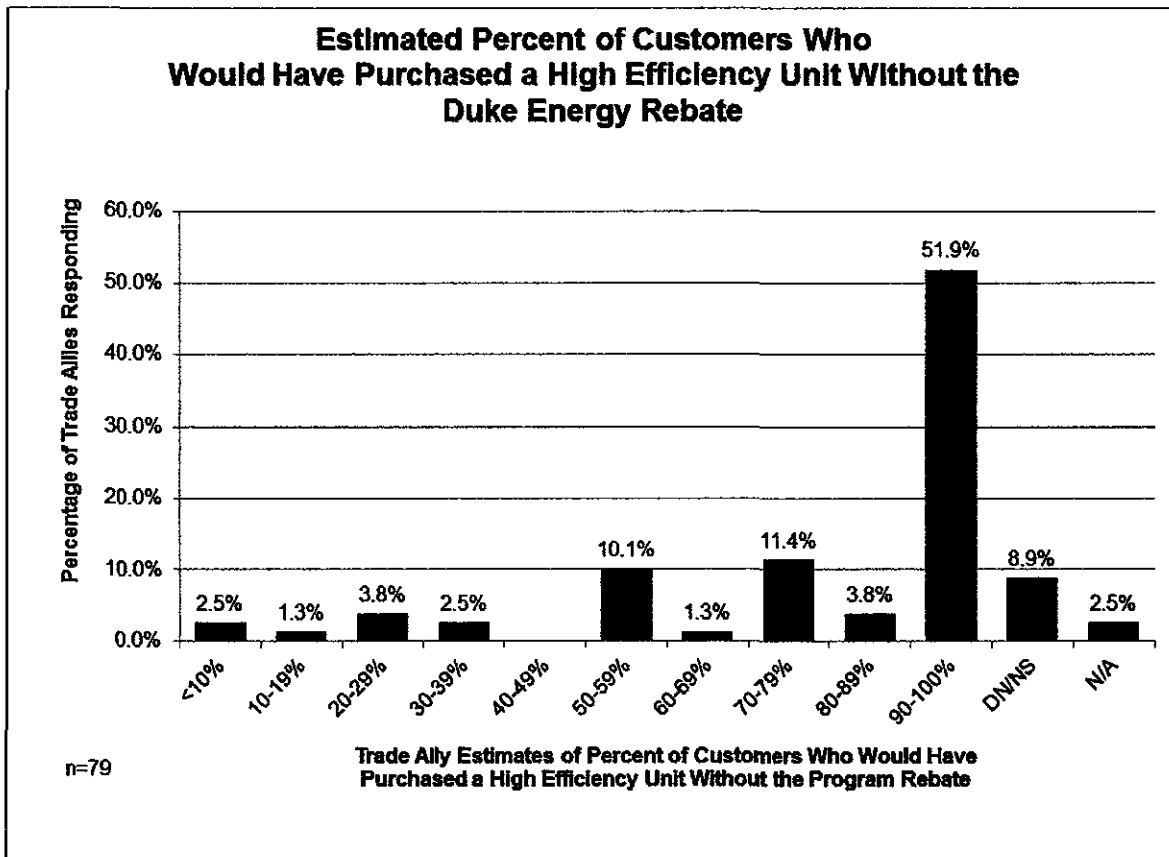


Figure 5. Percent of Customers Who Would Have Purchased without Rebate

This finding makes the program appear to have high freeridership, but there are complicating factors involved, including the availability of other monies from tax credits, manufacturer rebates and other incentives, many of which offer more money than the \$200 offered by Duke Energy. Another factor is that relatively few customers are aware of the rebate (a mean of 28% according to the previous question above) before the trade ally presents it. Moreover, other concurrent factors may be more influential than the rebate including the overall price stated by the trade ally, their company's reputation, the unit's efficiency rating, monthly operating costs, and anticipated monthly savings on their energy bills (see *Factors More Influential than Rebate*). Actual quoted replies are noted below.

- \$200 isn't that much. (2)
- I mean, to me, it's a nice deal, but the \$200 doesn't really make a difference.
- Most of our customers are looking for high efficiency equipment because of our business.
- Not the major selling factor for a lot of these customers.
- Our company only sells high efficient equipment.
- We only have a couple of units that are under 14 SEER.

- *For most of these customers, the high-efficiency equipment is an investment. The rebate is good on top of that.*
- *The rebate helps offset the cost difference between the lower and higher efficiency models. We've noticed that more customers are going with less efficient furnaces since Duke abolished the rebate offer for those.*
- *It depends on what you consider high-efficiency. They would not go to that SEER rating if the rebate wasn't there.*
- *There are other rebates and tax credits, like the Greater Cincinnati Alliance. (2)*
- *My boss is the one who discusses the rebates with customers, so don't see what choices they made.*
- *This is a difficult question to answer. We have 80% furnaces eligible for the program because of our hard winters. We're right on the line, or the border, for offering 80% versus 90%. You go right across the river into Kentucky and it's different. The only time we offer other than 80% is when there's a stainless steel flue in place.*
- *We work only in new construction. We install the same 96% efficient model in all our homes.*
- *All our new homes come with high efficiency units.*
- *All of them.*

Rebate Influence on Customers' Purchase Decisions

Since other factors are also involved in the customer's purchasing decision, we asked trade allies to consider the full context of that decision and then estimate the rebate's influence relative to any other factors involved. Trade allies rated the influence of the rebate on a scale of 1 to 10, with 10 being most influential. More than twenty percent of trade allies (21.6%) rated that influence an 8, and a combined 33.8% rated the influence as an 8, 9, or 10. The mean rating was 6.0 with the range of answers spanning from 1 to 10.

While this finding points to a strong perceived influence from the rebate, it is somewhat at odds with the previous finding to which 52% of trade allies estimated that 9 out of 10 of their customers would have made similar purchases without the rebate. However, TecMarket Works finds that the discrepancy between these two findings may be explained by the relative affluence of the customer base served by the trade allies, with the rebate having less influence more affluent customers compared on those customers of more modest means, as is hinted at in the comments below.

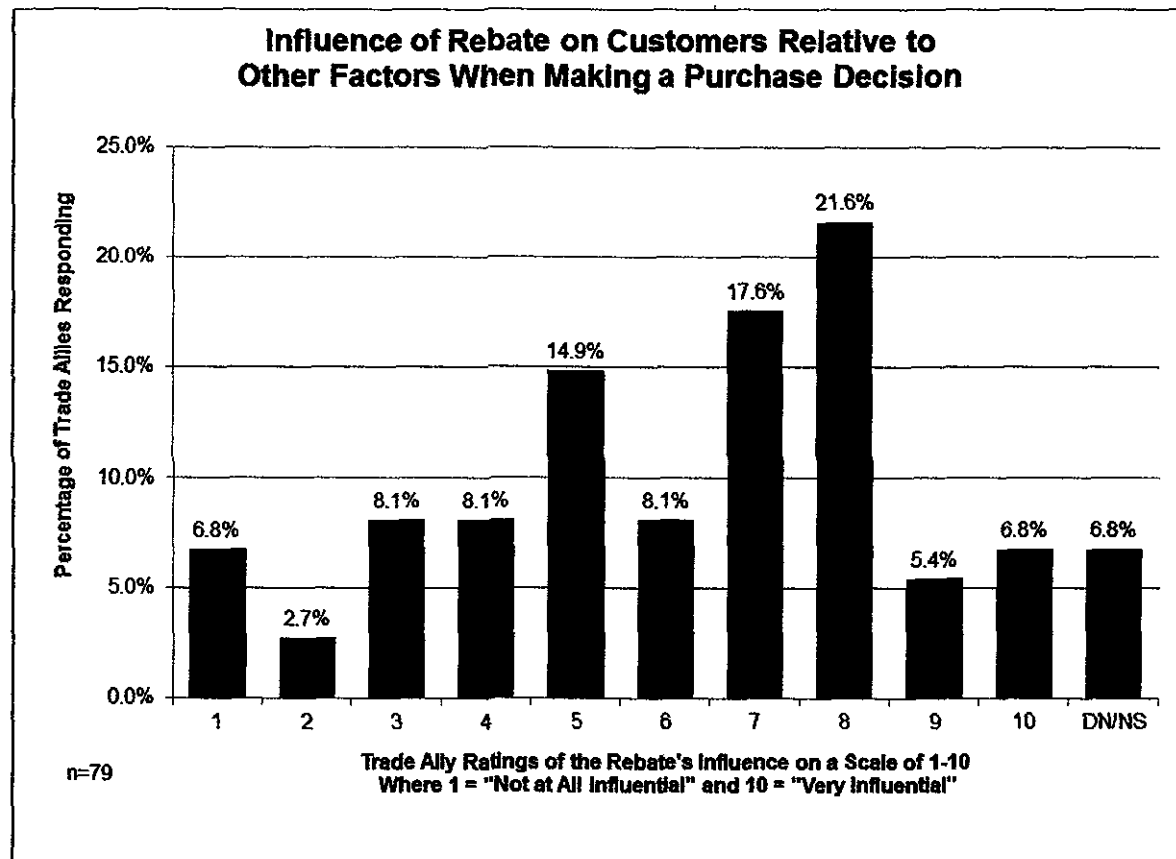


Figure 6. Influence of Rebate on Purchasing Decision

When a response of 7 or lower was provided, survey respondents were asked to explain why they gave that rating. Their replies are listed below.

- *Rebates are pivotal for reinforcing the belief in the importance of high efficiency.*
- *More last year than this year. Last year that would have been an 8 or 9.*
- *Most customers are going with high efficiency models regardless of the rebate, though it is a nice perk.*
- *Everyone likes to get money back.*
- *A lot of people look at that and contemplate, but if their money isn't straight, or they can't get financing, they drop down to the lower unit. But, it usually sparks their interest and drives them to do more research.*
- *The rebate could be more influential if the dollar amount was higher and especially if furnaces were again covered by the program.*
- *The rebate can be influential, because it usually pertains to more expensive equipment.*
- *The rebate can be influential, especially if the step up to the next higher SEER rating costs \$500 and the Duke rebate reduces that cost by almost half.*

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- *It's money back in their pockets and it's an instant rebate.*
- *We see a lot of people wanting to see the energy efficient products in their home. They specifically ask for energy efficient products.*
- *It's a good financial incentive, but not the deciding factor.*
- *There are other factors.*
- *Sometimes the customers tend to lean more towards short term savings rather than thinking long term.*
- *The amount of the rebate is rather small so it isn't a huge factor in customers' decision making process.*
- *The rebate can be a nice selling point but it is only \$200, which is merely a drop in the bucket in the overall purchase price.*
- *I figure that at that point in the game, the rebate probably just pushes them over the edge. They're going to spend that money anyway.*
- *Other factors in the mix.*
- *So many other rebates.*
- *It's something anyway.*
- *Duke used to offer a higher rebates for furnaces and heat pumps. The current amount of the rebate isn't high enough to influence a customer's decision-making process.*
- *Customers know that by purchasing a new heating unit that they can still save on their monthly utility costs, even if they don't purchase a high efficiency model.*
- *Most customers need a new system anyways, so the rebate is just a little additional bonus.*
- *People like to get money back, plus the efficiency of the new unit is a selling point.*
- *A lot of people don't know about it unless I tell them about it. Some of them say, 'I get a rebate, that's great', but they're not one way or another about it, they want it.*
- *The people considering a high-efficiency unit would purchase them regardless. The rebate is only an added incentive.*
- *The rebate does seem to be influential. My customers appreciate it.*
- *It only adds a few hundred dollars.*
- *Price is most important and other incentives are more money.*
- *We sell only York brand.*
- *In the grand scheme of things, after considering the replacement cost of these units, a \$200-400 rebate isn't very influential.*
- *My customers have already decided on what system to get and the small amount of the Duke rebate is just icing on the cake.*

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- *It made a difference on a package deal when they covered the gas. It was more of an incentive then. There's so many restrictions on it now, it doesn't apply to as many of my customers.*
- *Rebates are not really on people's minds.*
- *Our customers tend to purchase from us based more on our reputation, knowledge, and quality of service.*
- *Obviously, \$200 or \$300 is not the deciding factor when considering a \$5,000 purchase, but the rebate helps.*
- *Customers are more influenced by the long term operating costs of the equipment. The majority have already decided they were going with high efficiency models and the rebate was merely a bonus.*
- *It's only \$200. When my customers are spending \$5,000, \$8,000, \$10,000, this rebate is a drop in the bucket.*
- *When they weight the overall cost against the time to recover those cost, the efficient units are not worth the money for most of my customers. I just don't push customers toward more efficient units. In the long-term, it's better for Duke because they're running out of energy, but I look out for my customers.*
- *When they figure out they can get the rebate, it's something they've come to expect. As soon as hear about it, they realize it's something everyone can get and it becomes an expectation rather than a motivation. Nobody wants to buy a furnace. The only people who are buying furnaces are people who have to buy furnaces. Eight out of ten furnaces already have flue pipes from 90% furnaces.*
- *The rebate isn't large enough to be influential at all.*
- *A lot of it has to do with the dollar amount of the rebate. When you're talking about a purchase based on dollar amount, such as a \$5,000 or \$6,000 set up, or a \$16,000 solar system, \$200 or \$300 is a drop in the bucket. This rebate probably has minimal influence.*
- *There is no rebate benefit to the customer as far as new construction goes.*
- *Due to the higher demands of the latest rebate form, we do not process Smart Saver rebates unless the customer specifically requests it.*
- *Because \$200 is nothing when you're talking \$10,000 to \$15,000 jobs. It's a very poor dollar amount to talk about.*
- *They're purchasing the whole new home and the furnace and rebate are too small to be relevant.*
- *Overall purchase price is the most influential factor.*
- *I have ceased promoting the program.*
- *It's hard to say because high rebate incentive Alliant and Greater Cincinnati were offering up to \$4000 at one point, which had a lot more influence than the \$200. We offer the customer all of the rebates as part of a package.*

Some survey respondents who gave responses of 8 or higher also volunteered additional information with their answers. Their feedback was as follows.

- *Our customers are looking to save money wherever they can, so the rebate is influential.*
- *When customers are informed of the rebate they tend to go with it.*
- *Customers like rebates.*
- *People appreciate the \$200 savings.*
- *We mention on quotes, but other rebates are also a factor.*
- *The rebate helps cover the cost difference between lower and higher efficiency models.*
- *Customers love getting money back, be it from Duke, or the government, or the equipment manufacturer.*
- *I think anything that saves a customer money can be influential.*
- *Most people, when you tell them they'll get a rebate, they say to go for it. That way, they get a little something back.*
- *Any mention of a rebate, no matter how small, seems to trigger a positive response in customers.*
- *People like getting money back in the form of rebates.*
- *Once a customer hears about the rebate they typically go for it unless they don't have enough funds to afford a high efficiency unit.*
- *It helps, it definitely helps.*
- *The rebate i.e. getting money back is helpful.*
- *Customers are typically buying new units out of necessity and they appreciate the rebate.*
- *We work only on new construction projects.*
- *The rebate is a nice perk for a lot of customers.*

Factors More Influential than Rebate

The survey followed up with a question asking trade allies to list any factors that they felt were more influential than the rebate. The most popularly cited factor was the overall purchase price (36.7%). This was followed closely by trade ally reputations (31.6%) for quality service, often backed by positive word of mouth referrals. These top two responses were succeeded by four additional financial motivations that combine to total 64.6%, including: efficiency rating (19%), tax credits (17.7%), monthly bill reduction (15.2%) and equipment operating cost (12.7%). Figure 7 shows all factors considered by trade allies to be more important than the rebate.

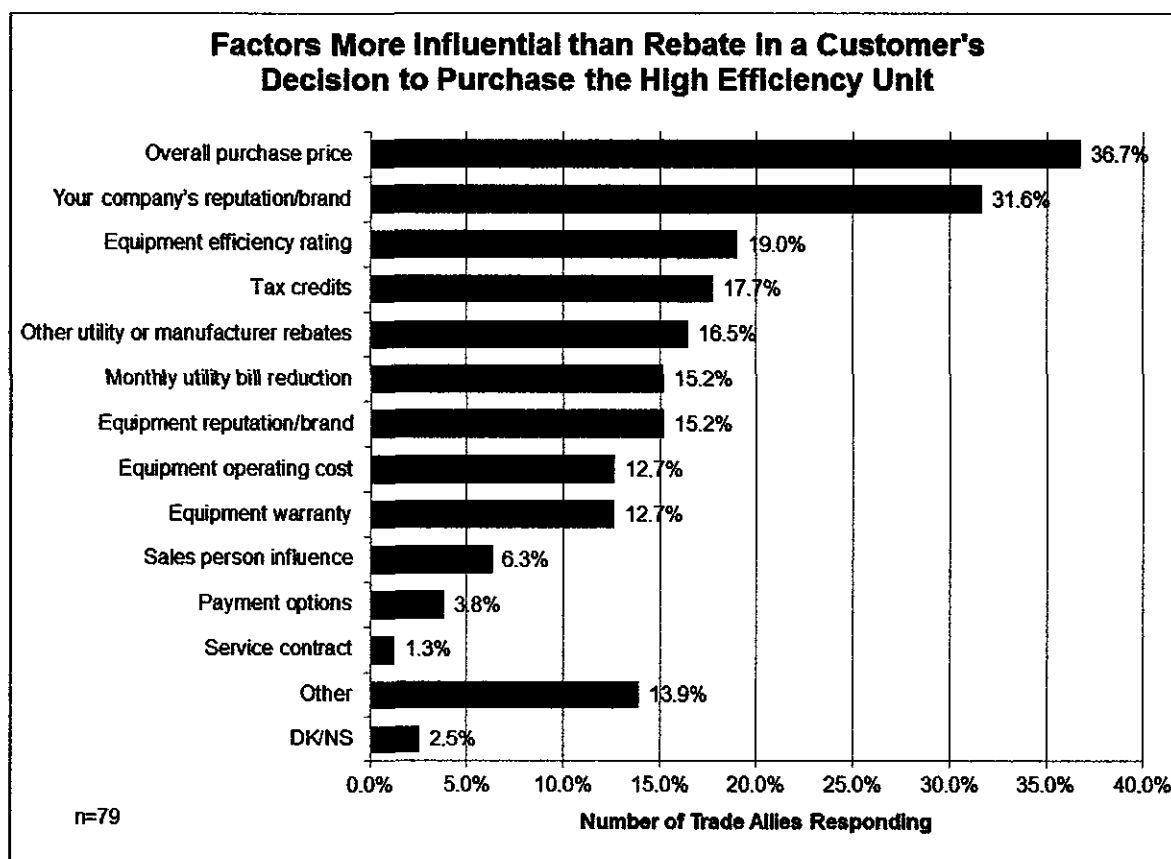


Figure 7. Factors More Influential than Rebate

Fourteen percent (13.9%) of survey respondents provided an "Other" response. The most common responses mentioned the quieter operations of the new units and the overall comfort levels the new units provide. Specific responses consisted of the following:

- *Comfort. (2)*
- *Quieter unit. (2)*
- *Air quality and evenness of the temperatures, the humid level.*
- *The comfort and quiet operation that a new HVAC unit provides.*
- *Unit reliability.*
- *Perceived value.*
- *There's been a lot of advances made in the equipment in the last 10 years, so more modern features.*
- *Purchasing a highly efficient model tends to empower the customer and makes them feel good.*
- *We create new construction and our customers are more concerned with other things such as kitchens, bathrooms, etc.*

Estimated Percent Customers Who Opt for Lower Efficiency Unit after Learning of Rebate

One way to calculate the effectiveness of the \$200 rebate is to consider how many customers do not take advantage of it once they are made aware of the opportunity. When we asked the trade allies this question 27.8% of them estimated that fewer than 10 percent of their customers opted for the lower efficiency unit after learning about the rebate. Overall, they estimated an average of 23% of their customers opted for a lower efficiency unit. Stated conversely, this shows that trade allies estimate that an average of 77% of customers select the higher efficiency equipment after learning about Duke Energy's \$200 rebate offer. A full display of the findings is shown in Figure 8 below.

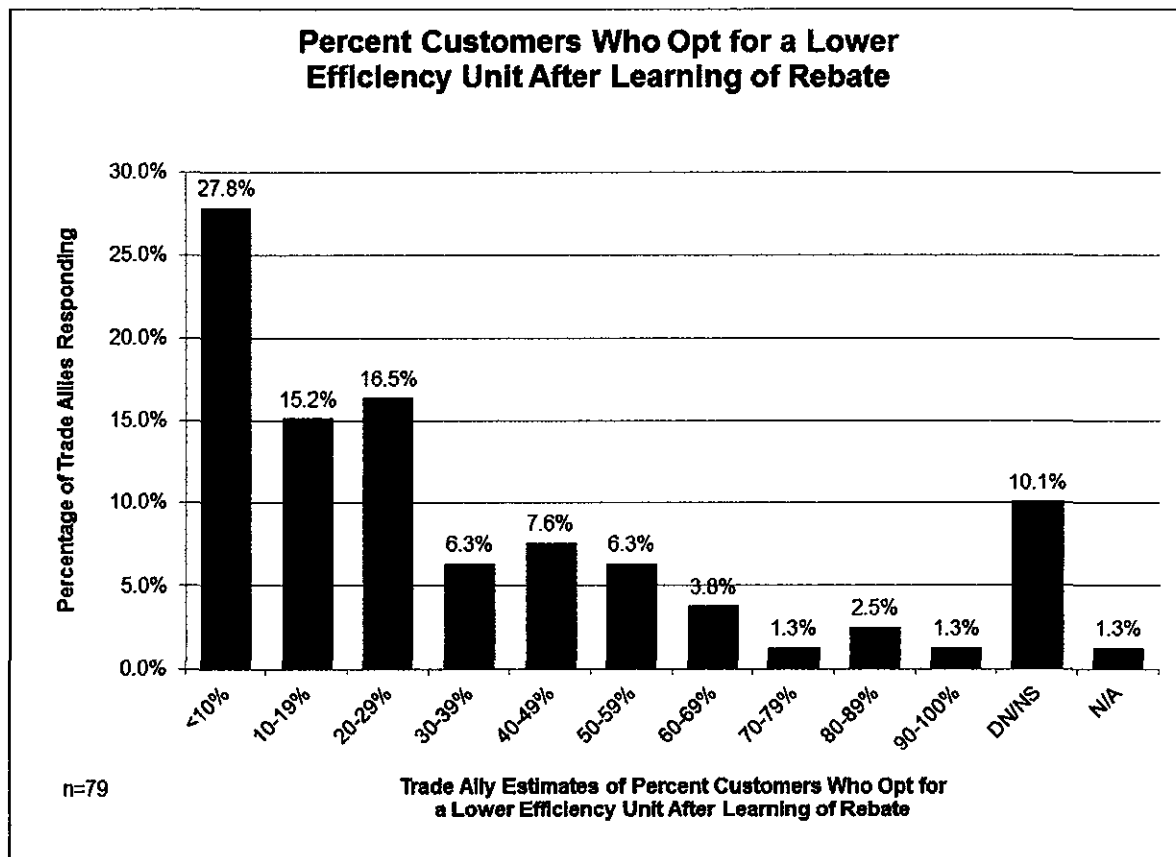


Figure 8. Percent of Customer Opting for Lower Efficiency Unit

As noted in the previous survey question, the final purchase cost of the new units was a primary motivating factor among price-conscious customers, particularly among those customers who feel they are stretching themselves financially and among landlords buying new or replacement units for their rental properties. This and other feedback is noted below.

- *A lot of it just deals with the cost. I mean, I'm an employee and I went for a 15 SEER instead of a 16 SEER because of the price difference.*

- *And, going for the less expensive option is not just happening with rental properties. I've seen an increase in this.*
- *If someone is only replacing the AC they won't be concerned with high efficiency if they don't have an ECM motor. Other than that it's mostly rental units.*
- *If they can afford the higher efficiency units they buy them.*
- *It would depend on the cost. Once the high-efficiency equipment is already in there, it would be hard for the customer to pay more to replace it with a different, lower-efficiency model.*
- *It's harder to qualify for just an AC unit with an existing furnace.*
- *It's very low.*
- *Most of the people were older people wanted the cheapest priced equipment they could get. They're retired and don't want to have to replace the units. They wanted something that would last.*
- *Mostly driven by cost.*
- *My boss is the one who discusses the rebates with customers, so I don't see what choices they made.*
- *Probably.*
- *Rental properties won't put in the highest quality equipment.*
- *Some customers just have to put in what they can afford.*
- *The rare exception to installing high efficiency units would be if a customer didn't want one and specified it. It's very rare but not quite zero.*
- *There's a big segment that will go with the cheapest thing they can get.*
- *We don't offer our customers a choice in the type of unit we install.*
- *We install high efficiency models and don't typically offer our customers a choice.*
- *We still have a lot of 13 SEER replacements on AC units.*
- *When they weight the overall cost against the time to recover those cost, the efficient units are not worth the money for most of my customers. I just don't push customers toward more efficient units. In the long-term, it's better for Duke because they're running out of energy, but I look out for my customers.*

Helpfulness of Rebate for Selling High Efficiency Equipment

Next we asked trade allies to use a similar 1 to 10 scale to rate how helpful the rebate is to their company's ability to sell higher efficiency equipment. A sizable 21.5% of trade allies rated the rebate with a top two box score of 9 or 10, and a combined 58.3% rated the rebate's helpfulness as a 7 or higher. The mean response was 6.6. Thus, even though some trade allies felt that the \$200 customer incentive was fairly small compared to the overall purchase price, they nonetheless found the rebate to be helpful in completing the sale of high efficiency units.

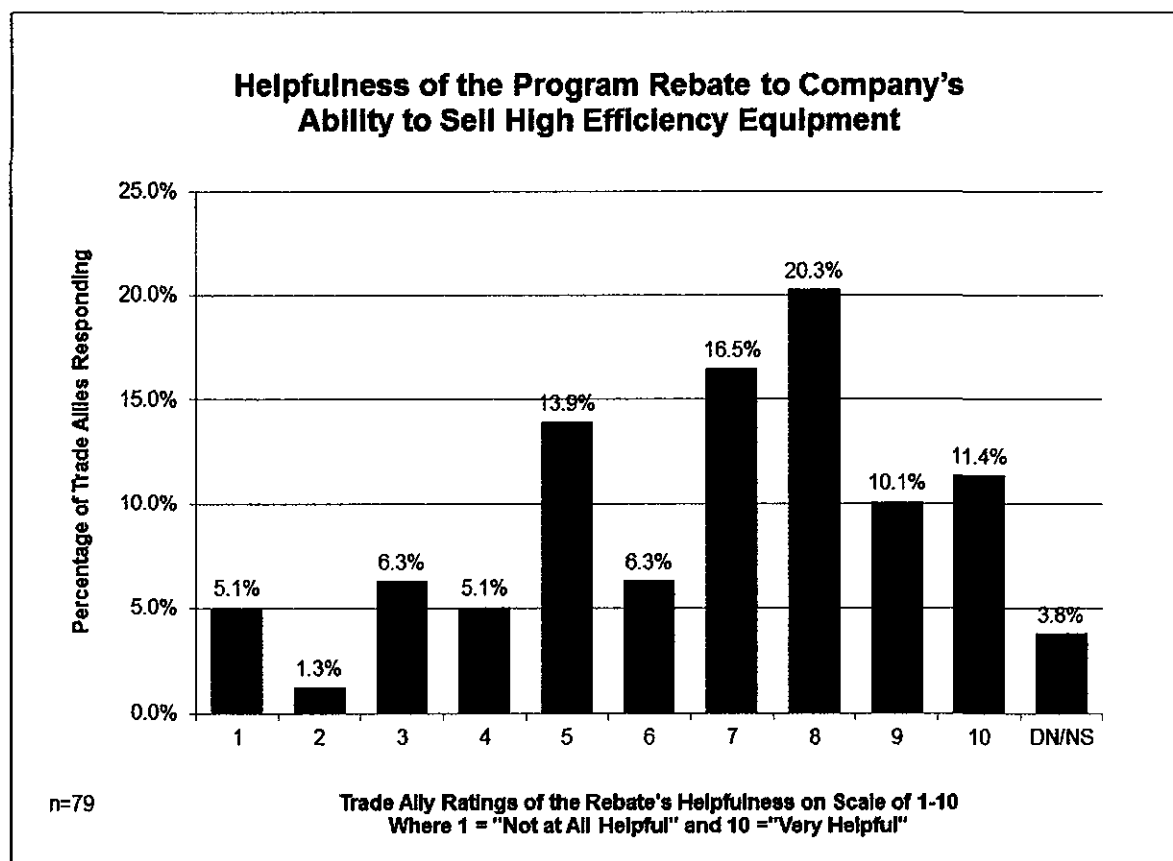


Figure 9. Helpfulness of Rebate for Selling High Efficiency Equipment

Those who provided responses of 7 or less provided the following reasons for their scores.

