Home Energy Conservation and Efficiency in Florida

A Survey of Residents' Behaviors, Intentions, Perceived Barriers, and Perceived Benefits

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EXECUTIVE SUMMARY

The national context

Energy efficiency and conservation play an important role in the protection of the environment and the prevention of energy crises. Because energy in the United States comes mainly from fossil fuels like coal and oil, increased levels of energy consumption could have a number of environmental impacts, both at the proximate scale, as particulate matter and nitrous oxides endanger Americans' health, and at a broader scale, as carbon dioxide emissions contribute to climate change (U.S. Environmental Protection Agency, 2009). Additionally, because these fossil fuels are non-renewable, increased levels of consumption run the risk of bringing the country to an energy crisis, where domestic consumers are unable to obtain reasonably-priced fuels or they become dependent on foreign suppliers.

Energy use and conservation opportunities in Florida

Increasing energy and efficiency and conservation in Florida raises particular challenges. Unlike much of the country, Florida's energy consumption is driven primarily by residential consumption. On the one hand, because the state has relatively little industry, overall per capita energy consumption in Florida is quite low – 43rd out of the 50 states. On the other hand, Florida's per capita residential electricity demand is among the highest in the country, due in part to high air-conditioning use during the hot summer months and the widespread use of electricity for home heating during the winter months (U.S. Energy Information Administration, 2009). Thus, efforts to reduce energy consumption in Florida must focus on *increasing home energy efficiency and promoting energy-conservation behavior among individuals in their homes*. This poses specific challenges, because conservation cannot come about by changing the incentive structure for a few large, energy-consuming industries: rather the attitudes and behaviors of a large number of individuals must be modified.

The study

In order to better understand how to more effectively promote and increase efficiency and conservation behaviors among Floridians in their homes, baseline measures of Floridians' past, current, and intended future energy-related behaviors were sought. A survey was conducted in July 2009 and completed by a sample of 409 Florida residents. A web-based questionnaire included several items that asked respondents about their previous, existing, and intended energy conservation behaviors (raising and lowering the thermostat to recommended levels in summer and winter) and energy efficiency behaviors (using compact fluorescent light bulbs, caulking and weather-stripping windows and doors, ensuring sufficient levels of attic insulation, and having a home energy audit). Additionally, respondents were asked to report their motivations for and barriers to performing energy-related behaviors, their attitudes toward energy conservation, their perceptions of energy conservation social norms, and their beliefs about a current energy crisis.

Findings

The greatest opportunities for increasing energy efficiency in Florida seem to be in the areas of caulking/weather stripping, home energy audits, and insulation. Fewer than 15% of respondents said they had received an energy audit in the last three years; just less than half of all respondents had caulked and weather-stripped their homes to reduce drafts. Just over half were sure that their homes had adequate insulation. These particular efficiency problems are important to address because they greatly enhance in-home efficiency and because the main reasons respondents gave for not making these changes was cost (insulation, caulking/weather stripping, and audits, for which financial assistance is available) and knowledge (how to caulk/weather strip windows/doors and how to seek an audit). Respondents also seemed to believe that having adequate levels of attic insulation is not a concern for those who live in a warm climate.

There also appears to be a need to better promote switching to compact fluorescent light bulbs, as fewer than half of all respondents said they had replaced all or most of their bulbs with CFLs. Ability to afford new CFLs was the most frequent reason for reporting a lack of desire and intent to install CFLs.

Consistent with findings from previous research, the most frequent motivation for previous or intended efficiency and/or conservation behaviors was saving money (with an average of 95.4% listing this reason across all behaviors studied). The second most frequent motivation was the belief that the behavior would help reduce global warming (with an average of 45% listing this reason across all behaviors studied).

Interestingly, health concerns were listed as the second most frequent motivator for caulking/weather stripping, and third most frequent motivator for seeking an energy audit and installing new insulation in one's attic. Our data suggest a moderately strong relationship between concern about global warming and increasing energy efficiency (or reducing consumption) for health reasons.[1]

METHOD

A 41-item, web-based questionnaire was distributed to a panel of respondents (see Sample) between July 10 and July 27, 2009.

To minimize costs and to promote comparison of findings to those from a larger, separate study, all items except those related to conservation attitudes and social norms replicated items used in a previously published national study of energy-related behaviors (Leiserowitz, Maibach, & Roser-Renouf, 2008).

Most questionnaire items asked respondents to report energy efficiency and conservation behaviors.

Regarding *conservation* behaviors, respondents were asked:

- How often they raise the thermostat to 78 degrees in summer as well as their intention to do so over the next 12 months
- How often they lower the thermostat to 68 degrees in winter as well as their intention to do so over the next 12 months.

Regarding *efficiency* behaviors, respondents were asked if:

- Their attics were adequately insulated
- They had recently had a home energy audit
- Their home had been caulked and weather-stripped to reduce drafts
- They had replaced most of their light bulbs with CFLs.

For all behaviors, respondents were asked to choose from a list of possible reasons why they would or would not be likely to engage in the behavior within the next 12 months (or had already engaged in the behavior). Respondents were also given the opportunity to provide a reason that was not on the list. These responses were analyzed and new categories of barriers and motivations were added as needed.

Possible reasons why respondents would likely *not* engage in the behavior (i.e., barriers) were:

- Inability to afford the change
- Lack of desire to spend the money necessary to make the change
- Too much effort
- Lack of knowledge
- Lack of time
- Lack of comfort if the change were made
- Objections of others in the household
- Belief that the change would not benefit them
- Belief that they were already doing as much as they could

Possible reasons why respondents were likely *to engage* in efficiency or conservation behaviors (i.e., motivators) or had previously engaged in those behaviors were:

- Saving money
- Reducing global warming
- Feeling good about themselves
- Desire to improve their own or others' health
- Being moral
- Others they cared about were doing it
- Someone had asked them to do it

Respondents were also asked to indicate their beliefs about the existence of climate change (described as "climate change or global warming") and the causes of climate change, as well as their perceived risk of an energy crisis, their attitude toward energy conservation in general, and their perceptions of the extent to which others in their neighborhoods, the state of Florida, and the United States try to conserve energy.