- *It just adds to help offset the costs.*
- *The ability to offer rebates is helpful in sales.*
- *It is helpful because customers like saving money.*
- *The rebate is helpful because it can supply that extra little incentive for a customer to purchase a more energy efficient unit.*
- *Anytime a customer can save some money is a plus. Many of our customers are not supplied by Duke Energy.*
- *Anytime you can tell someone they'll get money back is helpful.*
- *You're able to peak their interest with it or usually sell them on the furnace when you can show them there's a rebate available.*
- *Customers always want something back. Anything you can give them extra, it really does help. The rebate no longer covers gas furnaces, so that makes a difference.*
- *The rebate is helpful, especially when a customer is already thinking about purchasing high efficient equipment.*

- *It's helpful. It's nice to just be able to knock it off the top, so they can see a savings right away.*
- *The rebate helps show people the immediate and long term cost savings associated with purchasing a higher efficiency model.*
- *Part of our business profile is to encourage high efficiency equipment. Incentives are also nice for us and the customers.*
- *It adds to the other rebates.*
- *\$200 doesn't make up a \$1000 price spread to the more efficient equipment.*
- *Last year it would be a 7 because we can't get some of the equipment covered that we'd like.*
- *I think that if they can see some return on their investment, that's really the most influential factor. But, anything to help offset the cost really helps and it can really make a difference on an \$800 system.*
- *I listen to feedback from my customers and they do seem to appreciate the rebate.*
- *It helps but other things help more. Although it used useful for showing the importance of high efficiency*
- *The low amount of the rebate isn't much of a selling point.*
- *I'd say that the biggest selling points are laws requiring high efficiency models, unit longevity, and then the rebate.*
- *The \$200 rebate is a nice bonus that can help sway customers towards higher efficiency units.*
- *If it was just on more expensive equipment, such as a \$2000 system, that \$200 doesn't make much of a difference. But, as part of a package of incentives we can offer, it works. The customer's always going to be glad to get a little something back.*
- *People don't know about the program. We didn't even know the program was out there until we were told by a customer a couple of years ago. We weren't informed by Duke. And, do I have time to search the web and find this information? No.*
- *The efficiency rating of the unit seems to be more influential than the rebate.*
- *That's just the way my company is; we sell high-efficiency equipment.*
- *The biggest reason was the tax incentive, The Duke rebate was the cherry on top, so it was nice to be able to offer it, but the real influence was getting something back on their taxes.*
- *We don't understand it that well, all the information they ask for, and it's very time-consuming.*
- *Duke's isn't that big of a rebate.*
- *The amount of the rebate is quite small compared with the overall purchase price. It doesn't affect sales very much.*

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- *It made a difference on a package deal when they the covered the gas. It was more of an incentive. There's so many restrictions on it now, it doesn't apply to as many of my customers*
- *It's not that much money.*
- *Most people really aren't that concerned about it. They're more concerned with the end price, the out-of-pocket. Most people would have a really hard time realizing the cost over time for a higher efficiency unit. I tend to be much more honest with my customers and I don't push them to purchase the higher-efficiency units when they can't afford them.*
- *People would rather the rebate were immediate rather than taking several weeks to process.*
- *If they're looking for high efficiency stuff, they're not dying for that \$200 to \$300 rebate.*
- *If you could spend twice the money for a top of the line furnace, what's \$200 to you?*
- *I don't think the rebate is all that helpful because most people are predetermined to purchase high efficiency equipment.*
- *High efficiency furnaces should again qualify for the program. The amount of the incentive could be made proportionately larger for higher efficiency models.*
- *The Federal government offers a higher incentive, so that is more helpful.*
- *I'm no longer actively promoting the program.*
- *As a builder of new construction, we decide what type of unit goes into the homes we build.*
- *The rebate is no help at all. I had forgotten that it even existed. My customers, primarily landlords, are more concerned with the upfront cost of the unit rather than long term energy efficiency.*
- *It's not a factor since we get all the rebate dollars.*
- *I am not a salesperson.*
- *From 2008 to 2011 the rebate was very helpful, but the latest rebate form isn't worth the labor and hassle for us to process it.*

Those who offered scores of 8 or higher provided the following additional comments.

- *Anything that helps make the sale is appreciated.*
- *The rebate isn't the main factor but it does have some influence on people's decision-making process.*
- *Customers appreciate getting a little money back in the form of a rebate.*
- *The rebate is helpful because it helps lower the cost of the unit, which is a great selling point.*
- *If they need it, they're going to get it, but it's nice to be able to offer the rebate. It's the icing on the cake, so to speak. They get a little something back, which helps.*

- *When searching for trade allies on the Duke website using zip code, the resulting list should be alphabetized rather than in nonsensical random order.*
- *The Duke rebate and government tax credits are very helpful. I used to sell more equipment when the rebate was higher. Re-institute the rebate offer for high efficient furnaces.*
- *The amount of the rebate often nearly makes up for the difference in cost for buying the next higher efficiency model.*
- *I never had any problems with it. Keep it on.*
- *When gas furnaces were receiving rebates last year that added a greater incentive.*
- *It's a 9, but that's part of the package as a whole. It makes a difference and people are thrilled that Duke gives them a check and not a credit on their bills.*
- *I know people enjoy anything they can get back.*
- *The rebate can be very helpful in persuading people that are 'on the fence' over which model to purchase.*
- *Any money back offers are helpful. The high quality of the energy efficient models is a key selling point also.*
- *The rebate is helpful in persuading people to get the more efficient ECM air circulation blower.*
- *The rebate is very helpful because people are always looking for ways to save money.*
- *It's definitely helpful. I've definitely had customers compare the 80% versus the 90% and the rebate helps them make that decision.*
- *Being able to offer the rebate is an attractive bonus. Duke should reinstate the furnace rebate because they're the most impactful, energy-wise.*
- *The rebate is helpful because it reduces the overall cost of the unit.*
- *It's just a shame it's gone away.*
- *It is a definite benefit and one of the foremost things they wanted, the people who already knew about the program.*
- *Anytime a customer can get a little money back is a good thing.*
- *If someone is on the fence over which model to choose the rebate can often be the deciding factor.*

Trade Ally Satisfaction with the Program

Overall trade allies are satisfied with the program, despite the number of suggestions that they offered in the *Trade Ally Interviews* section above. Survey respondents returned a mean satisfaction rating of 7.8. Most notably, 40.5% rated the program a 10 and a combined 67.1% giving the program a score of 8, 9, or 10 as shown in the figure below.

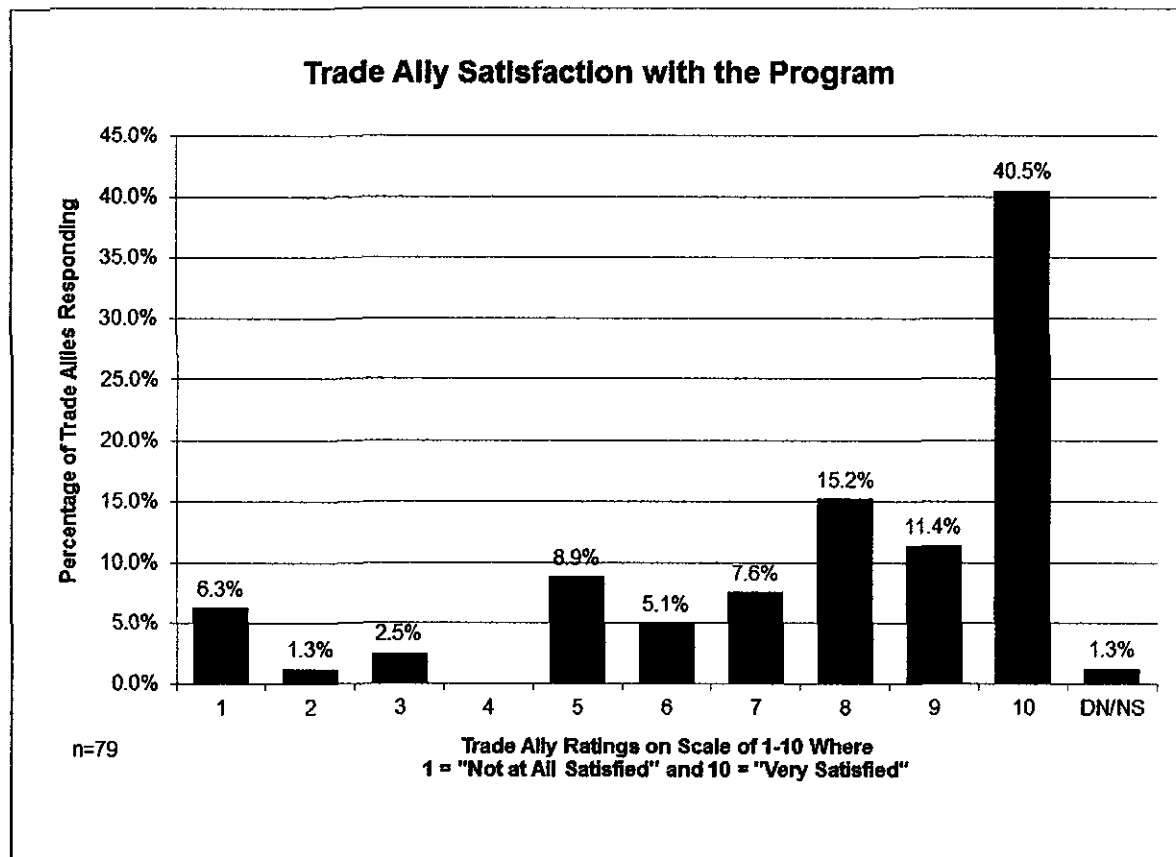


Figure 10. Trade Ally Satisfaction with Program

Difficulty with the rebate applications and associated paperwork was the most commonly cited reason among those who provided lower scores. Other reasons included the need to re-register for the program, difficulty using the web portal, difficulty obtaining help via telephone, response time to email inquiries, and dropping the gas furnace rebates. A list of verbatim replies is shown below.

Scores of 7 or Less

- *It's only a 7 since they've discontinued the gas units.*
- *The forms and a few glitches in getting the rebates bring it down to a 7.*
- *The program was better when it offered rebates for furnaces, heat pumps, AND air conditioners. Also, I disliked rebate process because it lacked information and appropriate feedback in cases when the form wasn't submitted correctly.*
- *It's been a learning process and there's been a lot of rejected applications because of changes. But, customer service in Georgia has been awesome; they're very patient and attentive. It's not their fault that we're having to touch something two or three times on our end.*

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- *One, the application is not that simple to get through, and two, the large equipment doesn't qualify, like equipment with a 16 SEER rating. So, I tell my customers about the rebate only to have to come back to them and tell them it didn't qualify.*
- *They cut the commission in half and doubled the paperwork.*
- *For some reason I needed to re-register as a trade ally with Duke. This laborious process required 12 phone calls and 2 emails.*
- *It's only a five because they dropped the gas rebates.*
- *I don't understand why Duke lowered the amount of the rebate.*
- *The Duke website for submitting Smart Saver rebates is outdated and lacks clear instructions and information. I had to call customer service to get help.*
- *The information is not clear on the website about how the customer will receive the rebate. The paperwork instructions could be clarified.*
- *Because of all the paperwork and it's very time-consuming.*
- *I wish the rebate for A/C was higher because once they see what they'll have to spend on equipment related to the furnace, and how it's often connected to their A/C, then realize they should replace the A/C as well, they choose a lower-efficiency A/C unit to help keep the cost lower. The rebate doesn't provide enough incentive.*
- *I just think it's a lot of hoops and stuff to jump through. You've got people like myself who aren't HVAC installers who are try to figure out what the AHRI is for the systems. A lot of times, I don't know what the systems that are being removed, like I don't know type of coil, A/C, furnace, or whatever that proves that the new furnace is an upgrade. I have to get on the guys to give me information before they take the units that are removed for recycle. It's really frustrating.*
- *Duke could improve its customer service. For example; one phone inquiry transferred me 5 or 6 times. Also, there was confusion over which fax number is correct to submit rebate forms through. The latest rebate form requires too much information, a lot of which seems personal and/or proprietary.*
- *This current year I am quite dissatisfied with the program. The second page of the rebate application is cumbersome. Also, eliminate the need for a copy of the paid invoice. The employees that process the applications need to use more common sense.*
- *The old rebate form, in its ease and simplicity, was much better. The new form requires too much information and seems intrusive about the proprietary operations of our business.*
- *Last year, when I was doing the program, it was no problem. This year, I didn't even know we were knocked off the program as of the first of January. I had to reapply and I'm still not sure if we're part of the program. I don't like the new forms. The forms are much longer and they want more information than what's necessary. If we're sending a AHRI certificate along with the information, what more should they need? I've called the Smart Saver Program three times with my concerns and have yet to receive a call back. I've given them ample time to get a hold of me and have heard nothing. I don't know what's*

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happening and I haven't even put in anything for the last two months because I haven't heard anything and don't know if we're part of the program anymore. It's pretty sad, isn't it? I wonder how many other companies don't realize that they've been knocked off the list. This is why I'm so dissatisfied.

- *I was much more satisfied before Duke discontinued the furnace rebate.*
- *The amount of the rebate is too small and I dislike doing the paperwork.*

Scores of 8 or Higher

- *I'd really give it an 8.5. Now it's just more cumbersome than it was before.*
- *The program is hassle-free and the customers appreciate the rebate.*
- *The rebate process for new installs is smooth and the \$100 incentives are nice.*
- *I preferred the simplicity of the old rebate form. The new rebate form is too complex; requiring unnecessary information. What is the purpose of asking for the serial # off a 30 year old furnace?*
- *I appreciate the program but it should include more types of equipment and make the form submission process easier.*
- *I have always been treated well and have never had any problems with the program.*
- *We like the program, but the latest rebate form is too confusing. It was better before when it was all on one page. Duke could also be quicker to respond to inquiries. It shouldn't take 1-2 weeks to receive a response to an email.*
- *The rebate form can be challenging, requiring model and serial numbers. It's hard to keep up with all the information supplied by our manufacturers and the requests from Duke.*
- *It's not quite a perfect 10 since there was a learning curve with the new paperwork.*
- *Overall I like it, but I'd like an easier process for submitting the data. Online is easier than faxing, but still it's a pain.*
- *I am satisfied, though the program has become more intrusive, requiring more documentation. Also, the new online form submission process keeps erring out and needs to be fixed.*
- *The program has steadily improved though it could provide more education about any changes so that customers are more clearly informed as to what qualifies and what they can expect to receive.*
- *I am very satisfied. In fact we just re-applied with Duke to continue offering the program.'*
- *I have been working with the program for a couple years and think it's great. There have been steady improvements made to it over that time.*
- *The forms aren't that easy.*
- *I am very satisfied because the rebate form submission process (via mail) is easy.*

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- *I am very satisfied because the rebate offer helps us make sales.*
- *I don't have any problems with the program though I did prefer the old rebate form more than the newer one.*
- *The rebates help us sell the equipment.*
- *I am very satisfied because I enjoy participating in the program and getting money back.*
- *The program is easy to use and we get money back.*
- *The rebate helps the consumer to get a little something back and helps us to sell them. Everybody likes to get money.*
- *It's something you guys don't have to do and it's definitely good customer relations.*
- *I never have to deal with Duke Energy after sending in the paperwork. The process is simple and the customers really hate getting the post-inspections from DP&L, which Duke Energy doesn't do. I mean, it doesn't really bother us, but customers really don't like being inspected.*
- *We are very satisfied because Duke is quick to respond to inquiries and they work well with us.*
- *I love the program but the paperwork could be improved. The little checkbox squares are too small and the entire form should be on one page.*
- *When I submit it, they pay it. It's not a big deal. Their forms could be a little easier.*
- *I am very satisfied with the program and my customers appreciate the rebates.*
- *I am very satisfied because I have never had any problems with the program and it helps increase business.*
- *I am very satisfied because the program is easy to participate in.*
- *I am very satisfied because the program is very user friendly, though I did have difficulties finding out who my proper Duke contact person was when we started doing Commercial rebates.*
- *The program is quick, easy, and it's a good selling point.*
- *I never had any problems with it. I would like to see that come back. I was very disappointed to see it go. It was a nice incentive.*
- *It's a nice program.*
- *I have never had any problems with the program.*
- *They've improved quite significantly since they first started offering the program. Way back when, they were just terrible. If you didn't dot an 'i' or cross a 't,' they threw out your application and didn't notify you that they were doing it.*
- *I am very satisfied because the program is easy to use online.*
- *Form works well for us now that we figured out the unit they want is the coil and not the furnace. We'd like a one page form though. They told us what we need so that's good.*

Evaluation Findings and Survey Recommendations

Evaluation Findings

According to the trade allies we spoke with, a near majority (47%) indicated that they filed less than 20 rebate applications per year, while 20% of trade allies filed 100 or more per year, including one trade ally that filed 1,302 rebate applications. The median number of applications filed was 20. Some trade allies reported that their rebate volumes had waned since the rebates for gas furnaces in Ohio had been eliminated.

Roughly an even amount customers were replacing failed units versus still functioning units. The distribution differences appeared to be influenced by the levels of income in the communities that the trade allies worked in, with less affluent customers preferring to wait until their units failed while more affluent customers were more inclined to opt for upgrades of still functioning equipment. A small number of trade allies dealt in new construction and thus were not involved with replacements.

When asked to estimate the percentage of their efficiency sales that were rebated through the program, trade ally responses spanned the spectrum from 1% to 100%. Distribution was skewed toward both ends of the spectrum with 30% of respondents rebating at least 9 out of 10 high efficiency units, while more than a third of trade allied filed applications for fewer than 3 in 10 of their high efficiency sales. Reasons for this included working predominantly in other utility service areas; the elimination of the furnace rebate hurt their applications numbers; and a dislike for the new rebate paperwork.

Trade allies generally felt that customer awareness of the program was low (mean estimated awareness of 28%). Most trade allies said that they regularly mention every rebate and tax credit available. So if a customer was not aware of Duke Energy's offering before talking with one trade ally, then they were aware by the time of they received a bid from the next trade ally they spoke with. A few trade allies mentioned that their customers knew about the program because they "did their research in advance," particularly when considering heat pumps.

A majority (52%) of trade allies estimated at 9 out 10 of their customers would have made a similar purchase without the Duke Energy rebate. This finding makes the program appear to have high freeridership, but there are complicating factors involved, including monies from other incentives, limited customer awareness of the rebate's existence, and offsetting findings from other survey questions, including those noted in the paragraph below.

Nearly one third (32%) of trade allies scored the influence of the rebate on customer purchases of high efficiency equipment as an 8, 9, or 10. Other factors considered more influential than the rebate included: the final purchase price, the reputation of the trade ally, the unit's efficiency rating, potential monthly bill reductions, and operating costs for equipment.

Twenty one percent of trade allies ranked the helpfulness of the rebate for making a high efficiency sale with a 9 or 10, and a combined 58% rated the rebate's helpfulness as a 7 or higher. Trade allies estimated that few than one quarter (23%) of their customers had opted for a lower efficiency unit after learning of the rebate.

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Although trade ally representatives and phone support providers scored well in the interview section above, their timeliness and responsiveness to customer requests were cited among reasons for dissatisfaction among survey participants. Nonetheless, overall trade allies report that they are satisfied with the program, with two thirds (67%) rating the program an 8, 9 or 10, and rendering a mean satisfaction score of 7.8. Difficulty of paperwork was the primary reason cited for diminished scores. Other reasons included the need to re-register for the program, difficulty using the web portal, difficulty obtaining help via telephone, response time to email inquiries, and dropping the gas furnace rebates.

Recommendations

Based upon the above mentioned survey findings TecMarket Works recommends the following:

- Simplification of the rebate application— or at least better explanations about what is required and why— may help to improve satisfaction among trade allies. It may also increase rebate levels since a small number of trade allies reported discontinuing their participation due to their dislike of the new paperwork.

Participant Surveys

Participation in Duke Energy's HVAC Smart \$aver Program

As indicated in Table 4, about half of surveyed participants in Ohio and Kentucky received rebates for installing heat pumps (50.3% or 81 out of 161) and about half received rebates for central air conditioning (49.7% or 80 out of 161), due to quotas established to interview at least 80 customers who received rebates for each type of cooling unit. By state, 15.5% (25 out of 161) of surveyed participants live in Kentucky and 84.5% (136 out of 161) live in Ohio. All surveyed participants in Ohio and Kentucky received one rebate per household.

Table 4. Rebated Units Installed by Participants by State

Participants by unit installed	Ohio Participants (N=136)		Kentucky Participants (N=25)		All Surveyed Participants (N=161)	
	N	%	N	%	N	%
Installed Heat Pump	71	52.2%	10	40.0%	81	50.3%
Installed Central Air Conditioning	65	47.8%	15	60.0%	80	49.7%

Awareness of the Smart \$aver Program

All surveyed customers in Ohio and Kentucky recall participating in the Smart \$aver HVAC program (100% or 161 out of 161); this was a requirement for participating in the survey.

As Table 5 indicates, overall about three-quarters of participants first found out about this program from a contractor or salesperson (78.9% or 127 out of 161). Another 13.0% (21 out of 161) learned about the program through brochures from Duke Energy, and 5.6% (9 out of 161) became aware of the program via the Duke Energy website. Compared to those who installed central air conditioning, customers who received rebates for installing heat pumps are more likely to mention the website (8.6% or 7 out of 81) and work experience (3.7% or 3 out of 81), and are less likely to mention trade allies (69.1% or 56 out of 81; all differences significant at $p < .05$ using student's t-test).

Table 5. Source of Awareness of the Program

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
From a trade ally (contractor or salesperson)	69.1%	88.8%	78.9%
Brochure from Duke Energy	14.8%	11.3%	13.0%
Duke Energy Web site	8.6%	2.5%	5.6%
Word of mouth (friends, family, neighbors, etc.)	4.9%	1.3%	3.1%
Current or previous work experience (HVAC, contracting, lighting, etc.)	3.7%	0.0%	1.9%
Manufacturer's website	2.5%	0.0%	1.2%
Advertising	0.0%	0.0%	0.0%
Other source (listed below)	1.2%	3.8%	2.5%
Don't Know/Can't Recall	2.5%	2.5%	2.5%

Percentages may total to more than 100% because participants could give multiple responses.

Four survey respondents (2.5% of 161) mentioned other sources of awareness, which are listed below by rebated unit.

Rebate for heat pump (N=1)

- *We attended the Cincinnati Home and Garden Show where we saw information from The Greater Cincinnati Energy Alliance.*

Rebate for central air conditioning (N=3)

- *Radio.*
- *A marketing company called me.*
- *When I got the rebate check in the mail.*

Gathering Information about Duke Energy's Smart \$aver Program

Once aware of Smart \$aver, most program participants did not seek additional information, as seen in Table 6. Overall, 85.7% (138 out of 161) felt they had enough information about the program, and only 13.0% (21 out of 161) sought out more information. The most common method of gaining additional information about the program is to visit the Duke Energy website (overall 6.2% or 10 out of 161, which is 47.6% of 21 participants who sought additional information).

The only significant difference between heat pump and central air conditioner rebate recipients seeking more information is that heat pump installers were more likely to have contacted a trade ally (6.2% or 5 out of 81; significantly higher than 0.0% of 81 air conditioning installers at $p < .05$ using student's t-test).

Table 6. Did You Do Any Additional Investigation to Confirm the Program's Offering?

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Total not needing additional info	82.7%	88.8%	85.7%
The information provided was adequate	74.1%	86.3%	80.1%
Didn't need to confirm anything	23.5%	7.5%	15.5%
Total seeking additional info	16.0%	10.0%	13.0%
Went to the Duke Energy web site	7.4%	5.0%	6.2%
Called or emailed Duke Energy	2.5%	2.5%	2.5%
Called or emailed a trade ally	6.2%	0.0%	3.1%
Other (listed below)	3.7%	2.5%	3.1%
Don't know	1.2%	1.3%	1.2%

Percentages may total to more than 100% because participants could give multiple responses.

Five out of 161 survey respondents (2.5%) volunteered "other" forms of investigation into Smart \$aver, which are listed below.

Rebate for heat pump (N=3)

- *As a contractor, I went to the Duke Energy training on it.*
- *I called Dayton Power & Light.*
- *The contractor told me to look online for more information.*

Rebate for central air conditioning (N=2)

- *I asked friends, neighbors, and coworkers about their experience with the program.*
- *We were already aware of the program because we had participated in the past.*

The 21 surveyed customers who sought out more information are unanimous (100% of 21) in reporting that they were able to acquire a more complete understanding of the program through their efforts, as seen in Table 7. Overall, after seeking additional information if needed, only 1.9% (3 out of 161) of all survey respondents felt they still had unanswered questions about Smart Saver.

Table 7. Acquiring a More Complete Understanding of the Program by Seeking Additional Information, and Unanswered Questions about the Program

Base: survey respondents who sought additional information	Heat Pump (N=13)	Central Air Conditioning (N=8)	All Surveyed Participants (N=21)
Was able to acquire a more complete understanding of the program	100.0%	100.0%	100.0%
Was NOT able to acquire a more complete understanding	0.0%	0.0%	0.0%
Don't know	0.0%	0.0%	0.0%
Base: all survey respondents	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Had additional questions that were not answered	3.7%	0.0%	1.9%

Three Smart Saver participant in this survey (1.9% of 161) said they still had additional questions about the program; their descriptions of these additional questions are listed below.

- *I had a few more questions about the program incentive forms.*
- *The Duke website needs to more clearly specify that only Duke-approved contractors are qualified to offer the incentive program.*
- *The unanswered questions I had were mainly about the competing energy providers that are constantly vying for my business.*

Overall, 92.5% (149 out of 161) of participants did not contact Duke Energy with questions during their participation in the Residential Smart Saver program as indicated in Table 8. Only 0.6% (1 out of 161) reported that they contacted Duke Energy and still had unanswered questions, while 6.2% (10 out of 161) reported contacting Duke Energy and having their questions handled effectively. Of the eleven participants in this survey who contacted Duke

Energy during participation, overall ten (90.9%) reported that their questions were answered effectively.

Table 8. Contacting Duke Energy While Participating in Smart Saver

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Contacted Duke Energy during participation in Smart Saver and questions were handled effectively	9.9%	2.5%	6.2%
Contacted Duke Energy during participation in Smart Saver and still had unanswered questions	1.2%	0.0%	0.6%
Did not contact Duke Energy during participation in Smart Saver	87.7%	97.5%	92.5%
Don't know / can't recall	1.2%	0.0%	0.6%

Receiving Rebates for Participation in Smart Saver

When it came to filling out the incentive forms for Smart Saver, the pattern is very similar to where respondents indicated they first became aware of the program: most mentioned trade allies (80.1% or 129 out of 161).

Only 11.2% (18 out of 161) of program participants filled out the forms themselves. Among those who did fill out the form themselves, participants were unanimous (100% of 18) in their opinion that the form is easy to understand.

Customers who installed central air conditioning were more likely to have a trade ally fill out the forms (86.3% or 69 out of 80), while those who installed heat pumps were more likely to do it themselves or have another member of the household do it (combined 21.0% or 17 out of 81; these differences are both significant at $p < .05$ using student's t-test).

Table 9. Who Filled Out the Incentive Forms

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Trade allies (contractor or salesperson)	74.1%	86.3%	80.1%
Survey respondent ("I did")	13.6%	8.8%	11.2%
Another member of the household	7.4%	1.3%	4.3%
Someone from Duke Energy	1.2%	0.0%	0.6%
Trade ally and customer together	2.5%	2.5%	2.5%
Don't know	1.2%	1.3%	1.2%
Of those who filled out the incentive form themselves:	N=11	N=7	N=18
Incentive form was easy to understand	100%	100%	100%

Table 10 shows that trade allies were also the most likely to submit the incentive forms for Smart Saver participants in this study (80.7% or 130 out of 161). Another 13.0% (21 out of 161) of

surveyed customers submitted the forms themselves, which is not significantly different than the percentage of customers who filled out the forms themselves (11.2% or 18 out of 161, as seen in Table 9).

Table 10. Who Submitted the Incentive Forms

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Trade allies (contractor or salesperson)	77.8%	83.8%	80.7%
Survey respondent ("I did")	12.3%	13.8%	13.0%
A family member	6.2%	1.3%	3.7%
Someone from Duke Energy	1.2%	0.0%	0.6%
Don't know	2.5%	1.3%	1.9%

Overall, 87.6% (141 out of 161) of program participants reported no problems receiving their rebates, as seen in Table 11. Nearly equal numbers of survey respondents were certain they received additional federal or state tax credits (39.1% or 63 out of 161) and certain they did not (38.5% or 62 out of 161), while 22.4% (36 out of 161) were not sure if they received any tax credits or not. Customers who installed heat pumps were more certain that they had received tax credits (49.4% or 40 out of 81), though this is partly due to air conditioner rebate recipients being more likely to not be sure if they received tax credits or not (30.0% or 24 out of 80; both differences significant at $p < .05$ using student's t-test).

Table 11. Receiving Rebates and Tax Credits

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Did NOT have problems receiving the rebate	87.7%	88.8%	87.6%
Had problems receiving the rebate	11.1%	6.3%	8.7%
Did not receive a rebate ⁷	1.2%	2.5%	1.9%
Don't know	0.0%	2.5%	1.2%
Received state or federal rebate as well	49.4%	28.8%	39.1%
Did NOT receive state or federal rebate as well	35.8%	41.3%	38.5%
Don't know	14.8%	30.0%	22.4%

Fourteen respondents (8.7% of 161) reported that they had a problem receiving their Smart \$aver HVAC rebate. Their verbatim descriptions of these problems are listed below; customer complaints generally involve delays getting rebates due to delays getting the paperwork approved, which in turn is frequently due to delays with the contractors submitting the forms. All fourteen surveyed customers who reported problems receiving their rebates report that these issues were eventually resolved.

Rebate for heat pump (N=9)

- *The contractor had problems filling out his part. He took so long Duke said I couldn't*

⁷ The evaluation team and Duke Energy have confirmed that these customers have all been issued rebate checks.

- get the rebate anymore. Thankfully, Duke customer service helped and I got the rebate.*
- *Our contractor did not submit our paperwork in a timely manner. Eventually they did and the rebate arrived promptly.*
 - *The contractor needed to clarify with Duke that the new heat pump qualified for the incentive program.*
 - *I think we had to amend and re-send our rebate paperwork at least four times before Duke finally approved it.*
 - *The woman who filled out and submitted my information entered something incorrectly, I think it had to do with my source of back-up fuel, or she just did not have the proper information, and she had to resubmit my form. After that was corrected and resubmitted, everything was fine, but it did set back my application by about 3 weeks.*
 - *I was put in between my contractor and Duke Energy and fed differing information on each front. The rebate situation was eventually resolved but it was time-consuming and unpleasant.*
 - *I only received half. I had to call and found out half was coming from Duke and half was coming from another company: Carrier. I got the other half and it was resolved.*
 - *It took a while, around 3 months, but we did get the rebate.*
 - *There was confusion over which name the account was in. This supposedly delayed the rebate check, but was eventually resolved.*

Rebate for central air conditioning (N=5)

- *Our application seemed to have fallen through the cracks with our contracting company, they submitted it much later than when we had originally filled out the application. This was not the fault of Duke Energy. Eventually our contractor had the application sent in and we did receive our rebate in due time.*
- *I did not get my rebate in the time the salesperson said I would have received it, so I called the salesperson about it. After I did that follow-up call with the salespeople I did receive my rebate check. Perhaps they were slow on submitting my application.*
- *The rebate took a little longer than I had expected so I did call the contractor. The check did arrive shortly afterwards. I received the check within a month of the installation of the A/C unit.*
- *There was a breakdown between Duke and the contractor. There were problems with how the paperwork was being handled between Duke and the contractor. The air conditioner was replaced in 2011, and we did not receive the rebate until a year later. Eventually, everything was resolved.*
- *Rebate was initially denied because post office had marked our residence as an apartment, and I had to correct the information and say it was a condominium. After calling, they sent the rebate.*

Problems Receiving Rebates by Quarter

The installation dates for the rebated units are shown in Table 12 categorized by quarters of the

year. The largest number of surveyed customers installed units during the second quarter of 2013 (33 customers), and the smallest number during the first quarter of 2012 (14 customers), though the numbers per quarter on the whole are quite consistent (averaging 27 customers per quarter).

Table 12. Number of Survey Respondents by Quarter Rebated Unit Was Installed

Number of Respondents per Quarter Rebated Unit Was Installed	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Q1 2012	10	4	14
Q2 2012	17	14	31
Q3 2012	11	19	30
Q4 2012	12	17	29
Q1 2013	15	9	24
Q2 2013	16	17	33
Missing data	0	0	0

Recall from Table 11 that overall 8.7% (14 out of 161) of surveyed program participants reported problems receiving their rebates. Figure 11 charts the percentage of rebates with “problems” according to the quarter the rebated unit was installed. The overall rate of survey respondents reporting problems with rebates per quarter installed ranged from 0% (first quarter of 2012) to 16.7% (first quarter of 2013). Based on this very small sample of six quarters, the average rate of problems reported per quarter is 8.2% and the 90% confidence interval is $\pm 4.7\%$; both the highest (16.7%) and lowest (0.0%) quarters fall outside of the 90% confidence interval. This indicates that the rate per quarter across these six quarters is highly variable.

Furthermore, there is extremely high variability by rebated unit, with 26.7% (4 out of 15) of heat pump installers reporting rebate problems with Q1 2013 installations while none (0 out of 9) of the customers who installed central air during that same quarter reported a problem. Similarly, there were no customers (0 out of 23) who installed heat pumps during the last half of 2012 who reported rebate problems, while 11.1% (4 out of 36) of air conditioner installers during the same period reported having problems.

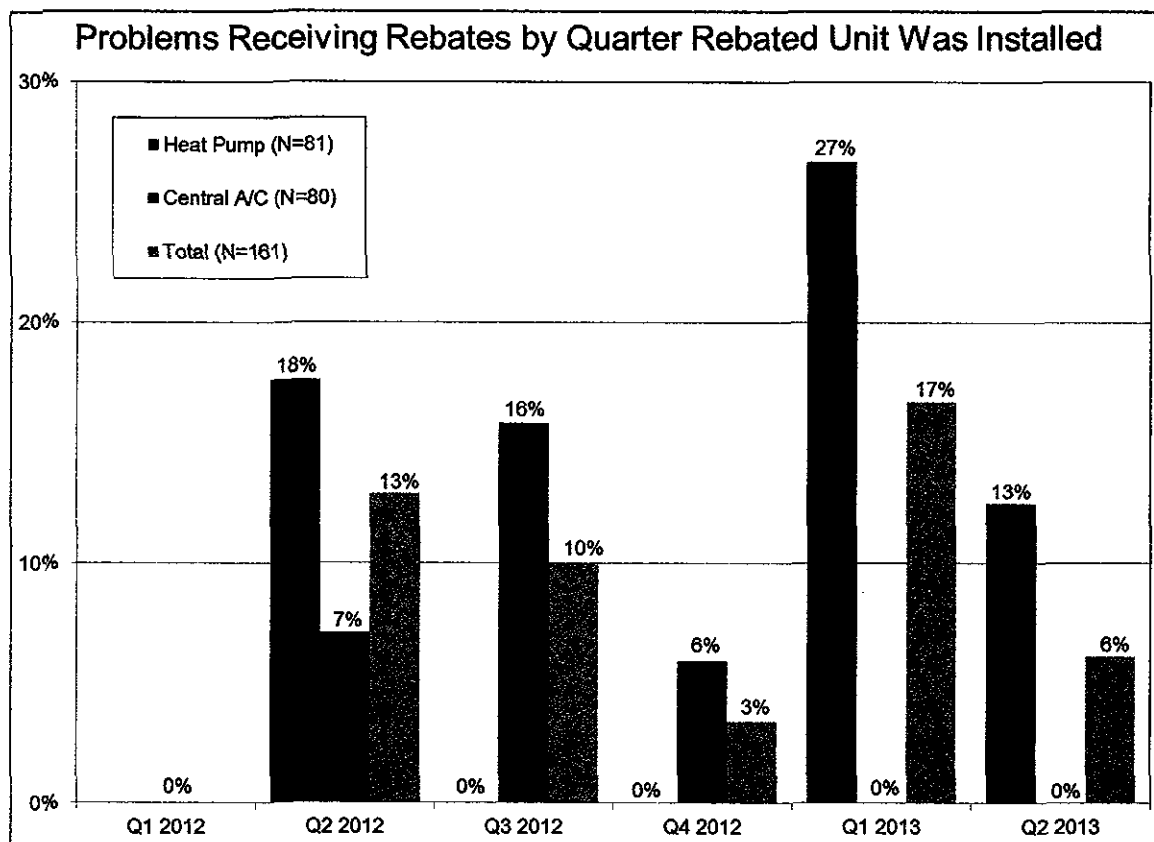


Figure 11. Problems Receiving Rebates by Quarter Rebated Unit Was Installed

Customer Satisfaction with the Residential Smart \$aver Program

Table 13 shows the average satisfaction ratings for five aspects of this program, as well as overall satisfaction with the program and with Duke Energy. On a 10-point scale where “10” means very satisfied, customers give Smart \$aver high satisfaction ratings, averaging between 8.2 and 8.5 for all aspects inquired about and 8.83 for the program overall. Satisfaction with Duke Energy overall is also high, averaging 8.47 across all surveyed participants.

There are two statistically significant difference by the type of unit purchased; customers who received rebates for air conditioning (8.60) were more satisfied with the amount of the rebate than customers who received rebates for heat pumps (7.86; this difference is significant at $p < .05$ using ANOVA), and among those who were involved in filling out the paperwork air conditioner installers were also more satisfied with the ease of filling out forms (9.56) compared to heat pump installers (7.84; this difference is significant at $p < .10$ using ANOVA, although only a minority of customers answered this question, since the forms were more often completed by

contractors and salespeople⁸).

Table 13. Average Satisfaction Ratings for Smart Saver and Duke Energy

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Satisfaction with the information provided explaining the program	8.46	8.54	8.50
Satisfaction with the number and kind of technologies covered	8.38	8.55	8.45
Satisfaction with the ease of filling out the form to receive the rebate (Base: N=28 respondents involved in filling out forms)	7.84 (N=19)	9.56 (N=9)	8.39 (N=28)
Satisfaction with the time it took to receive the rebate check	8.27	8.37	8.32
Satisfaction with the amount of rebate provided by the program	7.86	8.60	8.23
Overall satisfaction with Smart Saver HVAC Program	8.75	8.91	8.83
Overall satisfaction with Duke Energy	8.37	8.58	8.47

Surveyed customers who gave ratings for specific aspects of the program of “7” or lower a 10-point scale were asked what could be done to improve the situation. These responses are listed below by rebated unit.

Four survey respondents (14.3% of 28 who were involved in filling out forms) rated the ease of filling out the rebate form at “7” or lower on a 10-point scale. Their suggestions for improving this aspect of the program are listed below.

Ease of Filling Out Form: Received rebate for heat pump (N=4)

- *For me, as a contractor, it does not pay with the amount of time it takes to complete. There is too much detailed information required, the form needs to be more streamlined and organized. It's crazy all the things you have to do to get the rebate. I see it as doing double the amount of work and getting not even half the commission.*
- *Streamline the entire program. A customer sending a copy of the sales receipt including model and serial numbers should be sufficient enough to process the rebate.*
- *The contractor had problems.*
- *The Duke website should be improved so that the incentive form is easier to fill out. The website should also show the projected long-term operating costs for units of different efficiency ratings.*

Twenty-three survey respondents (14.3% of 161) rated information explaining the program at “7” or lower on a 10-point scale. Their suggestions for improving this aspect of the program are

⁸ Twenty-eight surveyed customers were involved in filling out rebate forms. In addition to the 18 customers who filled out forms by themselves, this total also includes 6 cases where someone else in the respondent’s household filled out the forms, and 4 cases where the customer and contractor filled out the forms together.

listed below. Many claim that they never got much information about the program in the first place and often fault the contractors for this, thus the most common suggestions are for more information and less dependence on contractors.

Program Information: Received rebate for heat pump (N=12)

- *Contractors could provide more information about the program.*
- *My contractor informed me of my eligibility, otherwise I would not have known anything about this program.*
- *I would have liked some more direct information to me personally. The contractor informed me; otherwise I did not know anything about this opportunity.*
- *There needs to be more information out there about the advantages of the Smart Saver program for Duke Energy's customers. I had no clue that this rebate existed, fortunately my contractor gave me the information.*
- *There was no information given to me. My contractor or salesperson or whoever filled out the forms for me did not tell me anything about the program or that they had applied for the program. I had no knowledge the program even existed. I was not expecting any sort of rebate.*
- *More education for vendors to avoid confusion and misinformation. At first, our vendor misstated the amount of rebate we would be paid as being \$300.*
- *The vendors could improve their professionalism and provide more information about the equipment and the incentive program.*
- *The MyHER could provide homeowners with more information about the Smart Saver program.*
- *There should be multiple mailings promoting the program.*
- *Don't know (N=3)*

Program Information: Received rebate for central air conditioning (N=11)

- *I didn't get any information. My contractor did it all.*
- *I didn't get much information from the salesperson; he was too busy trying to sell me his furnace and air conditioner.*
- *I like printed literature, so I can grasp it and read it a couple of times. The contractor did not have any printed literature and did not tell me about the rebate until after installation. I trust this contractor's judgment.*
- *I really didn't know much about the program. Before I spoke to the salesperson I wasn't even aware that the program existed. So an increase in advertising would probably help get more people interested.*
- *I really don't know any of the program details but the information I got from the salesperson was enough to get me to let them fill out the paperwork.*
- *I'd suggest more information be given at the point of sale so that we understood the variety of units covered and also the incentive that was offered for those particular systems.*
- *If the salesperson had some printed materials that I could look at, that would have been*

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good. As it is, I took him at his word.

- *We did not know anything about the Smart Saver Program until after we spoke with the salesperson. This program should offer more information to their customers so they know about it before they go out and start looking at new heating or air conditioning units.*
- *We didn't get very much information about the program.*
- *Don't know (N=2)*

Twenty-three survey respondents (14.3% of 161) rated the number and type of technologies covered by the program at "7" or lower on a 10-point scale. Their suggestions for improving this aspect of the program are listed below. About a third of these customers (30.4% or 7 out of 23) had no comments or suggestions for improving this aspect of the program; the most frequently mentioned items customers recommend for inclusion in the program include water heaters and furnaces.

Number/Type of Technologies Covered: Received rebate for heat pump (N=13)

- *I would have liked if my new gas furnace had qualified for the Smart Saver rebate as well.*
- *Duke could include other types of technologies in the program, such as tankless water heaters and programmable thermostats.*
- *There could be more crossover with other Duke energy efficiency programs such as the Home Energy House Call.*
- *There should be a push to raise awareness of the program and make the information available.*
- *There should be more information provided by the program.*
- *Duke could provide more information about available technologies covered by the program.*
- *Duke Energy has a lot of stuff covered. I don't know why they have to get into all these small home energy efficiency programs. I suggest they do one thing and do it well, they should focus on larger projects that would have a larger impact on saving power, they should be more selective and efficient.*
- *Don't know (N=6)*

Number/Type of Technologies Covered: Received rebate for central air conditioning (N=10)

- *I thought my gas furnace would have qualified as an energy efficient heating source but it was not covered. I was actually expecting the gas furnace to qualify for the rebate because it is very efficient, and I was surprised that it did not qualify.*
- *Include more major appliances, like furnace or water heaters.*
- *Include other appliances like water heaters and refrigerators*
- *Include water heaters.*
- *It would be great if the program would cover more technologies, like water heaters.*
- *The program only covered certain kinds of A/C, when it could have covered more A/C*

units that were just as efficient.

- *Have more units and more sizes available and eligible for rebates.*
- *You can't expect the energy company to do it all. There are no incentives for other appliances.*
- *I didn't even know there was a program.*
- *Don't know*

Thirty-one survey respondents (19.3% of 162) rated the time it took to receive the rebate check at a "7" or lower on a 10-point scale. Their suggestions for improving this aspect of the program are listed below. Some customers blame the contractors for taking too long with the paperwork, some blame Duke Energy, and some blame both.

Time it Took to Receive Check: Received rebate for heat pump (N=14)

- *I think the paperwork needs to be more informative. The person filling out my application was unclear of what information exactly was wanted. There was confusion as to a source of back-up fuel used in the heating system, I think, and the information the woman submitted was incorrect. My application and rebate process took an extra three weeks to be completed because of the set back.*
- *It could have arrived a little quicker, it took about one month or maybe a little longer before I received my rebate. I actually kind of forgot about it and nearly threw the envelope out which contained the check when I finally received it in the mail.*
- *The rebate turnaround should be within 30 days.*
- *There needs to be better communication between contractors and Duke Energy. It should take no more than six weeks to receive the rebate.*
- *It took me three or four months of back and forth communication with Duke to finally receive the rebate. The process should only take, at most, six weeks.*
- *The ideal rebate turnaround would be two weeks.*
- *The rebate turnaround could be three weeks or less.*
- *I waited roughly eight weeks to receive my check. Optimally, the rebate should arrive within one month.*
- *An ideal rebate turnaround would be two weeks.*
- *I think it should take no more than 60-90 days to receive the rebate.*
- *Applications take too long to be processed. Duke Energy needs something more streamlined. I suggest that they make it so that the form is only needed to be completed online, so all of the information is in one place and it will be easy to view the status of the application. There should be less paperwork, there is too much useless paperwork and printing and scanning of information. It's a very frustrating process.*
- *I would like to be able to take the entire rebate amount off the cost of the unit upfront.*
- *With a reputable contractor, there should be little need for Duke to send out an inspector to verify the installation of the new unit.*
- *Don't know*

Time it Took to Receive Check: Received rebate for central air conditioning (N=17)

- *It took too long to receive the rebate. I waited months.*
- *It took a while; a few months.*
- *It took a while.*
- *It should take less time.*
- *If you cut the turnaround time in half, that would be great. Maybe three weeks instead of six; this is my only complaint about the program.*
- *Send the check out sooner, like as soon as make someone makes the purchase, so it is automatic.*
- *Send it sooner; but, I'm not sure how long it took Herman's Services to submit the paperwork.*
- *The rebate could have come sooner, maybe two or three weeks instead of months.*
- *The rebate could have come quicker*
- *You should get people their rebates quicker.*
- *I did not get my rebate in the time the salesperson said I would have received it, so I called the salesperson about it. After I did that follow-up call with the salespeople I did receive my rebate check. Perhaps they were slow on submitting my application.*
- *I don't know if there was a problem with our contractor or if there was an issue with Duke Energy but it took many months for us to get the rebate check.*
- *I had to contact Duke directly when we were not getting answers from the contractor who was supposed to have submitted the paperwork. It took us a year to get paid.*
- *The contractor had forgotten to put our account number on the forms so we didn't get it for quite some time. Once the error had been taken care of we got the check in three weeks.*
- *I don't know. I thought that the time it took to get the rebate check was average.*
- *Don't know (N=2)*

Forty-one survey respondents (25.5% of 162) rated the amount of the incentive at "7" or lower on a 10-point scale. Virtually all of them wish for the incentives to be higher, though some customers had additional ideas about how to improve the incentive payment amounts.

Rebate Amount: Received rebate for heat pump (N=25)

- *Incentive should be higher (N=9)*
- *A \$500 rebate would be preferable.*
- *The rebate should be between \$250 to \$500, depending on the unit.*
- *The rebate should be increased to \$500 for Geothermal units.*
- *If Duke Energy would increase the rebate, it would make it more enticing to replace both the A/C and the furnace. The increase should be \$300 for an air conditioner or \$700 to \$800 for the complete heating and cooling system. Also, I suggest to maybe double or triple what the contractor gets, if the incentive is larger for the contractor, they will push*

the program more.

- *A larger rebate incentive would have increased my satisfaction, especially considering that I purchased four units. Some rebates will give you more money back when you purchase multiple or larger items, this logic could be applied to the Smart Saver program.*
- *A larger rebate would have been nice. A new heating and cooling system is very expensive but if the rebate was larger perhaps more people would consider upgrading their system.*
- *Duke could offer a rebate based on a percentage of and/or the prorated cost of the system.*
- *The amount of rebate should be 10% of the unit purchase price.*
- *The amount of rebate should be between 10-15% of the total cost of the unit.*
- *The rebate could be 10% of the purchase price.*
- *The rebate should be, at minimum, 5% of the purchase price.*
- *The rebate could be higher, say 5% of the purchase price. There should also be an option take the rebate as an energy bill credit.*
- *The amount of the rebate could be based on a percentage of the sale.*
- *The amount of rebate could be based on the efficiency and cost of the unit.*
- *The amount the rebate should be proportionate to the efficiency rating of the unit purchased.*
- *Don't know*

Rebate Amount: Received rebate for central air conditioning (N=16)

- *Incentive should be higher (N=4)*
- *The rebate wasn't enough; they cut it down since last year. They may be because of the government.*
- *The salesperson said that the amount of the rebate was supposed to be much more. The rebate amount from Duke seemed to be what they had said but then the Federal rebate was much smaller than we were told.*
- *Have the rebate be a percentage of the overall cost, like 10% of the overall cost of the unit would have been really nice.*
- *I could have purchased a \$7,000 unit or a \$10,000 unit and the rebate would have been the same. It would be better if the rebate amount went up with the energy efficiency of the unit*
- *People will not spent thousands on a \$200 rebate; they buy it because they need it. It is nice that it's there, but the \$200 isn't a sway on a \$7,000 system.*
- *The A/C I installed was very expensive compared to some of the other ones that I could have gotten so I would have liked to get a larger rebate.*
- *The new A/C was very expensive compared to the rebate.*
- *I was completely surprised by the rebate, so I don't know how it could have been done better. It's not like I researched the program. I was taken completely by surprise.*

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- *The rebate could have been higher when compared to the amount of the A/C.*
- *Don't know (N=3)*

As Figure 12 indicates, a plurality of Smart \$aver participants surveyed gave the highest possible "10 out of 10" score for their overall satisfaction with the program: 43.2% (35 out of 81) of heat pump rebate recipients and 50.0% (40 out of 80) for central air conditioning rebate recipients. Only ten participants surveyed (6.2% of 161) gave ratings of "5" or lower for their satisfaction with the program overall.

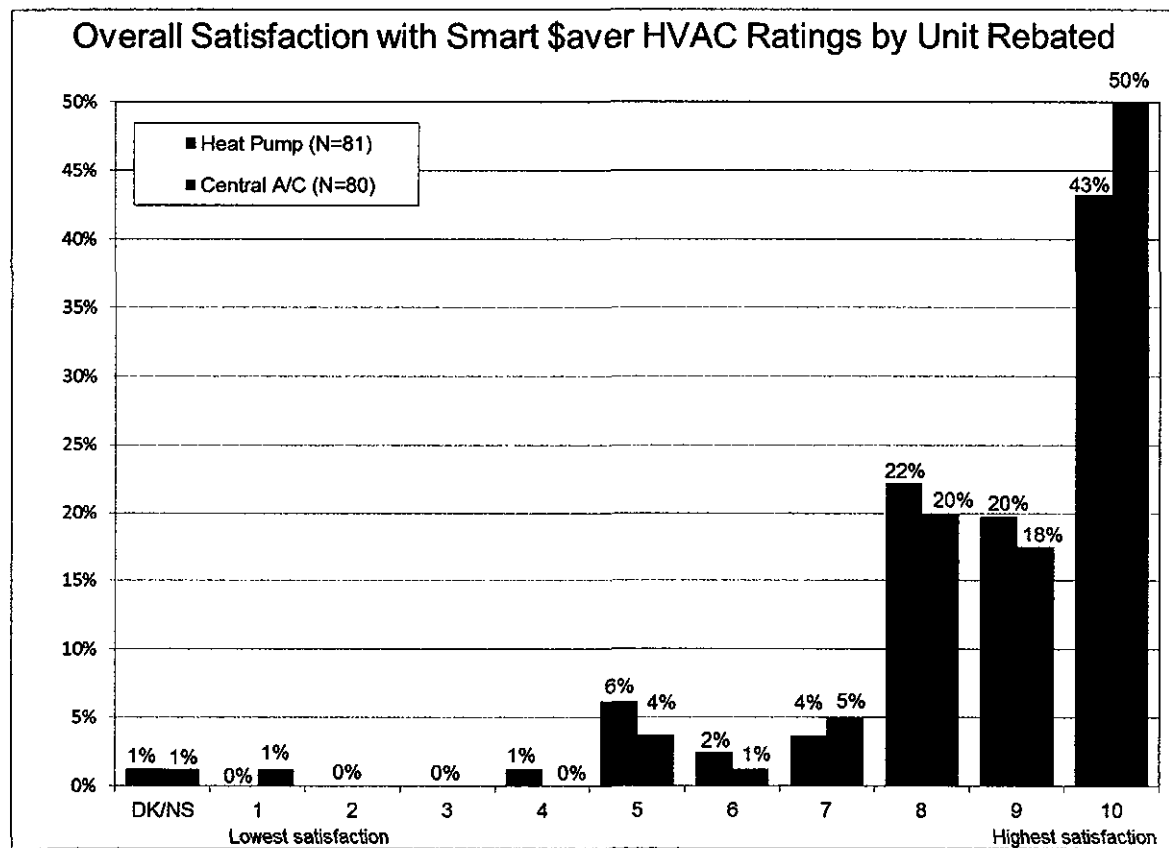


Figure 12. Respondents' Overall Satisfaction Ratings for the Smart \$aver Program

Twenty respondents (12.4% of 161) gave a rating of "7" or lower for their overall experience participating in the Smart \$aver program. The reasons they give for their lower satisfaction are listed below; most of these customers' complaints are about the incentive rebate.

Rebate for heat pump (N=11)

- *The amount of rebate could be slightly higher.*
- *Again, the rebate could have been larger.*
- *A larger rebate incentive would have increased my satisfaction, especially considering that I purchased four units.*

- *I think if we got to where it was a larger incentive or rebate amount, especially for the contractors, my satisfaction with the program would improve. If Duke Energy would increase the rebate, it would make it more enticing to replace both the A/C and the furnace. The increase should be \$300 for an air conditioner or \$700 to \$800 for the complete heating and cooling system. I suggest doubling or tripling what the contractor gets, if the incentive is larger for the contractor, they will push the program more.*
- *I would have been more satisfied if I had been more informed about the program.*
- *I would like the rebate to be 10% of the unit purchase price.*
- *The amount of the rebate is so small that it is hardly worth jumping through all the hoops to get it.*
- *There were countless delays and many hoops to jump through regarding the paperwork.*
- *There could be more effective contractor education about the program.*
- *Duke should offer standardized training and form alliances with organizations such as the Greater Cincinnati Energy Alliance.*
- *I had no expectations, because I had not known anything about the program, so that is why I rate it as a "5".*

Rebate for central air conditioning (N=9)

- *I had to call Duke Energy several times before receiving my rebate check.*
- *I really don't know much about the program, and I think the rebate could have come to me faster, but I'm pretty happy just to get the rebate.*
- *I didn't receive the rebate.*
- *Even though I purchased what was supposed to be an efficient system, I haven't seen any difference in my bill.*
- *Instead of a one-time rebate, I would like see a program that provided a decrease in my monthly bill over the course of the year after purchasing a new unit: say, 10% one month, 20% the following, and so on. A bill reduction would be much better for people who work.*
- *I thought the program was pretty average. There wasn't anything that was bad about the program, but there really wasn't anything awesome about it either.*
- *I'm more neutral about the program. Increase advertisement for the program to let people know about it.*
- *I don't remember the program as well as I could, but we had the A/C installed almost two years ago. I wouldn't say that I'm less than satisfied at a "7". I would say that I feel more neutral about the program than "less than satisfied".*
- *Don't know*

Figure 13 shows the distribution of ratings of satisfaction with Duke Energy overall. Pluralities of 34.6% (28 out of 81) of heat pump rebate recipients and 38.8% (31 out of 80) of central air conditioning rebate recipients gave Duke Energy the highest possible "10 out of 10" score. Only fourteen survey respondents (8.7% of 161) gave ratings of "5" or lower on a 10-point scale.

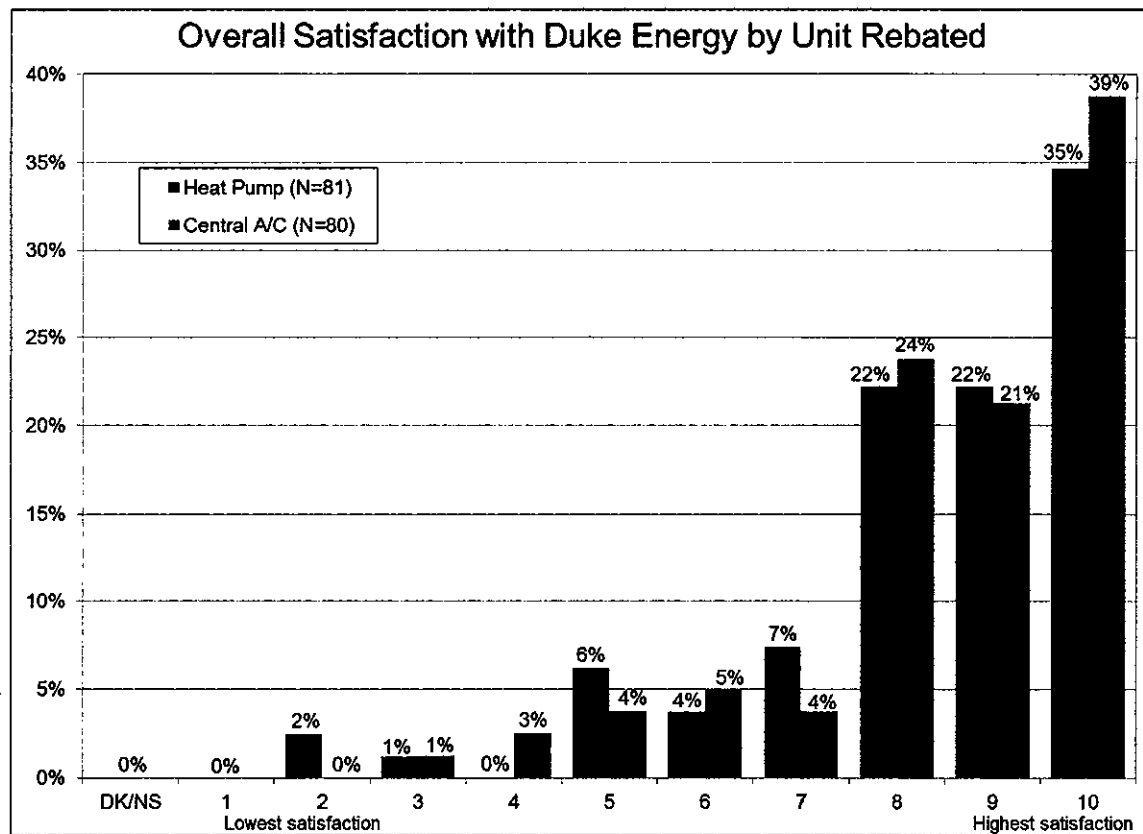


Figure 13. Respondents' Satisfaction Ratings for Duke Energy Overall

Thirty respondents (18.6% of 161) gave a rating of "7" or lower for their overall satisfaction with Duke Energy. The reasons they give for their lower satisfaction are listed below; rates, billing and power outages are the most frequent complaints, with customer service and business issues also getting some mentions. Only one surveyed customer (an air conditioner rebate recipient) mentioned a complaint against Duke Energy stemming from the Smart Saver HVAC program: they did not receive their rebate check.

Rebate for heat pump (N=17)

- *I find that Duke Energy's rates are too high, the rates should go down on kilowatts used.*
- *Duke should lower their rates, be more customer-orientated when you call with questions, and improve their overall integrity.*
- *I think Duke could do better at estimating peak energy use to make Equal Billing more consistent.*
- *We have a lot of power outages. I've lived in other places and have never experienced so many outages. We sometimes don't know even know why they occur. It happens even when there isn't a storm. We are told that a car hit a pole and reasons like that. The power outages are way too frequent.*
- *Duke is a big company and they are the only choice. It seems like a monopoly. I don't know how honest they are, and can't compare their rates.*

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- *Duke should cease being a sociopathic corporate monopoly. Lessen the amount of pay for its executives and CEO. Provide more help to the homeless.*
- *I was less than satisfied because I question the accuracy of the new remotely-readable energy meters. Duke could improve customer relations, provide callbacks regarding service visits, improve meter accuracy, and repair gas leaks in a timely manner.*
- *My house got a new meter and it took a while, speaking to two or three supervisors, to straighten it out.*
- *I'm in a rural area that has more power outages. Last year it took seven or eight days to get the outage fixed. Duke could do more preventative things to avoid outages like cut down dead trees before a wind storm knocks them over.*
- *Duke charged a \$75 inspection fee for our gas line installation. I would have appreciated more clarity and communication regarding that, plus they should be able to add that directly to our monthly bill rather than sending a separate invoice.*
- *Duke should invest more in infrastructure upkeep and sustainable alternative energies.*
- *I had a problem with the power saving device installed on my cooling unit for Power Manager. When they installed the new heat pump the Power Manager device was deactivated or it just was not working. I was on the phone forever with customer service, and I ended up being transferred back to the same gal who answered my call and in the beginning and she was of no help at all. I found the customer service unsatisfactory.*
- *It was a pain dealing with Duke Energy during the renovation of my home. I had problems while installing the electricity. Duke Energy and their customer service have also given me trouble while I was trying to update my address information, it's still not totally correct. Also, during renovation, Duke refused to put a large enough gas line in for my house, so I was refused the option of having natural gas supplied to my house. Overall, their customer service is a pain the ass.*
- *When they come to do my home's meter readings, they don't schedule or let me know that I need to be there. I'd prefer an email notification of when they plan on coming to the house to read the meter. Also, about two years ago I was either trying to get my power turned off or on again during the renovation of my house and the customer service was very bad. I kept on getting passed off from one customer service representative to the next, I think I was on the phone cumulatively for over five hours. Duke's customer service made this all very difficult, yet it should have been a simple fix.*
- *I believe that Duke Energy's customer service stinks.*
- *Lower the rates.*
- *Don't know*

Rebate for central air conditioning (N=13)

- *I didn't receive a rebate for my new A/C. Also, there's something wrong with my bill because there's other companies listed on my Duke Energy bill: Direct Energy and Future Now Energy, and I'm getting charged by three different power companies. I don't understand what's going on and when I call no one is able to help me.*
- *I am having trouble with trying to figure out my bill. I am receiving two bills. One from Duke and one from Cinergy. Why am I paying two companies?*

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- *Partially, I think they overcharge for the services provided. On a national scale, Ohio still has pretty low rates, but comparatively, they're overcharging by what I think is about 15%.*
- *After Progressive Energy took over, Duke was supposed to be better organized and less likely to raise rates. They're talking about a rate increase and when there is destructive weather, Duke's fix-it groups are always out of state so it takes longer to get power back than it should.*
- *I don't like that our bills have to go all the way to North Carolina, they should be going to Cincinnati.*
- *I'm not satisfied with Duke's business practices. But I'm not going to go into that with you, that's all I'm going to say.*
- *I'm still remembering when I was moving out of our old house and Duke Energy turned off our electric a couple days before we were supposed to move out and they would not send somebody back out to turn the power back on. I'm still a little upset about that past service and how Duke never did anything to fix our problem.*
- *My parents accidentally missed a payment while they were on vacation and when they got home their power had been turned off. They were late with their payment by about two weeks and they hadn't missed or been late with a payment before and they've had the same account for more than 30 years. It seems very callous to turn the power off on customers who hadn't made any transgressions in 30 years so quickly.*
- *For twenty years we were on the budget plan, and for the last two years we were getting \$600 back. This year we asked to have the monthly amount knocked down by \$50, since we didn't want to loan Duke free money, and we've also replaced the A/C system. The customer service person said there was nothing she could do; the calculation was based on a set formula. I wish she would have been given more authority to make that change, but instead we went back to pay-as-you-go monthly billing and since then have not had a monthly bill higher than the budget plan, even during peak use. If Duke were to reduce the monthly payment, we'd consider going back to the budget plan, but we won't let Duke have a \$600 loan for free. Also, we get a lot of energy company calls, not just Duke but from many other companies.*
- *We used to live in Indianapolis, and we did the budget program, and it generally worked very well. When we moved to Ohio, I did the budget program under CG&E. When Duke took over, they way overcharged me under the budget program. I asked Duke for the credit balance, and they gave me a hard time. Duke did finally send me a check, but in subsequent years Duke continued to be really bad about providing me with the balance; I had to fight them every time. I will never do the budget program with Duke again, even though I like it better. Duke just was not good about providing the balance. It has given me a negative attitude toward Duke Energy. I also did a job for years that involved a lot of accounting. I am good at budgeting. It was offensive dealing with Duke, they accused me of being wrong.*
- *Rates are too high / lower the rates (N=3)*

Program Satisfaction Ratings in Ohio

Program participants in Ohio were also asked to rate their overall satisfaction with Smart Saver HVAC using a five-point Likert scale; these responses are shown in Figure 14.

A majority of surveyed Ohio customers give the highest possible “very satisfied” rating for the program (60.6% or 43 out of 71 heat pump rebate recipients and 69.2% or 45 out of 65 central air conditioning rebate recipients). Only two customers (1.5% of 136 Ohio customers surveyed) rated themselves as “somewhat dissatisfied” or “very dissatisfied” with the program.

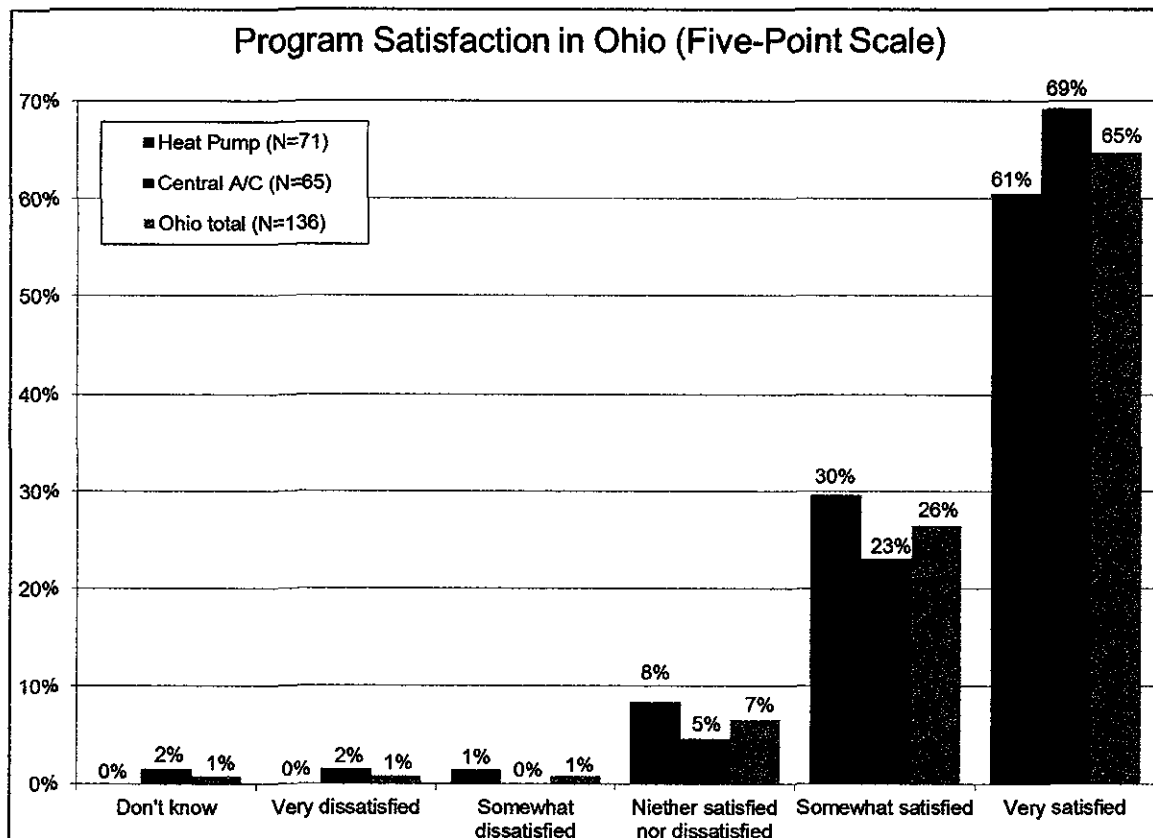


Figure 14. Ohio Respondents’ Overall Satisfaction Ratings for the Smart Saver Program (Five-Point Likert Scale)

Customers surveyed in Ohio were also asked to explain why they gave the program the satisfaction ratings they gave; these 136 responses are categorized and listed in *Appendix F: Ohio Participants’ Reasons for Program Satisfaction Ratings*.

Customer’s Favorite and Least Favorite Aspects of Smart Saver

The most popular feature of the Smart Saver program, by a large margin, is the fact that it saves participants money immediately through a rebate from Duke Energy, mentioned by seven out of

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ten survey respondents (70.8% or 114 out of 161). The next most frequently mentioned favorite things about the program are the ease of participation (11.8% or 19 out of 161) and that it allowed the purchase of a better unit (10.6% or 17 out of 161).

There are two statistically significant differences in Table 14: air conditioning rebate recipients were more likely to mention the incentive payment (76.3% or 61 out of 80), while heat pump rebate recipients were more likely to mention the ease of participation (18.5% or 15 out of 81; both of these differences are significant at $p < .10$ or better using student's t-test).

Table 14. What Customers Like Best about the Smart Saver Program

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Incentive rebate / money off cost of new unit	65.4%	76.3%	70.8%
Ease of participation	18.5%	5.0%	11.8%
Allowed the purchase of a better unit	8.6%	12.5%	10.6%
Saving money on bills	9.9%	8.8%	9.3%
Contractor or salesperson was helpful / did paperwork for me	4.9%	8.8%	6.8%
Saving energy / conservation	4.9%	7.5%	6.2%
That this program exists	3.7%	2.5%	3.1%
Duke Energy's concern for customers	3.7%	1.3%	2.5%
Like having a new unit / qualities of new unit	2.5%	1.3%	1.9%
Educational information provided	2.5%	1.3%	1.9%
Inspires other energy efficiency actions	1.2%	1.3%	1.2%
Quick payment turnaround	2.5%	0.0%	1.2%
Improved comfort in home	0.0%	1.3%	0.6%
Participation is free	1.2%	0.0%	0.6%
Don't know	1.2%	1.3%	1.2%

Percentages may total to more than 100% because participants could give multiple responses.

As seen in Table 15, overall 77.6% (125 out of 161) of respondents had no complaints about their participation in the Smart Saver HVAC program. The most-mentioned least favorite things about the program have to do with rebates not being large enough (6.8% or 11 out of 161) and rebates taking too long to arrive (5.0% or 8 out of 161).

Table 15. What Customers Like Least about the Smart Saver Program

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Nothing / No Complaints / Don't Know	75.3%	80.0%	77.6%
Not enough money / rebate too small	8.6%	5.0%	6.8%
Took too long to receive rebate	4.9%	10.0%	5.0%
Could have been better informed / more publicity	3.7%	1.3%	2.5%
Have not received rebate / don't recall if received	0.0%	2.5%	1.2%
Having to verify / clarify details for Duke Energy	2.5%	1.3%	1.9%
Disliked paperwork / too confusing / too much	1.2%	1.3%	1.2%
Problems with the contractor (listed below)	2.5%	0.0%	1.2%
Other items should be covered (listed below)	1.2%	1.3%	1.2%
Other complaints, listed below	4.9%	3.8%	4.3%

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Percentages may total to more than 100% because participants could give multiple responses.

Two survey respondents mentioned that their least favorite part of the program was due to the contractor; these comments are listed below.

Rebate for heat pump (N=2)

- *I disliked that I was misled by my contractor into believing that I would receive an additional \$200 rebate.*
- *I disliked the fact that the contractor had problems filling out his part of the paperwork.*

Two survey respondents mentioned that their least favorite part of the program was that it did not cover other items; these comments listed below.

Rebate for heat pump (N=1)

- *I did not like that my new furnace did not qualify for the rebate; it's a gas central air furnace.*

Rebate for central air conditioning (N=1)

- *I didn't like that the program doesn't cover water heaters.*

Seven survey respondents mentioned "other" things about the program that they liked the least, which are listed below.

Rebate for heat pump (N=4)

- *My time is very important to me, so I guess the time involved was something I did not like.*
- *I disliked the inability to choose to receive the rebate as a bill credit.*
- *I dislike the costs associated with receiving so many notifications about the program in my mail.*
- *I disliked having to request that Duke send a replacement check.*

Rebate for central air conditioning (N=3)

- *They try to sell you on a program when you've already made your decision.*
- *I did not get a tax credit, but that is of no fault to Duke Energy or this program.*
- *I think, just in general, rebates are kind of a hassle. But, this program was the most hassle-free rebate program I've done. The contractor took care of everything. I really can't complain.*

Improving Participation in Residential Smart Saver

The top two suggestions from customers for increasing interest and participation in the program are to increase general advertising (36.0% or 58 out of 161) and including more information with monthly bills (28.0% or 45 out of 161). About one in four heat pump rebate recipients wants

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more involvement from trade allies (24.7% or 20 out of 81), while fewer than one in ten air conditioner rebate recipients says the same (7.5% or 6 out of 80; this difference is significant at $p < .05$ using student's t-test). Customers who installed air conditioning are also more likely not to have any suggestions (38.8% or 31 out of 80) compared to those who installed heat pumps (8.6% or 7 out of 81; this difference is also significant at $p < .05$ using student's t-test).

There are many other significant differences between the two types of rebate recipient; all differences which are significant at $p < .10$ or better using student's t-test are marked in Table 16 below with bold italics.

Table 16. What Could Help Increase Interest and Participation in Smart Saver

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Increase general advertising	37.0%	35.0%	36.0%
Include more information with monthly bills	38.3%	17.5%	28.0%
Increase involvement with contractors / vendors	24.7%	7.5%	16.1%
Offer larger incentives	16.0%	6.3%	11.2%
Increase advertising in trade media	9.9%	3.8%	6.8%
Offer incentives on other items/include other items	7.4%	5.0%	6.2%
Promote with direct mail (not bill inserts)	8.6%	3.8%	6.2%
Emails promotions	7.4%	3.8%	5.6%
Include more community outreach and community events	3.7%	7.5%	5.6%
Promote on television	8.6%	2.5%	5.6%
Educate customers / more info to more people	2.5%	6.3%	4.3%
Better / more promotion through the Duke Energy website	3.7%	5.0%	4.3%
Increase awareness of savings / comparisons	4.9%	2.5%	3.7%
Have program staff call residential customers	4.9%	0.0%	2.5%
Newspaper / local magazines (print)	1.2%	2.5%	1.9%
Increase word-of-mouth	2.5%	1.3%	1.9%
Customer referrals / testimonials	2.5%	0.0%	1.2%
Make the process more streamlined for trade allies	2.5%	0.0%	1.2%
Make the process more streamlined for customers	1.2%	0.0%	0.6%
Other (listed below)	6.2%	6.3%	6.2%
Don't Know / Nothing	8.6%	38.8%	23.6%

Percentages may total to more than 100% because participants could give multiple responses.

Ten surveyed customers gave "other" suggestions for how to increase participation in the program; these are listed below.

Rebate for heat pump (N=5)

- *Advertise in school; get kids involved.*
- *Increase involvement with HVAC service technicians.*

- *Bring back the \$200 gas furnace incentive, or make it more of an incentive to the contractor to push the program.*
- *Make program information available at Lowes, Home Depot, etc.*
- *Give out more free stuff.*

Rebate for central air conditioning (N=5)

- *Target neighborhoods that are older. Our neighborhood is relatively new and no one pays attention to the program.*
- *Draw more attention to the webpage for the program through the My Home Energy Report.*
- *Use radio.*
- *Do a better job letting people know they can get free money from the program.*
- *I have no suggestions for the Smart Saver Program, but Duke could work at increasing participation in the Power Manager program, which would probably be more beneficial to decreased energy consumption.*

Energy Efficiency Actions and Upgrading Other Appliances

As Table 17 shows, 29.8% of respondents (48 out of 161) think Smart Saver has influenced them to become more energy efficient in other areas. Actions most commonly cited include using more efficient light bulbs (7.5% or 12 out of 161), upgrading appliances (6.2% or 10 out of 161), upgrading windows or doors (6.2% or 10 out of 161), and adding insulation (5.6% or 9 out of 161).

Although there is no significant difference by in the overall number of customers taking action by rebated unit, customers who received rebates for heat pumps were more likely to mention using more efficient bulbs (11.1% or 9 out of 81), while customers who received rebates for central air conditioning were more likely to make additional upgrades to their HVAC system (8.8% or 7 out of 80; both of these differences are significant at $p < .05$ using student's t-test).

Table 17. Additional Energy Efficiency Actions Influenced by Smart Saver

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Have taken additional energy efficiency actions inspired by this program (all actions)	28.4%	31.3%	29.8%
Use more efficient light bulbs	11.1%	3.8%	7.5%
Upgrade to more efficient appliances / Energy Star	6.2%	6.3%	6.2%
Upgrade windows / doors	7.4%	5.0%	6.2%
Added insulation	6.2%	5.0%	5.6%
Weather stripping	3.7%	6.3%	5.0%
Upgrade HVAC system	0.0%	8.8%	4.3%
Install programmable thermostat	2.5%	1.3%	1.9%
Upgrade duct work	1.2%	1.3%	1.2%
HEHC / home energy audit	1.2%	1.3%	1.2%
Power Manager	1.2%	0.0%	0.6%
Unplug extra freezer or refrigerator	0.0%	1.3%	0.6%
Other (listed below)	3.7%	2.5%	3.1%

Five survey respondents mentioned “other” energy efficiency actions; their responses are listed below.

Rebate for heat pump (N=3)

- *Installing low-flow faucets as part of bathroom and kitchen remodeling.*
- *I've been making my family more conscious about turning out lights when they are not using them.*
- *We bought black-out curtains that we keep closed during the day.*

Rebate for central air conditioning (N=2)

- *We installed a new roof.*
- *We are getting ready to install insulated siding and air vents in the attic.*

The 48 respondents (29.6% of 162) who said they were influenced to do more by the Smart Saver program were also asked to rate the influence of participating in Smart Saver on these additional actions, and how much money they think they have saved from these additional energy efficiency activities. Table 18 shows the average influence ratings of the program on additional actions (on a 10-point scale where 10 is the highest influence and 1 is the least).

The sample sizes in Table 18 are too small for any given category of action to show significant differences by unit rebated (including for the overall average ratings of influence for heat pump and air conditioning rebate recipients, which are not statistically different). The overall average influence score (for all actions by all rebated units) is 4.6 on a 10-point scale, which is a moderate level of influence.

Table 18. Average Ratings of the Influence of Smart Saver HVAC on Additional Actions

<i>Base: respondents taking each action</i>	Heat Pump	Central Air Conditioning	All Surveyed Participants
Use more efficient light bulbs (N=12)	6.6	3.3	5.8
Upgrade to more efficient appliances / Energy Star (N=10)	3.0	5.6	4.3
Upgrade windows / doors (N=10)	4.3	2.5	3.6
Added insulation (N=9)	4.2	3.5	3.9
Weather stripping (N=8)	8.0	4.0	5.5
Upgrade HVAC system (N=7)	NA	4.9	4.9
Install programmable thermostat (N=3)	7.0	3.0	4.3
HEHC / home energy audit (N=2)	10.0	8.0	9.0
Upgrade duct work (N=2)	4.0	5.0	4.5
Power Manager (N=1)	8.0	NA	8.0
Unplug extra freezer or refrigerator (N=1)	NA	NA	NA
Other: We bought black-out curtains that we keep closed during the day (N=1)	10.0	NA	10.0
Other: Making my family more conscious about turning out lights when they are not using them (N=1)	5.0	NA	5.0
Other: Installing low-flow faucets as part of bathroom and kitchen remodeling (N=1)	1.0	NA	1.0
Other: Getting ready to install air vents in the attic (N=1)	NA	1.0	1.0
Other: We installed a new roof (N=1)	NA	1.0	1.0
Overall average rating of influence (all actions rated)	5.5	3.8	4.6

Note: "NA" is shown for cells in this table where there were no customers who took the action, and/or where there are no customers who provided influence ratings for the action (missing data).

Survey respondents who have taken additional energy efficiency actions inspired by participating in Smart Saver HVAC were asked if they know how much money they saved; these responses are categorized and listed below (including noting the type of unit installed, HP for heat pumps and CAC for central air conditioning). For several of these responses, customers mentioned multiple actions but only gave a savings estimate for the actions taken together (not individually).

Use more efficient light bulbs (N=12)

- \$250 per year (HP)
- \$20 per month (HP – multiple projects combined)
- \$10 per month (HP)
- \$2 per month (HP)
- I haven't had them long enough to tell. (CAC)
- I know that my A/C bill is less than it was as last year, no idea about the CFLs. (CAC)
- Don't know (N=6, five HP and one CAC)

Upgrade appliances / Energy Star (N=10)

- \$35 per month (CAC – multiple projects combined)

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- \$250 per year (HP)
- *I really can't tell because I got the new heat pump and new water heater installed in the same month.* (HP)
- *Don't know* (N=7, three HP and four CAC)

Added insulation (N=9)

- \$1000 per year (HP – multiple projects combined)
- \$500 per year (HP – multiple projects combined)
- \$35 per month (CAC – multiple projects combined)
- \$300 per year (CAC – including savings from replacing A/C)
- \$15 per month (HP – multiple projects combined)
- *I don't have a dollar amount, but the reports Duke sends us are showing a significant difference.* (CAC – also replaced drywall)
- *We are getting ready to install insulated siding, but haven't done it yet.* (CAC)
- *Don't know* (N=2, both HP)

Upgrade windows / doors (N=10)

- \$500 per year (HP – multiple projects combined)
- \$35 per month (CAC – multiple projects combined)
- \$15 per month (HP – multiple projects combined)
- \$25 per year (HP)
- *I'm not sure about the money, but we're scoring better than efficient on our My Home Energy Report now.* (CAC)
- *Don't know* (N=5, three HP and two CAC)

Weather stripping (N=8)

- \$1000 per year (HP – multiple projects combined)
- \$75 per month (CAC – including savings from replacing A/C and furnace)
- \$10 to \$15 per month (HP)
- *Not sure, but our monthly bill now stays under \$100.* (CAC)
- *It's too soon to tell.* (CAC)
- *Don't know* (N=3, one HP and two CAC)

Upgrade HVAC system (N=7)

- \$75 per month (CAC – including savings from programmable thermostat and replacing A/C)
- \$50-\$60 per month (CAC)
- \$20 per month (CAC)
- *It's too soon to tell.* (CAC)

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- *Don't know* (N=3, all CAC)

Programmable thermostat (N=3)

- *\$75 per month* (CAC – including savings from replacing A/C and furnace)
- *\$80 per month* (HP – multiple projects combined)
- *Don't know* (HP)

Upgrade duct work (N=2)

- *\$80 per month* (HP – multiple projects combined)
- *Don't know* (CAC)

HEHC / Home Energy Audit (N=2)

- *It's too soon to tell.* (CAC)
- *We had to pay for the audit.* (HP – follow-up to insulation installation)

Power Manager (N=1)

- *It's too soon to tell.* (HP)

Unplug extra freezer or refrigerator (N=1)

- *Don't know* (CAC)

Other actions (N=5)

- *\$20 per month* (HP – black-out curtains; multiple projects combined)
- *We are getting ready to install air vents in the attic, but haven't done it yet.* (CAC)
- *Don't know* (HP – turn lights off)
- *Don't know* (HP – installed low-flow faucets)
- *Don't know* (CAC – installed new roof)

Overall, about a third of Smart Saver participants (34.8% or 56 out of 161) added other major new electrical appliances in the past year. The most common new appliances are furnaces (14.3% or 23 out of 161), water heaters (6.8% or 11 out of 161), refrigerators (6.2% or 5 out of 161) and stoves/ovens (6.2% or 5 out of 161).

Customers who installed central air conditioning are significantly more likely to have installed other major appliances in the past year (40.0% or 32 out of 80) compared to those who installed heat pumps (29.6% or 24 out of 81; this difference is significant at $p < .10$ using student's t-test). The main reason for this difference is that customers who upgraded their air conditioning were much more likely to also upgrade their furnace (26.3% or 21 out of 80) compared to heat pump installers (2.5% or 2 out of 81; this difference is significant at $p < .05$ using student's t-test). Customers who installed a heat pump were also more likely to install a new refrigerator (8.6% or 7 out of 81) compared to air conditioning installers (3.8% or 3 out of 80; this difference is significant at $p < .10$ using student's t-test).

Table 19. Added Other Major Electrical Appliances to Home in Past Year

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Have added major electrical appliances besides rebated items in past year (all appliances)	29.6%	40.0%	34.8%
Furnace	2.5%	26.3%	14.3%
Water heater	7.4%	6.3%	6.8%
Refrigerator	8.6%	3.8%	6.2%
Stove / oven	6.2%	6.3%	6.2%
Dishwasher	3.7%	6.3%	5.0%
Clothes washer	6.2%	2.5%	4.3%
Dryer	3.7%	2.5%	3.1%
Microwave	1.2%	2.5%	1.9%
TV / home entertainment	1.2%	1.3%	1.2%
Hot tub / Jacuzzi	2.5%	0.0%	1.2%
"All appliances" replaced	1.2%	0.0%	0.6%
Other (listed below)	1.2%	3.8%	2.5%

Four surveyed customers mentioned "other" types of appliances; these are listed below.

Rebate for heat pump (N=1)

- *Dehumidifier*

Rebate for central air conditioning (N=3)

- *Freezer*
- *Humidifier*
- *Water softener*

Thermostat Settings

Figure 15 shows that the most common outdoor temperatures at which Smart Saver participants in Ohio and Kentucky turn on their cooling units are in the 79-81 degree range, which is also the median temperature at which participants turn on their cooling units (for all participants surveyed, as well as for each type of rebate separately).

Heat pump rebate recipients are more likely to wait until warmer weather before turning on their cooling units: 62.9% (51 out of 81) of heat pump rebate recipients only turn their units on when it is 79 degrees or higher outside, compared to 48.8% (39 out of 80) of central air conditioning rebate recipients (this difference is significant at $p < .05$ using student's t-test).

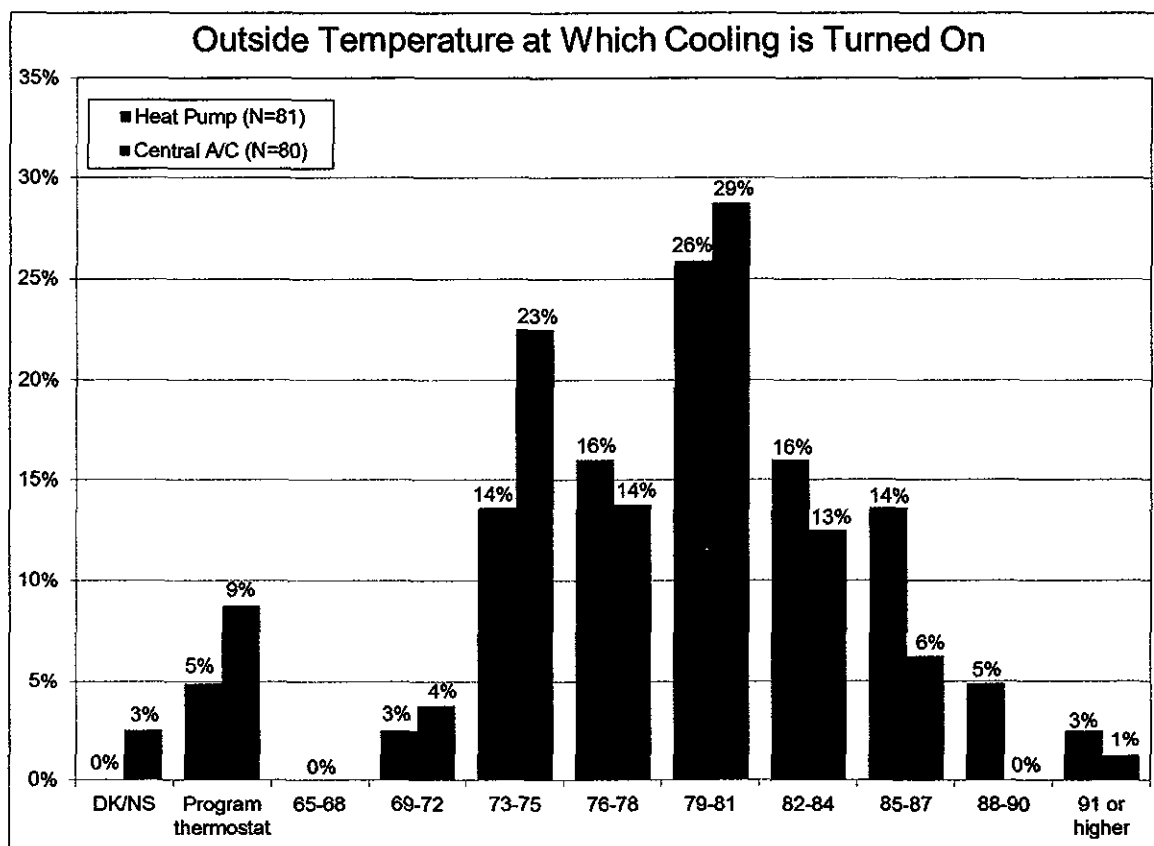


Figure 15. Temperature at Which Cooling Unit Is Turned On

Most respondents in this survey set their thermostats to about the same temperature “before” and “after” installation of their new Smart Saver rebated unit (overall 47.8% or 93 out of 161). As seen in Table 20, another 24.2% (39 out of 161) report that they are now setting their thermostats at a higher temperature than before installing their new unit, while 10.6% (17 out of 161) report that they set their thermostats at lower temperatures since installing their new units.

Customers who installed new heat pumps are more likely to set their thermostats lower after installing the new unit (14.8% or 24 out of 81) compared to central air conditioning installers (6.3% or 5 out of 80; this difference is significant at $p < .05$ using student’s t-test).

Table 20. Change in Thermostat Settings Before and After Installation of New Unit

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Set thermostat at <u>same level</u> “before” and “after”	54.3%	61.3%	57.8%
Set thermostat <u>higher</u> “after” than “before”	23.5%	25.0%	24.2%
Set thermostat <u>lower</u> “after” than “before”	14.8%	6.3%	10.6%
Don't know / programmed into the thermostat / did not answer both questions	7.4%	7.5%	7.5%

The complete distribution of specific responses to both “before” and “after” questions about

thermostat settings is shown in Table 21. Overall, there were very few respondents who changed their thermostat settings after installing a new unit by more than one response category (equal to about 3 or 4 degrees Fahrenheit) – just eight respondents (5.4% of 149 who were able to give specific “before” and “after” settings) turned up their thermostats by two or more response categories (equal to 6 or 7 degrees or more), while another three respondents (2.0% of 149) turned down their thermostat by two or more response categories.

In Table 21, the black numbers on the diagonal indicate respondents who set their thermostats to the same settings “before” and “after” installing their new units, while green numbers indicate those who are setting their thermostats higher “after”, and red numbers indicate those who are setting their thermostats lower “after” installing their new units.

Table 21. Thermostat Settings Before and After Installation of New Unit (Heat Pumps and Central Air Conditioning Combined)

% out of 149 # of responses	Less than 65	After: 65-68	After: 69-72	After: 73-75	After: 76-78	After: 79-81	After: 82-84	After: 85-87	After: 88-90
Less than 65			0.7% 1		0.7% 1				
Before: 65-68			1.3% 2	2.0% 3					
Before: 69-72		0.7% 1	16.1% 24	14.1% 21	1.3% 2				
Before: 73-75		0.7% 1	4.7% 7	28.2% 42	4.7% 7		0.7% 1		
Before: 76-78			1.3% 2	3.4% 5	14.1% 21	0.7% 1			
Before: 79-81						3.4% 5			
Before: 82-84						0.7% 1			
Before: 85-87								0.7% 1	
Before: 88-90									

Note: This table only includes the 149 out of 161 respondents who were able to give specific "before" and "after" thermostat settings; twelve respondents either did not answer both questions, or said it was "programmed into the thermostat" without stating the setting.

According to Table 22, only about a third (34.6% or 28 out of 81) of heat pump rebate recipients are using their units "every day" during cooling season, compared to 53.8% (43 out of 80) of air conditioner rebate recipients (this difference is significant at $p < .05$ using student's t-test). Customers who installed heat pumps are also more likely to say they use their units "only on the hottest days" (17.3% or 14 out of 81) compared to those who installed air conditioning (10.0% or 8 out of 80; this difference is significant at $p < .10$ using student's t-test).

Table 22. Usage of Cooling Units

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Not at all	0.0%	0.0%	0.0%
Only on the hottest days	17.3%	10.0%	13.7%
Frequently during cooling season	11.1%	13.8%	12.4%
Most days during cooling season	33.3%	21.3%	27.3%
Every day during cooling season	34.6%	53.8%	44.1%
Don't know	3.7%	1.3%	2.5%

Figure 16 indicates that most customers (55.9% or 90 out of 161) say they had their cooling units on "13 to 24 hours per day" on average before they installed their new unit. Customers who received rebates for installing central air conditioning were using their units more often than heat pump installers: 65.0% (52 out of 80) used their units 13 or more hours per day (compared to 46.9% or 38 out of 81 heat pump installers), and only 10.0% (8 out of 80) used their units less than 10 hours per day (compared to 25.9% or 21 out of 81 heat pump installers; both of these

differences are significant at $p < .05$ using student's t-test).

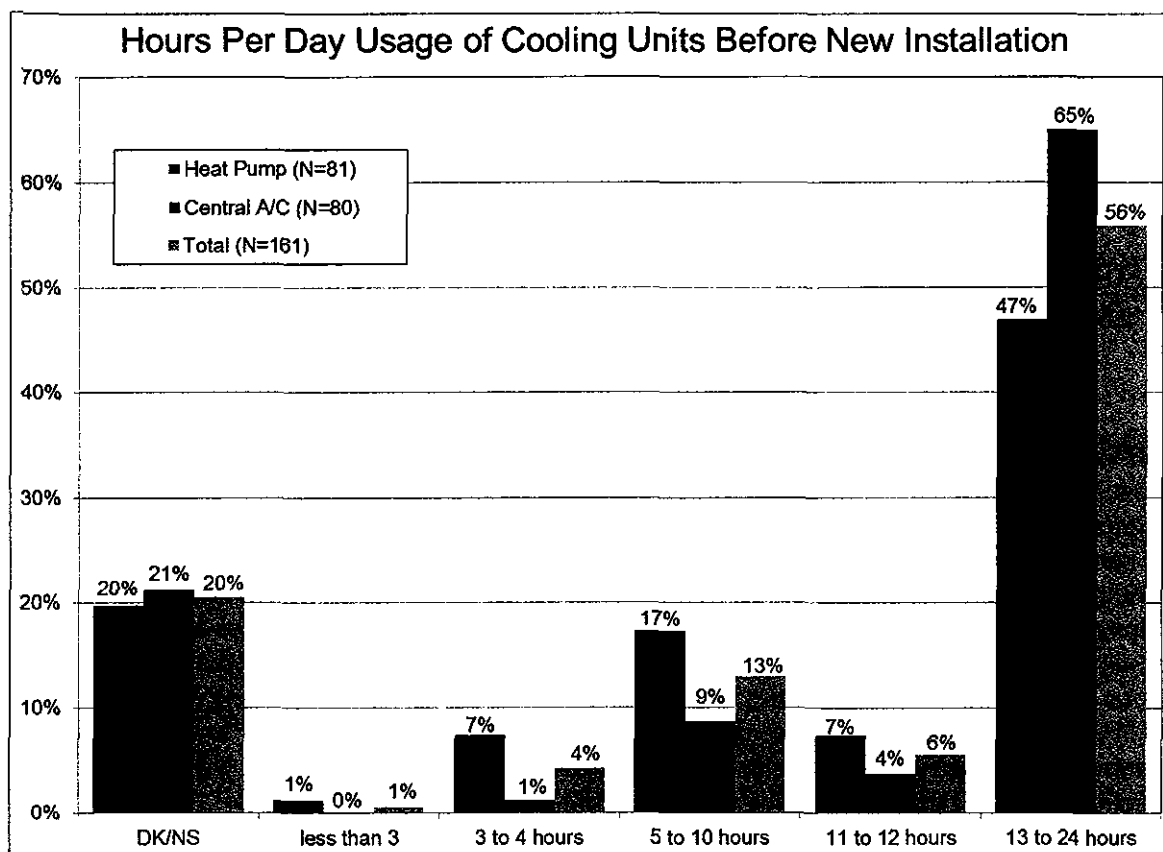


Figure 16. Hours Per Day Usage of Cooling Units Before Installing New Unit

Survey participants were asked whether the number of hours per day their cooling units were being used increased or decreased after installing their new equipment. The pattern of response to this question is different for heat pump and central air conditioning respondents, as seen in Table 23. Most customers who received rebates for central air conditioning say their usage stayed the same (58.8% or 47 out of 80) while about a quarter say it decreased (28.8% or 23 out of 80). However, a larger number of heat pump rebate recipients said their usage declined (46.9% or 38 out of 81) compared to the number saying it stayed the same (37.0% or 30 out of 81; these differences are significant at $p < .05$ using student's t-test).

The average number of hours per day that usage decreased was estimated by customers at 4.6 hours per day overall (per customer whose usage decreased; though heat pump installers averaged 5.0 hours less usage per day, this is not significantly higher than the 3.8 hours per day decline among air conditioning rebate recipients). Among the three customers whose usage increased, only one provided an estimate for the number of hours of increase: one heat pump customer's usage increased by 2 hours per day.

Table 23. Change in Average Daily Use since Replacing Cooling Unit

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Usage decreased	46.9%	28.8%	37.9%
Average decrease in hours (among those who decreased)	5.0	3.8	4.6
Usage increased	2.5%	1.3%	1.9%
Average increase in hours (among those who increased)	2.0	NA	2.0
Usage stayed the same	37.0%	58.8%	47.8%
Don't know	13.6%	11.3%	12.4%

Participation in Other Duke Energy Efficiency Programs

Smart Saver participants were asked if they have participated in other Duke Energy efficiency programs. Most surveyed customers report having received CFLs by mail (64.6% or 104 out of 161) and My Home Energy Reports (54.0% or 87 out of 161), with about 20% each having participated in online services, Power Manager and Home Energy House Call. Heat pump rebate recipients are more likely to have received CFLs (70.4% or 57 out of 81), and to have participated in online services (24.7% or 20 out of 81) and Personal Energy Reports (13.6% or 11 out of 81), while air conditioning installers are more likely to report receiving MyHER (60.0% or 48 out of 80; differences significant at $p < .10$ or better using student's t-test). Surveyed customers participated in an average of 1.9 of the programs listed in Table 24, with no statistically significant difference by unit rebated.

Table 24. Have You Participated In Any of These Duke Energy Programs

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
CFLs by mail	70.4%	58.8%	64.6%
My Home Energy Report (MyHER)	48.1%	60.0%	54.0%
Online services	24.7%	15.0%	19.9%
Power Manager	17.3%	20.0%	18.6%
Home Energy House Call (HEHC)	22.2%	15.0%	18.6%
Personal Energy Report (PER)	13.6%	6.3%	9.9%
None of the above	12.3%	13.8%	13.0%
Average number of programs above	2.0	1.8	1.9

Percentages may total to more than 100% because participants could give multiple responses.

Customers who have not already participated in other Duke Energy efficiency programs were asked to rate their interest in participating in these programs on a 10-point scale where "10" represents the highest level of interest. As seen in Table 25, customers expressed modest interest in Home Energy House Call (average rating 5.64 on a 10-point scale), My Home Energy Report

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(average rating 5.75) and Personal Energy Reports (5.45), with somewhat higher interest in free CFLs (6.75) and lower interest in Power Manager (3.33).

The average ratings for these programs are not significantly different between heat pump and air conditioning rebate recipients.

Table 25. Ratings of Interest in Energy Efficiency Programs by Non-Participants

<i>Base: customers who have not participated in these programs</i>	Heat Pump	Central Air Conditioning	All Surveyed Participants
Home Energy House Call	5.89 (N=62)	5.42 (N=96)	5.64 (N=131)
My Home Energy Report	5.30 (N=44)	6.20 (N=44)	5.75 (N=88)
Power Manager	3.60 (N=67)	3.07 (N=70)	3.33 (N=137)
CFLs by mail	6.59 (N=27)	6.86 (N=37)	6.75 (N=64)
Personal Energy Report	5.86 (N=69)	5.08 (N=75)	5.45 (N=144)

Respondents in this survey were asked, "What other services could Duke Energy provide to help improve home energy efficiency?" Suggestions made by survey respondents are listed in Table 26; three-quarters of respondents (73.9% or 119 out of 161) made no suggestions.

The most common suggestions for services Duke Energy could offer involve providing more education and information about efficiency and conservation to customers (5.6% or 9 out of 161), followed by encouraging insulation and home shell sealing (3.7% or 6 out of 161).

Table 26. Suggestions for Other Services Duke Energy Should Offer

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
More education / information about efficiency and conservation	3.7%	7.5%	5.6%
Encourage insulation / sealing home shell	3.7%	3.8%	3.7%
Encourage efficient lighting	2.5%	3.8%	3.1%
Incentives for more efficiency upgrades (besides cooling)	2.5%	3.8%	3.1%
Home audits	3.7%	1.3%	2.5%
Lower rates	0.0%	5.0%	2.5%
Improve metering / smart meters	2.5%	1.3%	1.9%
Encourage window upgrades	2.5%	1.3%	1.9%
Encourage green energy (solar, wind, geothermal, etc.)	2.5%	1.3%	1.9%
Credit for recycling appliances (other than Power Manager for cooling)	1.2%	1.3%	1.2%
Power line maintenance / tree trimming	1.2%	0.0%	0.6%
Other (listed below)	3.7%	6.3%	5.0%
Nothing / don't know	75.3%	72.5%	73.9%

Percentages may total to more than 100% because participants could give multiple responses.

Eight surveyed participants gave unique suggestions for additional services Duke Energy could offer, which are listed below.

Rebate for heat pump (N=3)

- Duke should do their best to ensure that competing energy providers are not giving false and/or misleading information to their customers.*
- I think that Duke Energy could make their Strike Force program better known. It's a surge protector program that I did not know they offered until it was too late and my house was struck by lightning and fried my whole heating and cooling system.*
- Duke should provide more home energy efficiency assistance for low income customers.*

Rebate for central air conditioning (N=5)

- I would like to see Duke Energy provide CFL disposal or recycling, maybe a mailing box that I can fill and send to Duke for proper disposal. I don't want them ending up in the landfill, and I forget to take them to the store for recycling.*
- I'd like to see them get into the DSL business. I'd like to see internet service; I could get very interested in that, if they're competitively priced.*
- A program that encourages people to get their furnaces and A/C checked every year for safety and burning efficiency; a program that can help get people with acquiring a generator when the power goes out so they can keep their medical equipment and freezers working.*
- Duke could periodically supply home energy kits such as those used in the HEHC program, and offer more incentives for energy efficient home improvements.*

- *Expand the Smart Grid concept. Have pricing be dependent on the hour, and have the thermostat tell you how much it's costing with variable rate pricing. Similar to the Power Manager program, only with greater feedback.*

Attitudes toward Energy and the Environment

Energy and environmental issues are important to Smart Saver participants, as shown in Figure 17 through Figure 20. Fully 80.7% (130 out of 161) view “environmental issues” as either “important” or “very important”, while the corresponding number for “reducing air pollution” is 83.9% (135 out of 161). A clear majority of 54.7% (88 out of 161) also view “climate change issues” as “important” or “very important”. However “reducing the rate of building new power plants” is deemed “important” or “very important” by only 45.3% (73 out of 161) of Smart Saver participants.

Figure 17 through Figure 20 show the complete distributions for these questions about the importance of environmental issues by the type of rebate received. There are no statistically significant differences by unit rebated.

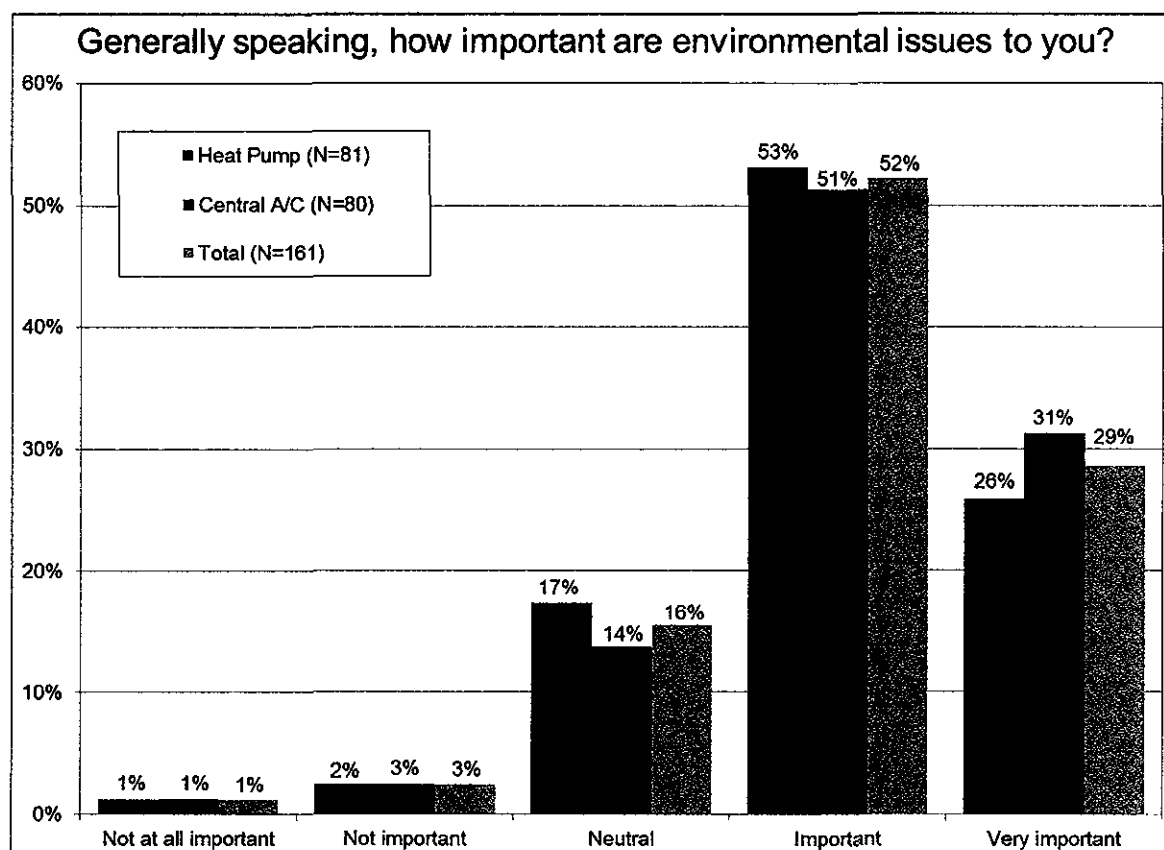


Figure 17. Importance of Environmental Issues to Respondents

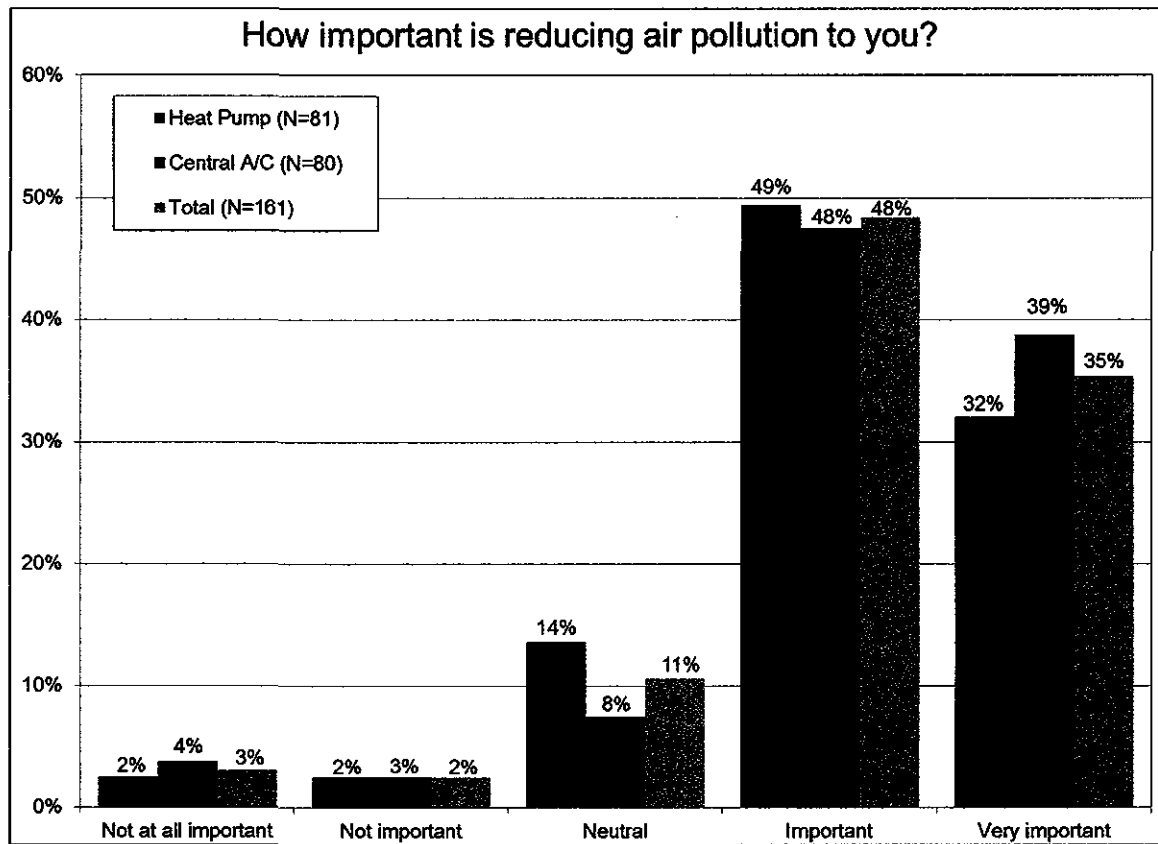


Figure 18. Importance of Reducing Air Pollution to Respondents

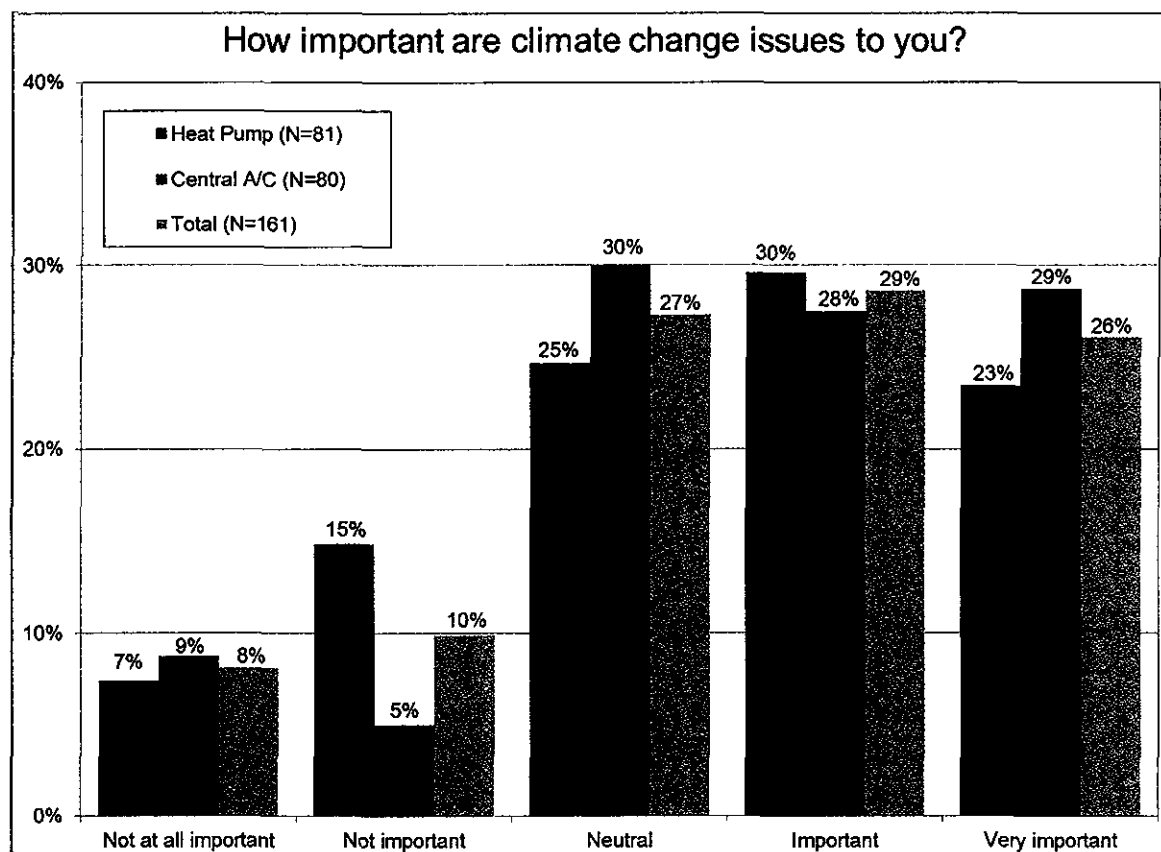


Figure 19. Importance of Climate Change Issues to Respondents

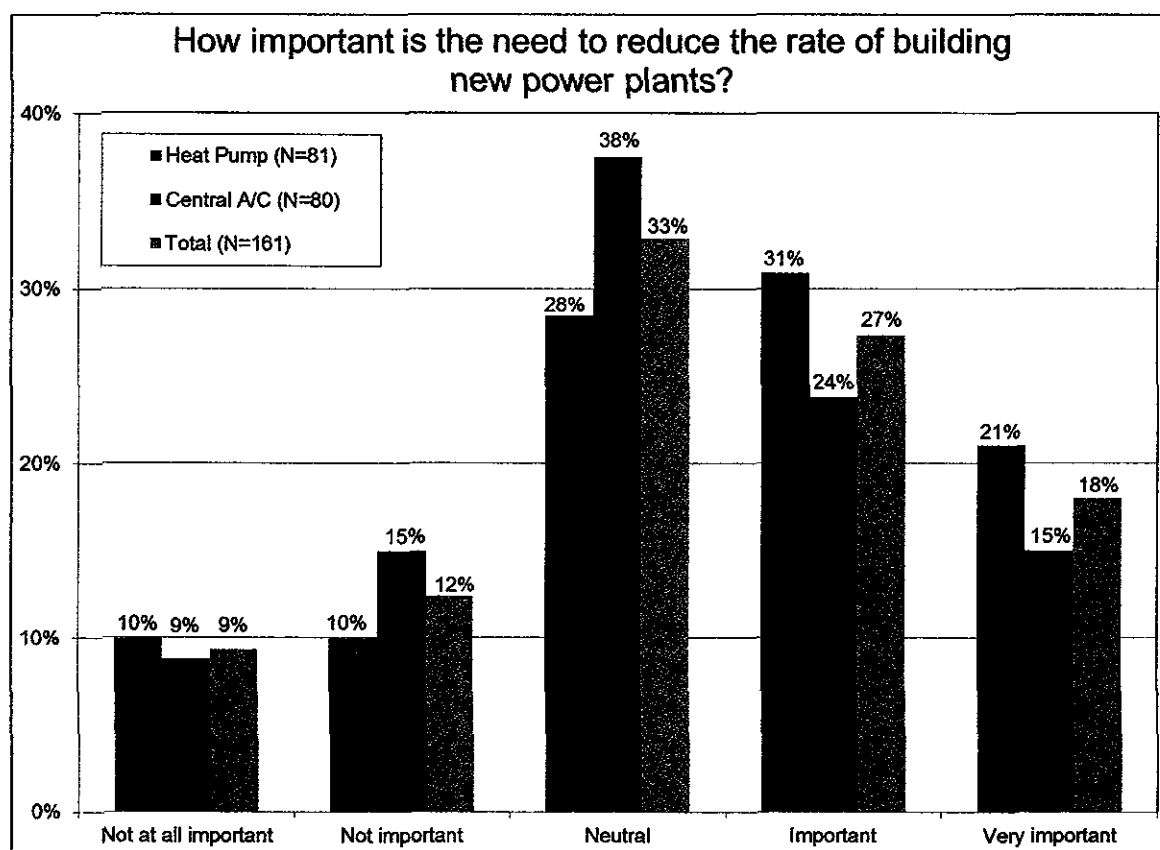


Figure 20. Importance of Reducing Rate of Building New Power Plants to Respondents

However, only 12.4% (20 out of 161) of Residential Smart Saver survey participants actually belong to groups or clubs with environmental missions, as seen in Table 27. Customers who received rebates for heat pumps are more likely to belong to such groups (16.0% or 13 out of 81) compared to air conditioner rebate recipients (8.8% or 7 out of 80; this difference is significant at $p < .10$ using student's t-test).

Table 27. Membership in Groups with Environmental Missions

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Belong to a group or club with an environmental mission	16.0%	8.8%	12.4%
Do not belong to a group or club with an environmental mission	84.0%	91.3%	87.6%

The groups and clubs these 20 respondents belong to are listed below; the number of responses adds up to more than 20 because some of these respondents claimed membership in more than one group.

- *Sierra Club* (N=4)
- *NRA / gun club* (N=3)

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- *World Wildlife Fund*
- *Nature Conservancy*
- *American Whitewater*
- *Greenpeace*
- *Greater Cincinnati Energy Alliance*
- *Knights of Columbus*
- *Democratic Party*
- *Republican Party*
- *Tea Party*
- *Democracy Now*
- *Ohio PIRG*
- *Ohio Citizen Action*
- *Ohio Sportsman's Club*
- *U.S. Green Vehicle Council (USGVC)*
- *Illuminating Engineering Society (IES)*
- *American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)*
- *REI (Recreational Equipment Inc.)*
- *"I am a LEED accredited professional"*
- *"I am on a green committee at work"*
- *"My church does a lot with solar energy"*
- *"I am a Kroger employee"*
- *"I drive a Lexus hybrid"*

Using the Duke Energy Website

A little less than half of the program participants surveyed (44.1% or 71 out of 161) have "never" visited the Duke Energy website, while about one in five (21.7% or 35 out of 161) visit the site "often" (at least once a month). There are no significant differences between customers who received Smart Saver rebates for different types of unit.

Table 28. Frequency of Using the Duke Energy Website

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Often (once a month or more)	24.7%	18.8%	21.7%
Sometimes (less than once a month)	35.8%	32.5%	34.2%
Never	39.5%	48.8%	44.1%

Net to Gross Methodology

The net to gross ratio for the Residential Smart Saver HVAC program will be calculated and presented in the impact report. This section presents the methodology for determining the net to gross results.

The process evaluation includes participant surveys and surveys and in-depth interviews with trade allies, as presented in this report. However, the program's incentives are typically unknown to the participant. Many trade allies typically complete the application to receive the program's rebate and pass the savings on to the participating customer. In this common scenario, the participating customer is not a reliable source for freeridership information. With this program's operational structure, TecMarket Works determined that the best source for freeridership information is the trade allies. In August and September, 2013, TecMarket Works conducted a survey with 79 Ohio and Kentucky trade allies (out of 313 trade allies located in Ohio and 51 trade allies in Kentucky that participated in the HVAC program) in order to get as much information about freeridership as possible. The resulting methodology will be presented in full detail in the impact report.

Net to Gross Battery

A short survey was fielded with partnering trade allies: all of the questions asked can be found in *Appendix C: HVAC Trade Ally Survey Instrument*, and the responses of surveyed trade allies are presented in the section of this report titled *Trade Ally Survey*.

The two key questions that are used to calculate a net to gross ratio for this program are listed below:

- *Of the energy efficient equipment that was rebated through the program, what percentage of those customers do you think would have still gone with an energy efficient model if the Duke Energy rebate were not available?*
- *Using a scale of 1 to 10, where 1 means not at all influential and 10 means very influential, how important would you say the rebate is to your customers' decision when considering all the various factors that a customer typically contemplates prior to making a purchase from your company?*

The results of the net to gross calculations will be presented in the impact report for the Residential Smart Saver HVAC program.

Appendix A: Management Interview Instrument

Name: _____

Title: _____

Position description and general responsibilities:

We are conducting this interview to obtain your opinions about and experiences with the Smart Saver program. We'll talk about the Smart Saver Program and its objectives, your thoughts on improving the program, and the technologies the program covers. The purpose of this study is to capture the program's current operations as well as help identify areas where the program might be improved. Your responses will feed into a report that will be shared with Duke Energy and the state regulatory agency. I want to assure you that the information you share with me will be kept confidential; we will not identify you by name. However, you may provide some information or opinions that could be attributed to you by virtue of your position and role in this program. If there is sensitive information you wish to share, please warn me and we can discuss how best to include that information in the report.

Do you have any questions for me before we begin?

Program Description

In your own words, please describe the [STATE NAME] Smart Saver HVAC Program. In what other service territories does the program operate?

Why did Duke Energy chose to offer prescriptive incentives for trade ally-installed HVAC measures?

Why did Duke Energy decide to use a third party vendor to administer this program?

Please discuss the history and development of the program. How does this differ in the various service territories the program is offered?

What are the current program's objectives? That is, what is the program trying to accomplish (e.g. generate energy savings, installation of efficiency devices, enrollment in other programs, non-energy benefits)? In your opinion, which objectives do you think are being met or will be met? Have the objectives changed over time. If yes, how do you think they have changed??

Are there any program objectives that are not being addressed or that you think should have more attention focused on them? If yes, which ones? How should these objectives be addressed? What should be changed? How will these changes improve the program? Would it improve customer satisfaction, lower program costs or delivery a better product to customers?

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Should the program objectives be changed in any way because of market conditions, other external or internal program influences, or any other conditions that have developed since the program objectives were devised? What changes would you put into place, and how would it affect the objectives?

What are the program's energy savings goals? Over what time period? How are you performing toward these goals? Will this goal be met?

Does the program have participation goals? If so, what are they? Over what time period? How is the program performing toward these goals? Will this goal be met?

Does the program have any other goals? How are you performing toward these goals? Over what time period? Will these goals be met?

Are there any program changes that you think would improve the program's performance towards its goals and objectives?

Program Management and Operations

Please describe your role and scope of responsibility in detail. What is it that you are responsible for as it relates to this program? When did you take on this role? If a recent change in management...Do you feel that Duke Energy gave you enough time to adequately prepare to manage this program? Did you get all the support that you needed to manage this program?

Please review with us how the Smart Saver HVAC program operates relative to your duties, that is, please walk us through the processes and procedures and key events that allow you to currently fulfill your duties.

Have any recent changes been made to your duties? If so, please tell us what changes were made and why they were made. What are the results of the change?

Is there any other person or group within Duke Energy that you work with on the implementation of this program? Who is that and what role do they serve?

Which third parties or vendors do you work with to implement this program? Please describe their roles in the implementation of the program.

How effective is the vendor in its assigned role? What works well? What could be improved? (Repeat for each third party vendor.)

How often and in what form do you communicate with the vendors? How would you characterize your working relationships?

How do you manage and monitor or evaluate third-party involvement or performance? What do you do if trade ally performance is exemplary or below expectations?

Describe the use of any advisors, technical groups or organizations that have in the past or are currently helping you think through the program's approach or methods. How often do you use them? What do you use them for?

Program Measures and Incentives

Please describe the energy saving measures used by the program. How were they determined? Why were they selected?

What is a health check? What measures or steps are included? Why?

What are the eligibility requirements for each measure?

Why were systems such as through-the-wall room HP or AC, Window HP or AC, Mini Split or Multi split HP or AC, Portable HP or AC, Evaporative AC, and natural gas furnace and boilers excluded?

What are the trade ally, customer, and builder incentive amounts in [STATE] for each measure?

Please send table with numbers for each state. How were the incentive amounts determined?

What information or research was used to determine those levels? Why these amounts?

How often are incentive amounts reviewed? What criteria are used for the review? Have you changed any incentive levels? If which ones? When? By how much? And why?

Trade Allies

What benefits does the Smart Saver HVAC program offer to potential trade allies? Why would they want to participate?

It is my understanding that GoodCents is responsible for trade ally marketing and recruiting, is this correct? How does GoodCents market to and recruit trade allies? What role does Duke Energy serve in this process?

What barriers have been encountered in trade ally marketing and recruiting efforts? How can trade ally recruitment be improved?

What are the eligibility requirements for trade allies (e.g. licenses, good standing, certifications, safety, financials, etc.)? Do requirements differ by program offering (HVAC, Health Check, Insulate and Seal)? If so, how? Do they differ by state? If so, how?

Are trade allies required to hold certain certifications such as NATE, BPI, etc.? If so, which certifications are considered acceptable (e.g. AC, Air Distribution, HVAC Analyst, AC and HP, etc.)? Do these requirements apply to the business overall or to each individual technician serving customers?

What is the trade ally screening process? Is it handled by GoodCents alone or is Duke Energy involved?

Are there criteria for continued trade ally and individual technician participation in the program? If so, what are they? How often are they reviewed?

What is the training process? How long is it? What is covered? Who teaches it? Please provide sample training materials. What is the success rate of training? What are the requirements for successful training to participate in program?

How do you track and manage trade ally interactions and field operations?

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What challenges have you previously encountered with trade allies and how have they been overcome? Please describe any current challenges you are facing.

In what ways can trade ally recruitment and management be improved?

Customer Marketing

Does the program have specific customer enrollment goals? How are you performing toward these goals?

Does the program have specific marketing goals? What metrics do you use? How are you performing?

What are the eligibility requirements for customers?

Please describe how you identify target markets. Which markets does this program focus on and why?

Are potential customers segmented? If so, how?

How are customers made aware of and recruited into the program?

Is marketing done by GoodCents, Duke Energy, and/or trade allies? Please explain.

Please describe the marketing plan and execution for this program. What types of marketing are used? How often?

How are marketing efforts coordinated?

Are marketing results tracked? If not, why? If so, what metrics are used? Which types of marketing are most effective? Why?

Please describe any specific marketing and or branding requirements from Duke Energy and/or GoodCents. How are trade allies instructed to deal with GoodCents and Duke Energy branding?

What happens when a customer learns about the program? How do they learn more? How do they sign up?

How are customers enrolled?

What challenges have you previously encountered with marketing and how have they been overcome? Please describe any current challenges you are facing.

In what ways can program marketing be improved?

Call Center Operations

Please describe the role of the call center in the operation of this program.

What are your service level agreements? What are the metrics used (call handle time, etc.)?

Please describe the call center reporting process. How is the call center performing?

How does Duke Energy oversee and maintain call quality? What types of issues have been uncovered? How have these been addressed?

What challenges have you previously encountered with call center operations and how have they been overcome? Please describe any current challenges you are facing.

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In what ways can call center operations be improved?

Incentive Presentation to Customers and Measure Installation

Please describe a typical interaction between customers and trade allies, including initial visit, repeat visits, measure performance/installation, and follow up, including paperwork.

How are trade allies trained to present the measures and associated incentives to customers? Are they presented one at a time or as a bundle? Are steps for presentation to customers standardized or left flexible? Why?

Has any testing been done on the most effective ways to encourage customer participation? If so, what was done and what were the results? If not, why?

What types of challenges or difficulties might be encountered during a customer interaction (technical, customer service, etc.) How are trade allies trained to deal with these difficulties?

What kind of paperwork is required by the customer? What paperwork is required on the part of the trade ally? Please provide samples.

Do you perform post-installation measure verification? If so, please describe that process. How frequently is it used? If not, why? What alternatives are used?

How are trade allies instructed to deal with customer satisfaction? Is customer satisfaction measured? If so, how? If not, why?

How overall quality assurance maintained? What types of issues have been uncovered? How have these been addressed?

What other challenges have you previously encountered with trade ally/customer interactions and how have they been overcome? Please describe any current challenges you are facing.

In what ways can trade ally/customer interactions be improved?

Incentive Processing

Please describe how incentives are processed from start to finish.

In what form are customer and trade ally payments issued?

How long does it typically take for the customer to receive payment? How long does it take for the trade ally to receive payment?

How are numbers of incentives and amounts reported to Duke Energy? How often are reports filed? Please describe the report and provide a sample.

How is compensation for incentive amounts handled between the two organizations?

How is quality assurance handled during incentive processing? What issues have been uncovered and how were they resolved?

What other challenges have you previously encountered with incentives and how have they been overcome? Please describe any current challenges you are facing.

In what ways can incentive processing be improved?

TecMarket Works

Data Systems and Management

Please describe the systems and processes used to track, measure, analyze and report on program performance.

What metrics are used for to report program performance?

Please describe the reporting process that GoodCents uses to inform Duke Energy. What types of reports are provided? How often? Please provide samples.

Does GoodCents provide an online portal or other means that Duke Energy can access this information directly? If so, please describe it.

Measurement and Verification

How does Duke Energy track and attribute energy savings?

Please describe the measurement and verification process used for this program.

What types of data is GoodCents required to collect and maintain?

Is measurement and verification part of the compensation plan for GoodCents administration of the program?

Vendor Assessment

(If not captured earlier) Please explain how the interactions between Duke Energy and vendors work.

How effective are vendors in their assigned roles? What works well? What could be improved? (Repeat for each vendor.)

Do you think these interactions should be changed in any way? If so, how and why?

How often and in what form do you communicate with Duke Energy and vendors? How would you characterize your working relationships?

Are key industry experts, trade professional or peer used to identify program enhancements, cost reduction opportunities or process improvements? If so, how does this work?

Are key industry experts and trade professionals used in other advisory roles such as market or marketing experts or industry professionals? If so how does this work and what kind of support is obtained?

Overall Strengths, Needs, and Suggestions

Overall, what about the [STATE NAME] program works well and why?

What doesn't work well and why? Do you think this discourages customer acceptance or the quality of the offer to the customer?

Do you have suggestions for improvements to the program that would increase offer quality, customer interest or lower costs?

Do you have suggestions for the making the program operate more smoothly or effectively?

Do you have suggestions for improving or increasing energy impacts?

Operational, Market & Technical Barriers and Suggestions

What information, research or assessments are you using to identify barriers to implementation and develop more effective ways to deliver this program?

Can you identify any market, operational or technical barriers that impede a more efficient program operation?

Anything on the horizon that you think will impact the energy savings generated by this program?

In what ways can program operations or operational efficiencies be improved?

Closing Suggestions and Comments

If you could change anything else about the program, what would you change and why?

Are there any other issues or topics you think we should know about and discuss for this evaluation?

Is there anyone else that I should speak with to better complete this evaluation?

Appendix B: Trade Ally Interview Instrument

Target 10 in OH & KY (each)

Use four attempts at different times of the day and different days before dropping from contact list. Call times are from 9:00 a.m. to 5:00 p.m. EPT, Monday - Friday.

Note: Only read words in bold type.

for answering machine 1st through penultimate attempts:

Hello, my name is _____ and I am calling with a survey about the Duke Energy Smart Saver HVAC rebate program that your company participates in. I'm sorry I missed you. I'll try again another time.

for answering machine - Final Attempt:

Hello, my name is _____ and I am calling with a survey about the Duke Energy Smart Saver HVAC program that your company participates in. I'm sorry I missed you. This is my last attempt at reaching you, my apologies for any inconvenience.

if person answers

Hello, my name is _____. May I please speak with _____ or whoever helps to coordinate your company's participation in the Duke Energy Smart Saver HVAC rebate program?

I am calling on behalf of Duke Energy to conduct an interview to obtain your opinions about and experiences with Duke Energy's Residential Smart Saver program. We are not selling or promoting anything, there are no wrong answers, and your responses to our questions will be combined with other responses and used to help us make improvements to the program.

We'll talk about your understanding of the Residential Smart Saver Program and its objectives, your thoughts on improving the program, and the technologies the program covers. The interview will take about 45 minutes to complete. May we begin?

Note: If this is not a good time, ask if there is a better time to schedule a callback.

We initially have some brief quantitative questions to ask you. After these we'd like to discuss some other questions where we'd appreciate hearing your insights and opinions.

Identification

Surveyor Name _____
Survey ID _____
Name _____
Title _____
Company _____
Address _____
City _____
State _____

TecMarket Works

Appendices

Zip _____
Phone _____
Email _____

1. What is your best estimate regarding the number of customers per year that your company serves who participate in the Smart Saver program? _____

Comments: _____

2. What percentage of these Smart Saver buyers your company works with do you think are replacing failed units? _____

Comments: _____

3. What percentage of the Smart Saver buyers do you think are replacing older equipment that is still functioning, but less efficient? _____

Comments: _____

4. What percentage of your total high efficiency equipment sales were rebated through the Smart Saver program last year? _____

Comments: _____

5. Of the energy efficient equipment that was rebated through the program, what percentage of those customers do you think would have still gone with an energy efficient model if the Duke Energy rebate were not available? _____

Comments: _____

6. What percentage of customers would you estimate were aware of the rebate for high efficiency equipment prior to contacting your company? _____

Comments: _____

7. What percentage of customers would you estimate decide to install a lower efficiency model after being made aware of the rebate for high efficiency equipment? _____

Comments: _____

8. Using a scale of 1 to 10, where 1 means not at all influential and 10 means very influential, how important would you say the rebate is to your customers' decision when considering all the various factors that a customer typically contemplates prior to making a purchase from your company?

() 1

...

TecMarket Works

- ☐ 10
- ☐ DK/NS

If less than 8,

9. Why do you give that response? _____

10. What other factors are commonly more influential than the rebate in a customer's decision to purchase the high efficiency unit from your company?

Do Not Read. Allow for Any Response.

- ☐ Overall purchase price
- ☐ Payment options
- ☐ Equipment operating cost
- ☐ Equipment efficiency rating
- ☐ Equipment warranty
- ☐ Labor warranty
- ☐ Service contract
- ☐ Equipment reputation/brand
- ☐ Your company's reputation/brand
- ☐ Duke Energy reputation/brand
- ☐ Sales person influence
- ☐ Recommendation or referral *ask: From whom*
- ☐ Monthly utility bill reduction
- ☐ Tax credits
- ☐ Other utility or manufacturer rebates
- ☐ Other
- ☐ DK/NS

11. Using a scale of 1 to 10, where 1 means not at all helpful and 10 means very helpful, how useful would you say the rebate is to your company's ability to sell high efficiency equipment?

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If less than 8,

12. Why do you give that response? _____

13. On a scale from 1-10, with 1 indicating that you are very dissatisfied, and 10 indicating that you are very satisfied, please rate your satisfaction with the Smart Saver HVAC Rebate Program

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If less than 8,

14. Why do you give that response? _____

Understanding the Program

Now we would like to ask you about your understanding of the Smart Saver program. We would like to ask you to...

1. Please review for me how you are involved in the program and the steps you take in the participation process. Walk me through the typical steps you take to help a customer become eligible for this program and what you do to receive or help the customer receive the program incentive.
2. What kinds of problems or issues have come up in the Smart Saver program?
3. Have you heard of any customer complaints that are in any way associated with this program? Have callbacks increased due to the program technologies?

Program Design and Design Assistance

4. Do you feel that the proper technologies and equipment are being covered through the program?
5. Are the incentive levels appropriate? How do they impact the choice by the customers of the higher efficient equipment?
6. Are there other technologies or energy efficient systems that you think should be included in the program?
7. Are there components that are now included that you feel should not be included? What are they and why should they not be included?

Reasons for Participation in the Program

We would like to better understand why contractors become partners in the Smart Saver Program.

9. How long have you been a partner in the Smart Saver Program?
10. What are your primary reasons for participating in the program? Why do you continue to be a partner?.... *If prompts are needed...* Is this a wise business move for you, is it something you believe in professionally, does it provide a service to your customers, do you want to build a relationship with Duke Energy, or other reasons?
11. Has this program made a difference in your business? How?

- 12. How do you think Duke Energy can get more contractors to participate in this program?**

Program Participation Experiences

The next few questions ask about the process for submitting participation forms and obtaining the incentive payments.

- 13. Do you think the process could be streamlined in any way? How?**
- 14. How long does it take between the time that you apply for your incentive, to the time that you and your customer receive the payments? Is this a reasonable amount of time? What should it be? Why?**
- 15. Do you have the right amount of materials such as forms, information sheets, brochures or marketing materials that you need to effectively show and sell your Smart Saver® heat pumps and air conditioners? What else do you need?**
- 16. Overall, what about the Smart Saver Program do you think works well and why?**
- 17. What changes would you suggest to improve the program?**
- 18. Do you feel that communications between you and Duke Energy's Smart Saver program staff is adequate? How might this be improved?**
- 19. What benefits do you receive as a result of participating in Duke Energy's Smart Saver Program or from selling Smart Saver items?**
- 20. What do you think are the primary benefits to the people who buy a Smart Saver appliance? Are there other benefits that are important to a potential customer?**

Market Impacts and Effects

- 21. How do you make customers aware of the Program?**
- 22. Are customers more satisfied with this equipment? Why or why not?**
- 23. Do you have fewer calls or more calls to correct problems with the Smart Saver appliances?**
- 24. Do you market or sell the Smart Saver equipment differently than your other equipment? How?**
- 25. What percent of Smart Saver buyers do you think are replacing older equipment that is still functioning, but less efficient? What percent of Smart Saver buyers do you think are replacing failed units?**

- 26. Other than the energy efficient heat pumps and air conditioners, has the program influenced you to carry other energy efficient equipment that is not rebated through the program?**
- a. If yes, what do you now carry?**
 - b. If yes, About how many of these units did you install/sell in the last year?**
- 27. Do you bundle air conditioners with any other efficiency options?**
- a. If yes, what percent?**
- 28. Has the program influenced your decision to market or sell more high efficiency equipment than you would have without the program?**
- a. If yes, To what extent?**
- 29. We would like to know what your practices were before you became a partner in the program, and what you would offer your customers without the program.**
- 30. There are no plans to terminate the program, but we would like to know how the program affects trade allies. If the program were to be discontinued, would you still offer the same energy efficient equipment options?**
- 31. If the program were not offered, how would you structure pricing differently to make up for the program loss?**
- 32. In your opinion is the Smart Saver program still needed? Why?**

Recommended Changes from the Participating Trade Allies

- 33. Are there any other changes that you would recommend to Duke Energy for their Program not already discussed?**

Appendix C: HVAC Trade Ally Survey Instrument

Target 80 in IN, 80 in OH&KY (combined)

Use four attempts at different times of the day and different days before dropping from contact list. Call times are from 9:00 a.m. to 5:00 p.m. EPT, Monday - Friday.

Note: Only read words in bold type.

for answering machine 1st through penultimate attempts:

Hello, my name is _____ and I am calling with a survey about the Duke Energy Smart Saver HVAC rebate program that your company participates in. I'm sorry I missed you. I'll try again another time.

for answering machine - Final Attempt:

Hello, my name is _____ and I am calling with a survey about the Duke Energy Smart Saver HVAC program that your company participates in. I'm sorry I missed you. This is my last attempt at reaching you, my apologies for any inconvenience.

if person answers

Hello, my name is _____. May I please speak with _____ or whoever helps to coordinate your company's participation in the Duke Energy Smart Saver HVAC rebate program?

I am calling on behalf of Duke Energy to conduct a contractor survey to get feedback about your company's experiences with the program. We are not selling or promoting anything, there are no wrong answers, and your responses to our questions will be combined with other responses and used to help us make improvements to the program.

The survey only has 10 questions and will take just 3 or 4 minutes.

Note: If this is not a good time, ask if there is a better time to schedule a callback.

Identification

Surveyor Name _____
Survey ID _____
Name _____
Title _____
Company _____
Address _____
City _____
State _____
Zip _____
Phone _____
Email _____

1. What is your best estimate regarding the number of customers per year that your company serves who participate in the Smart Saver program? _____

TecMarket Works

Appendices

Comments: _____

2. What percentage of these Smart Saver buyers your company works with do you think are replacing failed units? _____

Comments: _____

3. What percentage of the Smart Saver buyers do you think are replacing older equipment that is still functioning, but less efficient? _____

Comments: _____

4. What percentage of your total high efficiency equipment sales were rebated through the Smart Saver program last year? _____

Comments: _____

5. Of the energy efficient equipment that was rebated through the program, what percentage of those customers do you think would have still gone with an energy efficient model if the Duke Energy rebate were not available? _____

Comments: _____

6. What percentage of customers would you estimate were aware of the rebate for high efficiency equipment prior to contacting your company? _____

Comments: _____

7. What percentage of customers would you estimate decide to install a lower efficiency model after being made aware of the rebate for high efficiency equipment? _____

Comments: _____

8. Using a scale of 1 to 10, where 1 means not at all influential and 10 means very influential, how important would you say the rebate is to your customers' decision when considering all the various factors that a customer typically contemplates prior to making a purchase from your company?

☐ 1

...

☐ 10

☐ DK/NS

If less than 8,

9. Why do you give that response? _____

10. What other factors are commonly more influential than the rebate in a customer's decision to purchase the high efficiency unit from your company?

Do Not Read. Allow for Any Response.

- ☐ Overall purchase price
- ☐ Payment options
- ☐ Equipment operating cost
- ☐ Equipment efficiency rating
- ☐ Equipment warranty
- ☐ Labor warranty
- ☐ Service contract
- ☐ Equipment reputation/brand
- ☐ Your company's reputation/brand
- ☐ Duke Energy reputation/brand
- ☐ Sales person influence
- ☐ Recommendation or referral *ask: From whom*
- ☐ Monthly utility bill reduction
- ☐ Tax credits
- ☐ Other utility or manufacturer rebates
- ☐ Other
- ☐ DK/NS

11. Using a scale of 1 to 10, where 1 means not at all helpful and 10 means very helpful, how useful would you say the rebate is to your company's ability to sell high efficiency equipment?

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If less than 8,

12. Why do you give that response? _____

13. On a scale from 1-10, with 1 indicating that you are very dissatisfied, and 10 indicating that you are very satisfied, please rate your satisfaction with the Smart Saver HVAC Rebate Program

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If less than 8,

14. Why do you give that response? _____

Thank you for taking our survey. Your response is very important to us.

Appendix D: Sample Rebate Application Form

Rebate applications are similar for Ohio and Kentucky.



Smart Saver®

Ohio Residential Smart \$aver Incentive Application – HVAC Install

Preliminary Information

Whom should we contact with questions? ☐ Customer ☐ Contractor ☐ Builder Total Project Cost: \$ _____

Incentive Recipient

If Builder Submission, who should receive the incentive?

☐ Builder ☐ Other: _____ (Place name here and address in mailing address below)

If rental property, the landlord will receive the incentive. Please provide the landlord's name below:

_____ (Place name here and address in mailing address below)

Customer Information (All information must match the information on the utility bill)

Duke Energy Electric Account #: _____

Customer Name on Duke Energy Account: _____

Contact Person: _____ Email: _____

How did you hear about this program (mailing, email, web, contractor, word of mouth, etc.)? _____

☐ By providing my email address, I acknowledge that I'm signing up to receive email messages from Duke Energy.

Installation Address

Address 1: _____

Address 2: _____

City: _____

State, Zip Code: _____

Phone: (____) _____

Mailing Address (☐ Same as Installation Address)

Address 1: _____

Address 2: _____

City: _____

State, Zip Code: _____

Alternate Phone: (____) _____

Trade Ally Information

Company Name: _____ ☐ Payee Contact Person: _____ ☐ Payee

Mailing Address 1: _____ Telephone: (____) _____

Mailing Address 2: _____ Fax: (____) _____

City, State, Zip: _____ Email: _____

Application Checklist

☐ Complete all sections ☐ Agree to Terms & Conditions ☐ Include Invoice ☐ Submit within 90 days of installation

Send signed application and all required documents to:

Smart Saver Incentive Program, P.O. Box 525, Shelnville, GA 30078

Or Fax: 1.866.728.8293 Or Email: incentives@dukeenergysmart saver.com

Questions? Visit duke-energy.com/smart saver or call 1-866-785-6209.

Terms and Conditions

I have read and hereby agree to the Program Requirements as stated on the Smart \$aver Trade Ally Registration Form on file with Duke Energy. I hereby certify that the information contained on this application is true and accurate to the best of my knowledge.

Trade Ally Signature _____

Date _____

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Smart Saver®

Ohio Residential Smart Saver Incentive Application – HVAC Install

New Unit							
Air Conditioner / Heat Pump	New Construction / Replacement	Make - Outdoor Unit	Model Number - Outdoor Unit	Serial Number - Outdoor Unit	Make - Indoor Unit	Model Number - Indoor Unit	Serial Number - Indoor Unit

AHRI Number of System	SEER	EER	HSPF	COP	Open or Closed Loop	Back-up Fuel	ECM Present?	Date Installed and Operable	Number of Tons

Replaced Unit						
Air Conditioner / Heat Pump / Gas Furnace	Make - Outdoor Unit	Model Number - Outdoor Unit	Serial Number - Outdoor Unit	Make - Indoor Unit	Model Number - Indoor Unit	Serial Number - Indoor Unit

AHRI Number of System	SEER	EER	HSPF	COP	AFUE	Number of Tons	Approximate System Age

Home Characteristics:

Residence Type: ☐ Single Family Detached ☐ Townhome/Condo ☐ Multi-family (2-4 Units) ☐ Multi-family (5+ Units)

Year of Construction: _____

Heated Square Footage of Home: _____

Number of HVAC Systems in Home: _____

Number of stories above grade: _____

Foundation Type: ☐ Slab ☐ Crawlspace ☐ Basement

Duct Location: ☐ Attic ☐ Unconditioned Basement/Crawlspace ☐ Conditioned Basement/Closed Crawlspace

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Smart Saver[®]

Ohio Residential Smart \$aver Incentive Application – HVAC Install

Instructions

Important: The application must be submitted within 90 days of project completion. Incomplete or illegible applications will not be processed and will be returned to the submitting party for correction. Also, specialized or contractors' forms will not be accepted in lieu of this application form.

Please review all items listed below prior to the submission of this application:

- Complete all parts of the Incentive applications. Note the following required information that is often overlooked:
 - Customer information as shown on your electric bill including account number and name.
 - Trade Ally signature
 - Serviced measure information in the chart on page 2 (other charts or tables are not acceptable).
- Additional information about this program and other programs offered by Duke Energy may be found by:
 - Visiting the program website at duke-energy.com/smartsaver.
 - Calling the program at 1-866-785-6209.
 - Emailing the program at incentives@dukeressmartsaver.com
- Make a copy of all application documents for your records.

Program Rules and Equipment Eligibility Requirements

- Work must be completed by a participating contractor. If you do not have a contractor, please visit duke-energy.com/smartsaver to view a list of participating contractors.
- Customer must be served under a Duke Energy residential electric rate and have an active electric account with Duke Energy to qualify for the Incentive.
- All installed measures must be new. No refurbished measures will be accepted.
- The approved incentive will be processed and mailed within 45 days of the application's receipt.
- All applications are subject to on-site inspection and payment will be mailed after the passed inspection (if inspection was required).
- Incentive checks will only be mailed to the customer's or Trade Ally's mailing address as indicated on this application.
- The amount and availability of incentives are subject to change. The program funding is limited and available on a first come, first served basis.
- Only one account number per application is accepted. If upgrades are made across multiple account numbers, separate applications must be submitted to reflect the quantities associated with each account number.
- Leased equipment is not eligible.
- The incentive recipient assumes all responsibilities for any tax consequences resulting from incentive payment.
- Incentives may not exceed the cost of the installed measures.
- An additional program available from Duke Energy is the Power Manager program. You've taken an important step in lowering your energy bills. Learn how you can save even more with Power Manager. Visit duke-energy.com/powermanager.asp to see how.
- Attach the required AHRI certification indicating the SEER efficiency level of the installed heat pump or air conditioner. See www.ahridirectory.org.
- HVAC dealer, dealer sales representative or builder must fill out the Participating Trade Ally Registration form prior to or in conjunction with their first incentive application.

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Appendix E: Participant Survey Instrument

Need to know this regarding customer:

- [technology] type of equipment - air conditioner or heat pump

- [date] approximate date of participation

NOTE: the program provided a \$300 dollar incentive amount per unit. Retrofit incentives consisted of a \$200 incentive to the customer and a \$100 incentive to the trade ally. But a builder of new construction got the entire \$300 incentive.

Equipment

☐ Heat Pump

☐ Central Air Conditioner

State

☐ Ohio

☐ Kentucky

Info

Surveyor Name _____

Survey ID _____

Date _____

for answering machine 1st through penultimate attempts

Hello, my name is _____ and I am calling with a survey about the rebate that you received from Duke Energy's Smart Saver program. I'm sorry I missed you. I'll try again another time.

for answering machine - Final Attempt

Hello, my name is _____ and I am calling with a survey about the rebate that you received from Duke Energy's Smart Saver program. This is my last attempt at reaching you, my apologies for any inconvenience.

if person answers

Hello, my name is _____ and I am calling in regard to the rebate that you received from Duke Energy's Smart Saver program. The purpose of this call is to ask you a few questions about your purchase and your satisfaction with the application and rebate. We are not selling anything. Your answers will be confidential, and will help us to make improvements to the program to better serve others. If you qualify for the survey it will take about 20-30 minutes, but when we are done with the survey I will confirm your address and we will send you \$20 for your time. May we begin?

1. Our records indicate that you participated in the Smart Saver Program in [date] and that you installed [air conditioner or heat pump] through the program and received an incentive for your purchase. Do you recall participating in this program?

☐ Yes

☐ No

☐ DK/NS

This program was provided through Duke Energy. In this program, you purchased an energy efficient [air conditioner or heat pump]. In exchange for purchasing the energy efficient option, Duke Energy provided you with a rebate check for \$200.

1a. Do you remember participating in this program?

- ☐ Yes
☐ No
☐ DK/NS

If No or DK/NS terminate interview politely, mark as 'Unaware' on the calling sheet, and proceed to next participant.

2. How did you become aware of the Smart Saver Program?

Mark all that apply.

- ☐ Duke Energy sent me a brochure
☐ Duke Energy website.
☐ A contractor or salesperson I was working with told me about the program
☐ I saw an ad in... _____
☐ Other _____
☐ DK/NS

3. When you first heard about the program and considered taking advantage of the offer, did you do any additional investigation to confirm the program's offering, or was the information you had adequate to make a participation decision?

Mark all that apply.

- ☐ The information was adequate
☐ Didn't need to confirm/Nothing
☐ Went to the web site
☐ Called or emailed Duke Energy
☐ Called or emailed a contractor
☐ Called or emailed a salesperson
☐ Other _____
☐ DK/NS

If they did do any additional investigation, ask:

3a. How well did this work for you, were you able to acquire a more complete understanding of the program?

- ☐ Yes
☐ No
☐ DK/NS

4. Did you have additional questions that were not answered? Were there questions that you were unable to answer or information that you were unable to obtain?

- ☐ Yes

TecMarket Works

- ☐ No
- ☐ DK/NS

If YES to question 4,

4a. What were they? _____

5. Who filled out the program incentive forms?

- ☐ I did
- ☐ Someone from my family did
- ☐ Contractor
- ☐ Salesperson
- ☐ Someone from Duke Energy
- ☐ Other _____

If they filled it out themselves.

5a. Was the incentive form easy to understand?

- ☐ Yes
- ☐ No
- ☐ DK/NS

If the incentive form was not easy to understand, ask

5b. Do you remember what it was that was not clear or which part of it was difficult?

6. Who submitted the forms to Duke Energy?

- ☐ I did
- ☐ Someone from my family did
- ☐ The contractor
- ☐ The salesperson
- ☐ Someone from Duke Energy
- ☐ Other _____

7. Did you have any problems receiving the rebate?

- ☐ Yes
- ☐ No
- ☐ I didn't receive a rebate
- ☐ Rebate was provided to the retailer OR through lower unit cost
- ☐ DK/NS

If Yes, they did have problems receiving the rebate, ask

7a. Please explain the problem and how it was resolved. Was it resolved to your satisfaction?

8. Did you also receive a state or federal tax credit or rebate for the unit you installed?

- ☐ Yes

TecMarket Works

- ☐ No
- ☐ DK/NS

8b. If the price of the equipment you purchased was \$300 more, which of the following three responses best represents what would have occurred: You would have purchased the same make and model, you would have considered a less expensive model, or you would have probably purchased a less expensive model?

- ☐ Would have purchased the same make and model
- ☐ Would have considered a less expensive model
- ☐ Would have probably purchased a cheaper model
- ☐ DK/NS

9. Have you taken any additional energy efficiency actions since you participated in Duke Energy's Smart Saver program?

- ☐ Yes
- ☐ No
- ☐ DK/NS

If yes to question 9, ask 9a-9c (repeat up to four times)

9a1. What have you done? _____

9b1. How much money do you think you have saved as a result?

if they do not specify a time period, ask follow up and record in the same box

Is that how much you have saved in total, per month or per year? _____

9c1. When customers have experience with energy efficiency programs or products they sometimes make similar decisions to continue the energy savings in other parts of their homes or work places. On a scale from 1-10, with 1 indicating that the Smart Saver program was not at all influential, and 10 indicating that the program was very influential, please rate the level of influence that your participation in Smart Saver had on taking this action

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

9a2. Have you done anything else?

- ☐ Yes (record answer) _____
- ☐ No

9b2. How much money do you think you have saved as a result?

if they do not specify a time period, ask follow up and record in the same box

Is that how much you have saved in total, per month or per year?) _____

9c2. On a scale from 1-10, with 1 indicating that the Smart Saver program was not at all influential, and 10 indicating that the program was very influential, please rate the level of influence that your participation in Smart Saver had on taking this action

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

9a3. Have you done anything else?

- ☐ Yes *record answer* _____
- ☐ No

9b3. How much money do you think you have saved as a result?

if they do not specify a time period, ask follow up and record in the same box

Is that how much you have saved in total, per month or per year?) _____

9c3. On a scale from 1-10, with 1 indicating that the Smart Saver program was not at all influential, and 10 indicating that the program was very influential, please rate the level of influence that your participation in Smart Saver had on taking this action

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

I would like to ask you a few questions about your home and air conditioner usage. The answers to these questions will help Duke Energy better estimate the energy savings resulting from your high efficiency air conditioner or heat pump upgrade.

10. Is your home built over a

- ☐ crawlspace,
- ☐ slab on grade or a
- ☐ basement
- ☐ Other _____
- ☐ DK/NS

11. Does the duct work in your home run primarily through

- ☐ interior walls
- ☐ crawlspace
- ☐ attic, or the
- ☐ basement
- ☐ Other _____
- ☐ DK/NS

12. At what outside temperature do you tend to turn on the air conditioner?

- ☐ < 65 degrees
- ☐ 65-68 degrees

- ☐ 69-72 degrees
- ☐ 73-75 degrees
- ☐ 76-78 degrees
- ☐ 79-81 degrees
- ☐ 82-84 degrees
- ☐ 85-87 degrees
- ☐ 88-90 degrees
- ☐ 91-94 degrees
- ☐ 95-97 degrees
- ☐ 98-100 degrees
- ☐ > 100 degrees
- ☐ It's programmed into the thermostat.
- ☐ DK/NS

13. Before you got your new [air conditioner or heat pump], At what temperature did you normally have your thermostat set to during the summer?

- ☐ < 65 degrees
- ☐ 65-68 degrees
- ☐ 69-72 degrees
- ☐ 73-75 degrees
- ☐ 76-78 degrees
- ☐ 79-81 degrees
- ☐ 82-84 degrees
- ☐ 85-87 degrees
- ☐ 88-90 degrees
- ☐ 91-94 degrees
- ☐ 95-97 degrees
- ☐ 98-100 degrees
- ☐ > 100 degrees
- ☐ It's programmed into the thermostat.
- ☐ DK/NS
- ☐ Not applicable

14. Since getting your new [air conditioner or heat pump], at what temperature do you normally have your thermostat set to during the summer?

- ☐ < 65 degrees
- ☐ 65-68 degrees
- ☐ 69-72 degrees
- ☐ 73-75 degrees
- ☐ 76-78 degrees
- ☐ 79-81 degrees
- ☐ 82-84 degrees
- ☐ 85-87 degrees
- ☐ 88-90 degrees
- ☐ 91-94 degrees
- ☐ 95-97 degrees

- ☐ 98-100 degrees
- ☐ > 100 degrees
- ☐ It's programmed into the thermostat.
- ☐ DK/NS

15. How often do you use your [air conditioner or heat pump]? Would you say you use it ...

Read all choices until customer answers

- ☐ Not at all
- ☐ Only on the hottest days
- ☐ Frequently during the cooling season
- ☐ Most days during the cooling season
- ☐ Everyday during the cooling season
- ☐ DK/NS

16. How many hours per day did you have your {equipment - air conditioner or heat pump} turned on during the summer before you installed the new unit?

- ☐ Less than 1
- ☐ 1 to 2
- ☐ 3 to 4
- ☐ 5 to 10
- ☐ 11 to 12
- ☐ 13 to 24
- ☐ DK/NS

17. Did the average hours of daily use increase, decrease or stay the same since you replaced the unit?

- ☐ Increased *ask* How many hours per day did it increase? _____
- ☐ Decreased *ask* How many hours per day did it decrease? _____
- ☐ Stayed the same
- ☐ DK/NS

18. How often do you use the Duke Energy website?

- ☐ Often (once a month or more)
- ☐ Sometimes (less than once a month)
- ☐ Never

19. Have you added any major electrical appliances besides your new [air conditioner or heat pump] to your home in the past year?

- ☐ Yes
- ☐ No

If YES to q19, ask

19a. What appliance(s) did you install in the past year? _____

20. Have you participated in the past, or currently a participant in any of the following Duke Energy programs

(read all, and check all that apply)

- ☐ **Power Manager**
- ☐ **Home Energy House Call**
- ☐ **My Home Energy Report**
- ☐ **Personal Energy Report**
- ☐ **CFLs shipped to your home**
- ☐ **Online services**
- ☐ **none of the above**

For programs not checked in q20 (except for "online services"), ask the following

On a scale from 1-10, with 1 indicating not at all interested and 10 indicating very interested, please rate your interest in Duke Energy providing the following program(s)

if "Power Manager" is NOT checked in q20, ask

21. A program that provides bill credits in exchange for allowing Duke Energy to temporarily cycle your air conditioning unit during periods of high use

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

if "Home Energy House Call" is NOT checked in q20, ask

22. A program in which an assessor comes to your house, suggests energy efficiency improvements, and Duke Energy provides certain low-cost improvement materials for free.

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

if "My Home Energy Report" is NOT checked in q20, ask

23. A program that provides an ongoing comparison of your energy use with that of people who live in similar homes

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

if "Personal Energy Report" is NOT checked in q20, ask

23b. A program that provides personalized energy analysis and ways to save energy and money by filling out a few questions about your home either online or by mail

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

if "CFLs shipped to your home" is NOT checked in q20, ask

23c. A program that provides free CFLs mailed directly to your home

- ☐ 1
...
☐ 10
☐ DK/NS

24. What other services could Duke Energy provide to help improve home energy efficiency? _____

25. Generally speaking, how important are environmental issues to you? Would you say they are...

(read all and select one answer)

- ☐ Very Important
☐ Important
☐ Neutral
☐ Not Important, or
☐ Not At All Important

26. How important are climate change issues to you? Would you say they are...

(read all and select one answer)

- ☐ Very Important
☐ Important
☐ Neutral
☐ Not Important, or
☐ Not At All Important

27. How important is reducing air pollution to you? Would you say it is...

(read all and select one answer)

- ☐ Very Important
☐ Important
☐ Neutral
☐ Not Important, or
☐ Not At All Important

28. How important is the need to reduce the rate of building new power plants? Would you say it is...

(read all and select one answer)

- ☐ Very Important
☐ Important
☐ Neutral
☐ Not Important, or
☐ Not At All Important

29. Are you a member of any groups or clubs that have environmental missions?

- ☐ Yes Ask Which ones? _____
☐ No

() DK/NS

30. One of the objectives that the program would like to meet over the next year is to increase participation. Can you think of things that the program can do to help increase participation or help increase interest from people like yourself?

(do not read list)

- ☐ Increase general advertising
- ☐ Include more information with monthly bills
- ☐ Increase involvement with contractors/vendors
- ☐ Include more community outreach and community events
- ☐ Increase advertising in trade media
- ☐ Present the program in trade or associated meetings
- ☐ Offer larger incentives
- ☐ Offer incentives on other items/include other items
- ☐ Have program staff call residential customers
- ☐ Make the process more streamlined for customers
- ☐ Make the process more streamlined for contractors/vendors
- ☐ Other _____

31. During your participation process, did you need to contact Duke Energy to obtain information about the program?

- ☐ Yes
- ☐ No
- ☐ DK/NS

If yes to question 31, ask

31a. Were your questions or needs handled effectively by Duke Energy?

- ☐ Yes
- ☐ No
- ☐ DK/NS

If no to question 31a,

31b. How might this be improved? _____

32. Overall, what did you like most about the Smart Saver Program? _____

33. What did you like least? _____

We would like to ask you a few questions about your satisfaction with the program. For these questions we would like you to rate your satisfaction using a 1 to 10 scale where a 1 means that you are very dissatisfied with the program and a 10 means that you are very satisfied.

(Note This question is not asked when the answer to q7 "Did you have any problems receiving the rebate?" is "I did not receive a rebate check".)

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How would you rate your satisfaction with...

34. The amount of the rebate provided by the program

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If 7 or less to question 34, ask

34a. What could have been done to make this better? _____

(Note: This question is only asked when the answer to q5 "Who filled out the program incentive forms?" is "I did")

How would you rate your satisfaction with...

35. The ease of filling out the form to receive the rebate.

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If 7 or less to question 35, ask

35a. What could have been done to make this better? _____

(Note: This question is not asked when the answer to q7 "Did you have any problems receiving the rebate?" is "I did not receive a rebate check".)

How would you rate your satisfaction with...

36. The time it took to receive your rebate check

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If 7 or less to question 36, ask

36a. What could have been done to make this better? _____

How would you rate your satisfaction with...

37. The number and kind of technologies covered in the program

- ☐ 1
- ...
- ☐ 10
- ☐ DK/NS

If 7 or less to question 37, ask

37a. What could have been done to make this better? _____

How would you rate your satisfaction with...

38. The information you were provided explaining the program

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- ☐ 1
...
☐ 10
☐ DK/NS

If 7 or less to question 38, ask

38a. What could have been done to make this better? _____

39. If you were rating your overall satisfaction with Duke Energy's Smart Saver program, would you say you were

- ☐ Very Satisfied
☐ Somewhat Satisfied
☐ Neither Satisfied nor Dissatisfied
☐ Somewhat Dissatisfied
☐ Very Dissatisfied
☐ Don't Know

39a. Why do you give it that rating? _____

How would you rate your satisfaction with...

39b. Using the 1 to 10 scale, how would you rate your overall satisfaction with this Smart Saver program that pays rebates for purchasing an efficient [air conditioner or heat pump]?

- ☐ 1
...
☐ 10
☐ DK/NS

If 7 or less to question 39b, ask

39c. Why were you less than satisfied with this program? _____

How would you rate your satisfaction with...

40. Using the 1 to 10 scale, how would you rate your overall satisfaction with Duke Energy?

- ☐ 1
...
☐ 10
☐ DK/NS

If 7 or less to question 40, ask

40a. Why were you less than satisfied with Duke Energy? _____

Finally, we have some general demographic questions...

d1. In what type of building do you live?

- ☐ Single-family home, detached construction
☐ Single family home, factory manufactured/modular
☐ Single family, mobile home

- ☐ Row House
- ☐ Two or Three family attached residence-traditional structure
- ☐ Apartment (4 + families)---traditional structure
- ☐ Condominium---traditional structure
- ☐ Other _____
- ☐ Refused
- ☐ DK/NS

d2. What year was your residence built?

- ☐ 1959 and before
- ☐ 1960-1979
- ☐ 1980-1989
- ☐ 1990-1997
- ☐ 1998-2000
- ☐ 2001-2007
- ☐ 2008-present
- ☐ DK/NS

d3. How many rooms are in your home (excluding bathrooms, but including finished basements)?

- ☐ 1-3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 or more
- ☐ DK/NS

d4. Which of the following best describes your home's heating system?

Mark all that apply.

- ☐ None
- ☐ Central forced air furnace
- ☐ Electric Baseboard
- ☐ Heat Pump
- ☐ Geothermal Heat Pump
- ☐ Other _____

d5. How old is your heating system?

- ☐ 0-4 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years
- ☐ 19 years or older
- ☐ DK/NS

☐ Do not have

d6. What is the primary fuel used in your heating system?

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil
- ☐ Propane
- ☐ Other _____
- ☐ DK/NS

d7. What is the secondary fuel used in your primary heating system, if any?

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil
- ☐ Propane
- ☐ Other _____
- ☐ None
- ☐ DK/NS

d8. Do you use one or more of the following to cool your home?

(Mark all that apply)

- ☐ None, do not cool the home
- ☐ Heat pump for cooling
- ☐ Central air conditioning
- ☐ Through the wall or window air conditioning unit
- ☐ Geothermal Heat pump
- ☐ Other _____
- ☐ DK/NS

d9. How many window-unit or "through the wall" air conditioner(s) do you use?

- ☐ None
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8 or more
- ☐ DK/NS

d10. What is the fuel used in your cooling system?

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil
- ☐ Propane

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- ☐ Other _____
- ☐ None
- ☐ DK/NS

d11. How old is your cooling system?

- ☐ 0-4 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years
- ☐ 19 years or older
- ☐ DK/NS
- ☐ Do not have

d12. What is the fuel used by your water heater?

(Mark all that apply)

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil
- ☐ Propane
- ☐ Other _____
- ☐ No water heater
- ☐ DK/NS

d13. How old is your water heater?

- ☐ 0-4 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years
- ☐ More than 19 years
- ☐ DK/NS

d14. What type of fuel do you use for indoor cooking on the stovetop or range?

(Mark all that apply)

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil
- ☐ Propane
- ☐ Other _____
- ☐ No stovetop or range
- ☐ DK/NS

d15. What type of fuel do you use for indoor cooking in the oven?

(Mark all that apply)

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil

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- ☐ Propane
- ☐ Other _____
- ☐ No oven
- ☐ DK/NS

d16. What type of fuel do you use for clothes drying?

(Mark all that apply)

- ☐ Electricity
- ☐ Natural Gas
- ☐ Oil
- ☐ Propane
- ☐ Other _____
- ☐ No clothes dryer
- ☐ DK/NS

d17. About how many square feet of living space are in your home?

(Do not include garages or other unheated areas)

Note: A 10-foot by 12 foot room is 120 square feet

- ☐ Less than 500
- ☐ 500 to 999
- ☐ 1000 to 1499
- ☐ 1500 to 1999
- ☐ 2000 to 2499
- ☐ 2500 to 2999
- ☐ 3000 to 3499
- ☐ 3500 to 3999
- ☐ 4000 or more
- ☐ DK/NS

d18. Do you own or rent your home?

- ☐ Own
- ☐ Rent

d19. How many levels are in your home (not including your basement)?

- ☐ One
- ☐ Two
- ☐ Three

d20. Does your home have a heated or unheated basement?

- ☐ Heated
- ☐ Unheated
- ☐ No basement

d21. Does your home have an attic?

- ☐ Yes
- ☐ No

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d22. Are your central air/heat ducts located in the attic?

- ☐ Yes
- ☐ No
- ☐ N/A

d23. Does your house have cold drafts in the winter?

- ☐ Yes
- ☐ No

d24. Does your house have sweaty windows in the winter?

- ☐ Yes
- ☐ No

d25. Do you notice uneven temperatures between the rooms in your home?

- ☐ Yes
- ☐ No

d26. Does your heating system keep your home comfortable in winter?

- ☐ Yes
- ☐ No

d27. Does your cooling system keep your home comfortable in summer?

- ☐ Yes
- ☐ No

d28. Do you have a programmable thermostat?

- ☐ Yes
- ☐ No

d28b. How many thermostats are there in your home?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more
- ☐ DK/NS

d29. What temperature is your thermostat set to on a typical summer weekday afternoon?

- ☐ Less than 69 degrees
- ☐ 69-72 degrees
- ☐ 73-78 degrees
- ☐ Higher than 78 degrees
- ☐ Off
- ☐ DK/NS

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d30. What temperature is your thermostat set to on a typical winter weekday afternoon?

- ☐ Less than 67 degrees
- ☐ 67-70 degrees
- ☐ 71-73 degrees
- ☐ 74-77 degrees
- ☐ 78 degrees or higher
- ☐ Off
- ☐ DK/NS

d31. Do you have a swimming pool, hot-tub or spa?

- ☐ Yes
- ☐ No

Read all answers until they reply

d32. Would a two-degree increase in the summer afternoon temperature in your home affect your comfort...

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately, or
- ☐ Greatly

d33. How many people live in this home?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8 or more
- ☐ Prefer not to answer

d34. How many of them are teenagers? (age 13-19)

If they ask why: Explain that teenagers are generally associated with higher energy use.

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8 or more
- ☐ Prefer not to answer

d35. How many persons are usually home on a weekday afternoon?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8 or more
- ☐ Prefer not to answer

d36. Are you planning on making any large purchases to improve energy efficiency in the next 3 years?

- ☐ Yes
- ☐ No
- ☐ DK/NS

The following questions are for classification purposes only and will not be used for any other purpose than to help Duke Energy continue to improve service.

d37. What is your age group?

Read all.

- ☐ 18-34
- ☐ 35-49
- ☐ 50-59
- ☐ 60-64
- ☐ 65-74
- ☐ Over 74
- ☐ Prefer not to answer

d38. Please indicate your annual household income.

Read all.

- ☐ Under \$15,000
- ☐ \$15,000-\$29,999
- ☐ \$30,000-\$49,999
- ☐ \$50,000-\$74,999
- ☐ \$75,000-\$100,000
- ☐ Over \$100,000
- ☐ Prefer Not to Answer

That completes our survey. As I mentioned at the start, we'd like to send you a check for \$20 for your time. Should we send it to [name] at [address]?

Name _____
Address _____
City _____
State _____

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Appendices

Zip _____

There's an additional component to this study, as well. If you participate in a study, you will receive a \$50 Visa Gift card. We are looking for residential customers to participate in a study in which a Duke Energy representative will visit homes for 20 to 30 minutes and install logging equipment on your air conditioning or heat pump system. A portable logger device will be installed on your outdoor AC unit, at the circuit breaker box, and/or at the indoor furnace or air handler depending on system configuration, and will measure electricity consumption of your system and the outdoor temperature. The equipment will be left in place for approximately 3 weeks and will not interfere with the function or use of your air conditioning or heat pump in any manner. After the equipment is removed by Duke Energy Contractors, you will receive a \$50 Visa gift card about 4-6 weeks later.

We plan on conducting this study in August. Are you interested in participating?

☐ Yes

☐ No

If yes

Great, thank you! We will have someone call you in the next week or two to schedule the initial visit.

Is this the best phone number to call about the logger study?

enter complete phone number here _____

Thank you for taking our survey. Your response is very important to us.

Appendix F: Ohio Participants' Reasons for Program Satisfaction Ratings

Ohio survey respondents were asked why they gave the ratings they gave for their level of satisfaction with the Smart Saver HVAC program. The responses to this satisfaction rating question can be found in "Program Satisfaction Ratings in Ohio" on page 92.

One central air conditioner rebate recipient did not provide a program satisfaction rating, and therefore did not have an explanation for their rating. The responses of the remaining 68 heat pump rebate recipients and 70 central air conditioner rebate recipients surveyed in Ohio are listed below, categorized by satisfaction rating and rebated unit.

"Very Dissatisfied", received rebate for central air conditioner (N=2)

- *I didn't receive the rebate.*
- *I never got a rebate.*

"Somewhat Dissatisfied", received rebate for heat pump (N=1)

- *The application needs to be more streamlined and organized. If there was a website to keep track of each application, that would make more sense. It would be much easier if all of the information was in one place and I could easily look up the status of the application. Duke needs to find a way to make this Smart Saver program easier to take advantage of and streamline the application process. Right now, it is a big waste of time, and the incentive does not pay for all of the inconvenience and time involved.*

"Neither Satisfied Nor Dissatisfied", received rebate for heat pump (N=6)

- *I didn't know anything about the program, so I had no expectations.*
- *I haven't thought about the program enough to rate it one way or another.*
- *I was going to purchase those heat pumps anyway; the price and rebate really had no effect on me.*
- *I was satisfied with my experience but the program is something I just haven't thought about.*
- *The rebate could be more, but I am happy to get something.*
- *There were countless delays and many hoops to jump through regarding the paperwork.*

"Neither Satisfied Nor Dissatisfied", received rebate for central air conditioner (N=3)

- *I thought the program was pretty average. There wasn't anything that was bad about the program but there really wasn't anything awesome about it either.*
- *If I wouldn't have been shopping for an A/C, I would not know that the program even exists.*
- *It's been nearly two years since we did the program, so I really don't remember as much about the program as I would have liked for doing this survey. I can't even remember if we got a rebate check or not. I think that I would have given the program a more favorable rating if I could have remembered it better.*

"Somewhat Satisfied", received rebate for heat pump (N=21)

- *I always think that there can always be ways for improvement, ways to be better. I was not aware of this program previously, and if it was not for my contractor informing me of the Smart Saver program I might have missed out on that opportunity to save some money. General awareness of the program needs to be improved.*
- *I think there should be more heating and cooling units that could qualify for the Smart Saver rebate. I'm pretty sure that one of my new units did not qualify for the Smart Saver, but I'm not sure which one.*
- *I am somewhat satisfied because, while the program itself was OK, I don't think my new heat pump is nearly as efficient as I expected it to be.*
- *I was somewhat satisfied because the program is good business for all involved, but we did have some delays receiving the check, and there was vendor confusion over the amount of the rebate.*
- *I was somewhat satisfied because there should have been more information provided about the program plus energy efficiency suggestions.*
- *It's a good program, but there could have been more information provided before I was even considering upgrading my system. It would have been better to have known about the program and rebate ahead of time, I had no idea I qualified for the rebate until I had already bought the system. If more people knew about the program, they might get a new system sooner than without knowing about the rebate, or they might get a better system because they will know that they will be saving money.*
- *I was somewhat satisfied because I wasn't aware of the program previously and what it included.*
- *I was somewhat satisfied because of the relatively low amount of the rebate offer.*
- *I was somewhat satisfied because of the small amount of rebate.*
- *I was somewhat satisfied because the amount of rebate was relatively low.*
- *I was somewhat satisfied because, while the program serves its purpose by helping people purchase high efficient units, the amount of rebate could be slightly higher.*
- *Of course, it would be better if the rebate was larger, but overall, my satisfaction has been met.*
- *I was happy to get a rebate.*
- *I am just happy to get a rebate*
- *I just thought everything went well, it was very easy for me to take advantage of.*
- *I was mostly satisfied because the contractor did everything for me. Participation was easy.*
- *I was somewhat satisfied because I needed a new heat pump and the rebate was just icing on the cake.*
- *I was somewhat satisfied because the incentive seemed like a nice unexpected bonus when I was forced to buy a new system.*
- *The rebate was helpful in the cost of my heat pump.*

- *There was nothing that made me upset about the program, but nothing made me rave about it either.*
- *Don't know*

"Somewhat Satisfied", received rebate for central air conditioner (N=16)

- *I had to call Duke Energy several times before receiving my rebate check.*
- *I had to contact Duke directly when we were not getting answers from the contractor who was supposed to have submitted the paperwork. It took us a year to get paid.*
- *I liked that Duke Energy offers a rebate for getting an energy efficient A/C, but the rebate check took a few months to get to us.*
- *I really like that the new A/C is so efficient that it keeps the house cooler and keeps the bills down, but the rebate amount should have been more because the cost of the new unit was so high.*
- *I would have liked to have had my new gas furnace qualify for the rebate.*
- *Instead of a one-time rebate, I would like see a program that provided a decrease in my monthly bill over the course of the year after purchasing a new unit: say, 10% one month, 20% the following, and so on. A bill reduction would be much better for people who work.*
- *The only improvement I suggest is that if it was a larger rebate it would have been nicer. I suggest maybe increasing the rebate to \$300 for the customer.*
- *If the program offered more money for the rebate, the better it would be. I like that Duke Energy was giving money to customers for purchasing a product that was bought from any heating and air companies.*
- *The only way it could have been better would be to have the rebate be a percentage of the overall cost, like 10% of the overall cost of the unit would have been really nice, but I am happy to get anything back really.*
- *The rebate wasn't as high enough.*
- *The rebate was easy to get, but it could have come quicker.*
- *I'd like to see Duke accept credit cards without a fee for services.*
- *I liked getting a rebate.*
- *I liked that the rebate helped keep the cost of getting a new A/C down.*
- *The program only covered certain A/C, when it could have covered more A/C that were just as efficient.*
- *Don't know*

“Very Satisfied”, received rebate for heat pump (N=43)

- *I liked getting a rebate and that the process was easy. I found the information about the program on your website and hadn't heard about it through other means. More advertising is all this program could need to be more successful.*
- *I was very satisfied, but also had many problems with the rebate processing.*
- *I was very satisfied because my contractor processed the rebate for me, though I do think the amount of the rebate could be higher.*
- *It was an efficient program and it was free for the taking. Also, it had no impact on what I was going to do anyhow, I was going to get a new heating and cooling system and it just so happened that I was eligible for the rebate.*
- *The rebate is something that Duke doesn't have to provide but it really helped because I'm on a fixed income and I had to borrow money to get the new heat pump and water heater.*
- *I like money, and I like this follow-up call for improvements to the program. I think that it's a good program.*
- *Duke Energy doesn't have to provide a rebate, but they do. Filling out the rebate was easy and only took about 5-10 minutes.*
- *I appreciate that Duke is showing a commitment to reducing energy usage and providing customers with an incentive for doing so.*
- *I did not expect anyone to help me pay for my furnace, it was an unexpected benefit.*
- *I got a discount that I didn't even know about for something I was buying anyhow. It was an easy program to take advantage of and it's a good idea to encourage people to upgrade their heating or cooling systems to more efficient ones.*
- *I thought the program was proactive on Duke Energy's and the contractor's part. I liked that I really did not have to do anything to get the rebate besides buy a qualifying system. I'm so glad my contractor told me about it.*
- *I was very satisfied because of the ease of participation and the rebate. (N=2)*
- *I was very satisfied because Duke sent out an inspector to verify the installation of our new heat pump. After that, I liked that the rebate arrived two weeks later.*
- *I was very satisfied because I liked getting the rebate, and also I appreciate how Duke energy efficiency programs help me save money.*
- *I was very satisfied because I wasn't expecting any sort of incentive, so it was a nice bonus.*
- *I was very satisfied because it put money in my pocket and the new heat pump has lowered my energy bills.*
- *I was very satisfied because it was nice to get a rebate for updating my equipment. I appreciate that Duke is making efforts to save money and energy.*
- *I was very satisfied because of the ease of participation. The contractor filled out all of the paperwork for me.*
- *I was very satisfied because of the ease of participation and the information provided.*
- *I was very satisfied because of the simplicity of participation and the quick rebate.*

- *I was very satisfied because the incentive was a nice bonus.*
- *I was very satisfied because the program helped us purchase an efficient system that keeps our bills low.*
- *I was very satisfied because the program helps save money, does the right thing, and provides an incentive.*
- *I was very satisfied because the program is a great idea that saves money and helps people reduce energy consumption.*
- *I was very satisfied because the program promotes energy efficiency, and I liked getting the rebate.*
- *I was very satisfied because the program saved me money.*
- *I was very satisfied by the program because it saved us money.*
- *I was very satisfied because the program was quite informational. I had no misgivings.*
- *I was very satisfied mainly because of the simplicity of participation. The incentive and its turnaround were reasonable.*
- *I was very satisfied, mainly because I am so pleased with my new heat pump. The incentive was just a bonus.*
- *It was easy to participate. It was a win-win situation. There was an incentive to participate.*
- *It was free money, the overall cost came down on our unit which was great!*
- *It was an opportunity to get a rebate for something I was going to do anyhow. I needed to get a new heating and cooling system and I was rewarded for making an energy efficient decision.*
- *The program was easy and it was money in my pocket. The rebate was a fair amount of money for what it was trying to do, which is get customers to upgrade to an efficient system. I got to make a better choice on the heat pump that I installed because I knew I could save some money on the heat pump from the rebate.*
- *The program was so easy because the salesman did all things required to get the rebate for me.*
- *I got the rebate.*
- *The rebate was helpful.*
- *I am just happy to get any kind of rebate.*
- *I was very satisfied because the entire process went very smoothly.*
- *It seems like a great program.*
- *I was very satisfied because I had no problems whatsoever.*
- *It worked for me. It was a proper fit.*

"Very Satisfied", received rebate for central air conditioner (N=46)

- *You usually don't get money back from Duke, usually you send them money.*
- *I got the rebate money and it was so easy to participate; I really had no idea that we were involved until we got a check in the mail.*
- *I didn't have to do much and received money I wasn't expecting.*
- *The contractor had filled out the forms and submitted them without telling me about the program, so I was excited to get the rebate at all.*
- *While we were filling out the contract to purchase the new unit I was informed about the program. It's always a pleasant surprise to receive a rebate. We were really close to the deadline of participating with the program so it encouraged us to make up our minds to purchase the new unit quickly.*
- *It was basically free money for something I was planning to do already.*
- *Duke just seems very helpful, like if I call them about the bill or a problem. They're always so good on the phone.*
- *It was easy, saved us money, and I got the check right away. Overall it was very good.*
- *I didn't know about it and it was like free money. The people I contracted with did 90% of work and all I had to do was sign my name.*
- *I felt like the program was explained well and a benefit to us as well.*
- *I like that it helped reduce the cost of the A/C unit and the rebate arrived in a reasonable amount of time.*
- *I like that the new A/C saves money for me every month. It's a good program because it encourages people to get a more efficient unit than they might have without the program.*
- *I like that the program helps the environment by getting people to conserve energy.*
- *I like the rebate and that it encourages people to purchase more efficient models than they would have purchased.*
- *I liked the program, the rebate, and that our monthly bill is lower now.*
- *It was easy to understand, did not require a great deal of input on my part, and I received my money quickly.*
- *I think it's nice Duke is helping us to cut our usage.*
- *I think just having the program overall helps people to make choices to purchase units which they might not have gotten otherwise, and the information that they mail out about efficiency is very helpful.*
- *I think that Duke's trying to encourage people to use energy more judiciously, and I applaud that.*
- *I am using less electricity with my new equipment, plus received the rebate and tax credit.*
- *I was very satisfied because of the clear communications provided, the program delivered as promised, and there were no surprises.*
- *I was very satisfied because the amount of the incentive was adequate, I received it quickly, and contractor did all the necessary paperwork.*

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- *There was nothing I had to do, the contractor did it all. They worked with Duke. I was surprised the check came so soon, so there must be good communications between Duke and the contractor.*
- *The program encouraged me to get an energy efficient machine and helped with paying for it*
- *The program was a cost savings to me and it also provided environmental benefits by encouraging me to purchase high efficiency heating and air conditioning.*
- *I was very satisfied because the paperwork was easy, the information provided was sufficient, and the dealer was helpful.*
- *It was there and efficiently-handled regarding the rebates and it was nice to find I would get a rebate for choosing a high-efficiency unit.*
- *It's a well-run program that encourages people to install energy efficient A/C units so we can save power.*
- *It was nice to get the money.*
- *It was nice to get the rebate.*
- *I guess because they gave me a rebate.*
- *The rebate is a good idea.*
- *It has an incentive.*
- *It helps reduce my monthly cost on energy.*
- *I was very satisfied because I didn't have to do anything. It was easy.*
- *It was easy.*
- *It was uncomplicated and wasn't a hassle or time consuming.*
- *It is a very nice program. Getting something back is always good.*
- *I was very satisfied because the whole process went smoothly and there were no problematic issues.*
- *I was very satisfied because everything went quite smoothly.*
- *I think it was a good program, easy to use.*
- *I had no problems with it.*
- *I liked everything about the program.*
- *I have no suggestions for improvement.*
- *I give this rating because I am very satisfied.*
- *Don't know*

Appendix G: Household Characteristics and Demographics

TecMarket Works surveyed 161 participants about their homes and households (136 respondents in Ohio and 25 respondents in Kentucky). Additional descriptive data is provided in this appendix.

In what type of building do you live? * State

			State		Total
			Ohio	Kentucky	
In what type of building do you live?	Single-family home, detached construction	Count	126	20	146
		% within State	92.6%	80.0%	90.7%
	Single family home, factory manufactured/modular	Count	1	1	2
		% within State	0.7%	4.0%	1.2%
	Row House	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Two or Three family attached residence-traditional structure	Count	1	1	2
		% within State	0.7%	4.0%	1.2%
	Condominium---traditional structure	Count	6	3	9
		% within State	4.4%	12.0%	5.6%
	Other: "Landominium"	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
Total		Count	136	25	161
		% within State	100.0%	100.0%	100.0%

What year was your residence built? * State

			State		Total
			Ohio	Kentucky	
What year was your residence built?	1959 and before	Count	24	3	27
		% within State	17.6%	12.0%	16.8%
	1960-1979	Count	45	6	51
		% within State	33.1%	24.0%	31.7%
	1980-1989	Count	26	1	27
		% within State	19.1%	4.0%	16.8%
	1990-1997	Count	24	5	29
		% within State	17.6%	20.0%	18.0%
	1998-2000	Count	6	3	9
		% within State	4.4%	12.0%	5.6%
	2001-2007	Count	10	6	16
		% within State	7.4%	24.0%	9.9%
	2008-present	Count	1	1	2
		% within State	0.7%	4.0%	1.2%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Appendices

How many rooms are in your home (excluding bathrooms, but including finished basements)? * State

			State		Total
			Ohio	Kentucky	
How many rooms are in your home (excluding bathrooms, but including finished basements)?	4	Count	3	1	4
		% within State	2.2%	4.0%	2.5%
	5	Count	14	2	16
		% within State	10.3%	8.0%	9.9%
	6	Count	15	6	21
		% within State	11.0%	24.0%	13.0%
	7	Count	24	4	28
		% within State	17.6%	16.0%	17.4%
	8	Count	27	7	34
		% within State	19.9%	28.0%	21.1%
	9	Count	18	2	20
		% within State	13.2%	8.0%	12.4%
	1-3	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	10 or more	Count	34	3	37
		% within State	25.0%	12.0%	23.0%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Which of the following best describes your home's heating system?	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
None	0 0.0%	0 0.0%	0 0.0%
Central forced air furnace	68 50.0%	16 64.0%	84 52.2%
Electric Baseboard	0 0.0%	0 0.0%	0 0.0%
Heat Pump	62 45.6%	8 32.0%	70 43.5%
Geothermal Heat Pump	9 6.6%	1 4.0%	10 6.2%
Other: solar	1 0.7%	0 0.0%	1 0.6%

Percentages may total to more than 100% because participants could give multiple responses.

How old is your heating system? * State

			State		Total
			Ohio	Kentucky	
How old is your heating system?	0-4 years	Count	133	23	156
		% within State	97.8%	92.0%	96.9%
	5-9 years	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	10-14 years	Count	1	2	3
		% within State	0.7%	8.0%	1.9%
	DK/NS	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

What is the primary fuel used in your heating system? * State

			State		Total
			Ohio	Kentucky	
What is the primary fuel used in your heating system?	Electricity	Count	63	8	71
		% within State	46.3%	32.0%	44.1%
	Natural Gas	Count	69	17	86
		% within State	50.7%	68.0%	53.4%
	Oil	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Propane	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Other: "solar"	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	DK/NS	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Appendices

What is the secondary fuel used in your primary heating system, if any? * State

			State		Total
			Ohio	Kentucky	
What is the secondary fuel used in your primary heating system, if any?	Electricity	Count	28	5	33
		% within State	20.6%	20.0%	20.5%
	Natural Gas	Count	6	0	6
		% within State	4.4%	0.0%	3.7%
	Propane	Count	2	0	2
		% within State	1.5%	0.0%	1.2%
	Other: "geothermal"	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Other: "geothermal and wood stove"	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	None	Count	96	20	116
		% within State	70.6%	80.0%	72.0%
	DK/NS	Count	2	0	2
		% within State	1.5%	0.0%	1.2%
Total			Count	136	25
			% within State	100.0%	100.0%

Do you use one or more of the following to cool your home?	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
None, do not cool the home	0	0	0
	0.0%	0.0%	0.0%
Heat pump for cooling	64	9	73
	47.1%	36.0%	45.3%
Central air conditioning	67	15	82
	49.3%	60.0%	50.9%
Through the wall or window air conditioning unit	0	0	0
	0.0%	0.0%	0.0%
Geothermal Heat pump	8	1	9
	5.9%	4.0%	5.6%
Other: fans	1	1	2
	0.7%	4.0%	1.2%
DK/NS	0	0	0
	0.0%	0.0%	0.0%

Percentages may total to more than 100% because participants could give multiple responses.

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How many window-unit or through the wall air conditioner(s) do you use? * State

			State		Total
			Ohio	Kentucky	
How many window-unit or through the wall air conditioner(s) do you use?	1	Count	5	0	5
		% within State	3.7%	0.0%	3.1%
	None	Count	131	25	156
		% within State	96.3%	100.0%	96.9%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

What is the fuel used in your cooling system?	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
	133	24	157
Electricity	97.8%	95.7%	97.5%
	1	1	2
Natural Gas	0.7%	4.0%	1.2%
	0	0	0
Oil	0.0%	0.0%	0.0%
	0	0	0
Propane	0.0%	0.0%	0.0%
	2	0	2
Other: geothermal	1.5%	0.0%	1.2%
	0	0	0
None	0.0%	0.0%	0.0%
	1	0	1
DK/NS	0.7%	0.0%	0.6%

Percentages may total to more than 100% because participants could give multiple responses.

How old is your cooling system? * State

			State		Total
			Ohio	Kentucky	
How old is your cooling system?	0-4 years	Count	136	25	161
		% within State	100.0%	100.0%	100.0%
Total		Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

What is the fuel used by your water heater?	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
Electricity	70 51.5%	13 52.0%	83 51.6%
Natural Gas	63 46.3%	13 52.0%	76 47.2%
Oil	0 0.0%	0 0.0%	0 0.0%
Propane	2 1.5%	0 0.0%	2 1.2%
Other: geothermal	2 1.5%	0 0.0%	2 1.2%
No water heater	0 0.0%	0 0.0%	0 0.0%
DK/NS	1 0.7%	0 0.0%	1 0.6%

Percentages may total to more than 100% because participants could give multiple responses.

How old is your water heater? * State

			State		Total
			Ohio	Kentucky	
How old is your water heater?	0-4 years	Count	55	13	68
		% within State	40.4%	52.0%	42.2%
	5-9 years	Count	35	6	41
		% within State	25.7%	24.0%	25.5%
	10-14 years	Count	26	6	32
		% within State	19.1%	24.0%	19.9%
	15-19 years	Count	6	0	6
		% within State	4.4%	0.0%	3.7%
	More than 19 years	Count	4	0	4
		% within State	2.9%	0.0%	2.5%
	DK/NS	Count	10	0	10
		% within State	7.4%	0.0%	6.2%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

What type of fuel do you use for indoor cooking on the stovetop or range?	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
Electricity	111 81.6%	22 88.0%	133 82.6%
Natural Gas	23 16.9%	3 12.0%	26 16.1%
Oil	0 0.0%	0 0.0%	0 0.0%
Propane	1 0.7%	0 0.0%	1 0.6%
Other	0 0.0%	0 0.0%	0 0.0%
No stovetop or range	0 0.0%	0 0.0%	0 0.0%
DK/NS	1 0.7%	0 0.0%	1 0.6%

Percentages may total to more than 100% because participants could give multiple responses.

What type of fuel do you use for indoor cooking in the oven?	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
Electricity	118 86.8%	23 92.0%	141 87.6%
Natural Gas	17 12.5%	2 8.0%	19 11.8%
Oil	0 0.0%	0 0.0%	0 0.0%
Propane	0 0.0%	0 0.0%	0 0.0%
Other	0 0.0%	0 0.0%	0 0.0%
No oven	0 0.0%	0 0.0%	0 0.0%
DK/NS	1 0.7%	0 0.0%	1 0.6%

Percentages may total to more than 100% because participants could give multiple responses.

TecMarket Works

	State		Total (N=161)
	Ohio (N=136)	Kentucky (N=25)	
What type of fuel do you use for clothes drying?			
	113	24	137
Electricity	83.1%	96.0%	85.1%
	21	1	22
Natural Gas	15.4%	4.0%	13.7%
	0	0	0
Oil	0.0%	0.0%	0.0%
	1	0	1
Propane	0.7%	0.0%	0.6%
	0	0	0
Other	0.0%	0.0%	0.0%
	0	0	0
No clothes dryer	0.0%	0.0%	0.0%
	1	0	1
DK/NS	0.7%	0.0%	0.6%

Percentages may total to more than 100% because participants could give multiple responses.

About how many square feet of living space are in your home? * State

			State		Total
			Ohio	Kentucky	
About how many square feet of living space are in your home?	500 to 999	Count	2	0	2
		% within State	1.5%	0.0%	1.2%
	1000 to 1499	Count	20	3	23
		% within State	14.7%	12.0%	14.3%
	1500 to 1999	Count	14	3	17
		% within State	10.3%	12.0%	10.6%
	2000 to 2499	Count	32	5	37
		% within State	23.5%	20.0%	23.0%
	2500 to 2999	Count	17	1	18
		% within State	12.5%	4.0%	11.2%
	3000 to 3499	Count	16	3	19
		% within State	11.8%	12.0%	11.8%
	3500 to 3999	Count	6	2	8
		% within State	4.4%	8.0%	5.0%
	4000 or more	Count	6	2	8
		% within State	4.4%	8.0%	5.0%
	DK/NS	Count	23	6	29
		% within State	16.9%	24.0%	18.0%
Total		Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Do you own or rent your home? * State

			State		Total
			Ohio	Kentucky	
Do you own or rent your home?	Own	Count	135	25	160
		% within State	99.3%	100.0%	99.4%
	Rent	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

How many levels are in your home (not including your basement)? * State

			State		Total
			Ohio	Kentucky	
How many levels are in your home (not including your basement)?	One	Count	46	12	58
		% within State	33.8%	48.0%	36.0%
	Two	Count	82	11	93
		% within State	60.3%	44.0%	57.8%
	Three	Count	7	2	9
		% within State	5.1%	8.0%	5.6%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Does your home have a heated or unheated basement? * State

			State		Total
			Ohio	Kentucky	
Does your home have a heated or unheated basement?	Heated	Count	98	18	116
		% within State	72.1%	72.0%	72.0%
	Unheated	Count	18	4	22
		% within State	13.2%	16.0%	13.7%
	No basement	Count	19	3	22
		% within State	14.0%	12.0%	13.7%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Does your home have an attic? * State

			State		Total
			Ohio	Kentucky	
Does your home have an attic?	Yes	Count	112	18	130
		% within State	82.4%	72.0%	80.7%
	No	Count	23	7	30
		% within State	16.9%	28.0%	18.6%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Are your central air/heat ducts located in the attic? * State

			State		Total
			Ohio	Kentucky	
Are your central air/heat ducts located in the attic?	Yes	Count	19	2	21
		% within State	14.0%	8.0%	13.0%
	No	Count	93	16	109
		% within State	68.4%	64.0%	67.7%
	Not applicable	Count	24	7	31
		% within State	17.6%	28.0%	19.3%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Does your house have cold drafts in the winter? * State

			State		Total
			Ohio	Kentucky	
Does your house have cold drafts in the winter?	Yes	Count	26	2	28
		% within State	19.1%	8.0%	17.4%
	No	Count	109	23	132
		% within State	80.1%	92.0%	82.0%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Does your house have sweaty windows in the winter? * State

			State		Total
			Ohio	Kentucky	
Does your house have sweaty windows in the winter?	Yes	Count	27	3	30
		% within State	19.9%	12.0%	18.6%
	No	Count	108	22	130
		% within State	79.4%	88.0%	80.7%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Do you notice uneven temperatures between the rooms in your home? * State

			State		Total
			Ohio	Kentucky	
Do you notice uneven temperatures between the rooms in your home?	Yes	Count	66	8	74
		% within State	48.5%	32.0%	46.0%
	No	Count	69	17	86
		% within State	50.7%	68.0%	53.4%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Does your heating system keep your home comfortable in winter? * State

			State		Total
			Ohio	Kentucky	
Does your heating system keep your home comfortable in winter?	Yes	Count	134	25	159
		% within State	98.5%	100.0%	98.8%
	No	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Does your cooling system keep your home comfortable in summer? * State

			State		Total
			Ohio	Kentucky	
Does your cooling system keep your home comfortable in summer?	Yes	Count	131	25	156
		% within State	96.3%	100.0%	96.9%
	No	Count	4	0	4
		% within State	2.9%	0.0%	2.5%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Do you have a programmable thermostat? * State

			State		Total
			Ohio	Kentucky	
Do you have a programmable thermostat?	Yes	Count	117	21	138
		% within State	86.0%	84.0%	85.7%
	No	Count	18	4	22
		% within State	13.2%	16.0%	13.7%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
Total	Count	136	25	161	
	% within State	100.0%	100.0%	100.0%	

How many thermostats are there in your home? * State

			State		Total
			Ohio	Kentucky	
How many thermostats are there in your home?	1	Count	117	24	141
		% within State	86.0%	96.0%	87.6%
	2	Count	15	1	16
		% within State	11.0%	4.0%	9.9%
	3	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	4 or more	Count	2	0	2
		% within State	1.5%	0.0%	1.2%
	DK/NS	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

What temperature is your thermostat set to on a typical summer weekday afternoon? * State

			State		Total
			Ohio	Kentucky	
What temperature is your thermostat set to on a typical summer weekday afternoon?	69-72 degrees	Count	32	4	36
		% within State	23.5%	16.0%	22.4%
	73-78 degrees	Count	97	20	117
		% within State	71.3%	80.0%	72.7%
	Higher than 78 degrees	Count	6	1	7
		% within State	4.4%	4.0%	4.3%
	DK/NS	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

Appendices

What temperature is your thermostat set to on a typical winter weekday afternoon? * State

			State		Total
			Ohio	Kentucky	
What temperature is your thermostat set to on a typical winter weekday afternoon?	Less than 67 degrees	Count	9	2	11
		% within State	6.6%	8.0%	6.8%
	67-70 degrees	Count	76	14	90
		% within State	55.9%	56.0%	55.9%
	71-73 degrees	Count	31	5	36
		% within State	22.8%	20.0%	22.4%
	74-77 degrees	Count	14	1	15
		% within State	10.3%	4.0%	9.3%
	78 degrees or higher	Count	2	1	3
		% within State	1.5%	4.0%	1.9%
	DK/NS	Count	4	2	6
		% within State	2.9%	8.0%	3.7%
Total	Count		136	25	161
	% within State		100.0%	100.0%	100.0%

Do You Have a swimming pool, hot-tub or spa? * State

			State		Total
			Ohio	Kentucky	
Do You Have a swimming pool, hot-tub or spa?	Yes	Count	27	2	29
		% within State	19.9%	8.0%	18.0%
	No	Count	108	23	131
		% within State	79.4%	92.0%	81.4%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Count		136	25	161
	% within State		100.0%	100.0%	100.0%
	Count		136	25	161
	% within State		100.0%	100.0%	100.0%

Would a two-degree increase in the summer afternoon temperature in your home affect your
comfort * State

			State		Total
			Ohio	Kentucky	
Would a two-degree increase in the summer afternoon temperature in your home affect your comfort	Not at all	Count	34	7	41
		% within State	25.0%	28.0%	25.5%
	Slightly	Count	37	7	44
		% within State	27.2%	28.0%	27.3%
	Moderately, or	Count	44	6	50
		% within State	32.4%	24.0%	31.1%
	Greatly	Count	20	5	25
		% within State	14.7%	20.0%	15.5%
	Not specified	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

How many people live in this home? * State

			State		Total
			Ohio	Kentucky	
How many people live in this home?	1	Count	16	5	21
		% within State	11.8%	20.0%	13.0%
	2	Count	70	13	83
		% within State	51.5%	52.0%	51.6%
	3	Count	19	2	21
		% within State	14.0%	8.0%	13.0%
	4	Count	21	3	24
		% within State	15.4%	12.0%	14.9%
	5	Count	7	1	8
		% within State	5.1%	4.0%	5.0%
	6	Count	1	1	2
		% within State	0.7%	4.0%	1.2%
	7	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Prefer not to answer	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

How many of them are teenagers? * State

			State		Total
			Ohio	Kentucky	
How many of them are teenagers?	0	Count	116	20	136
		% within State	85.3%	80.0%	84.5%
	1	Count	10	4	14
		% within State	7.4%	16.0%	8.7%
	2	Count	9	1	10
		% within State	6.6%	4.0%	6.2%
	Prefer not to answer	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

TecMarket Works

How many persons are usually home on a weekday afternoon? * State

			State		Total
			Ohio	Kentucky	
How many persons are usually home on a weekday afternoon?	0	Count	16	1	17
		% within State	11.8%	4.0%	10.6%
	1	Count	46	13	59
		% within State	33.8%	52.0%	36.6%
	2	Count	55	8	63
		% within State	40.4%	32.0%	39.1%
	3	Count	8	3	11
		% within State	5.9%	12.0%	6.8%
	4	Count	8	0	8
		% within State	5.9%	0.0%	5.0%
	5	Count	1	0	1
		% within State	0.7%	0.0%	0.6%
	Prefer not to answer	Count	2	0	2
		% within State	1.5%	0.0%	1.2%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%

Are you planning on making any large purchases to improve energy efficiency in the next

3 years? * State

			State		Total
			Ohio	Kentucky	
Are you planning on making any large purchases to improve energy efficiency in the next 3 years?	Yes	Count	35	8	43
		% within State	25.7%	32.0%	26.7%
	No	Count	91	17	108
		% within State	66.9%	68.0%	67.1%
	DK/NS	Count	10	0	10
		% within State	7.4%	0.0%	6.2%
	Total	Count	136	25	161
		% within State	100.0%	100.0%	100.0%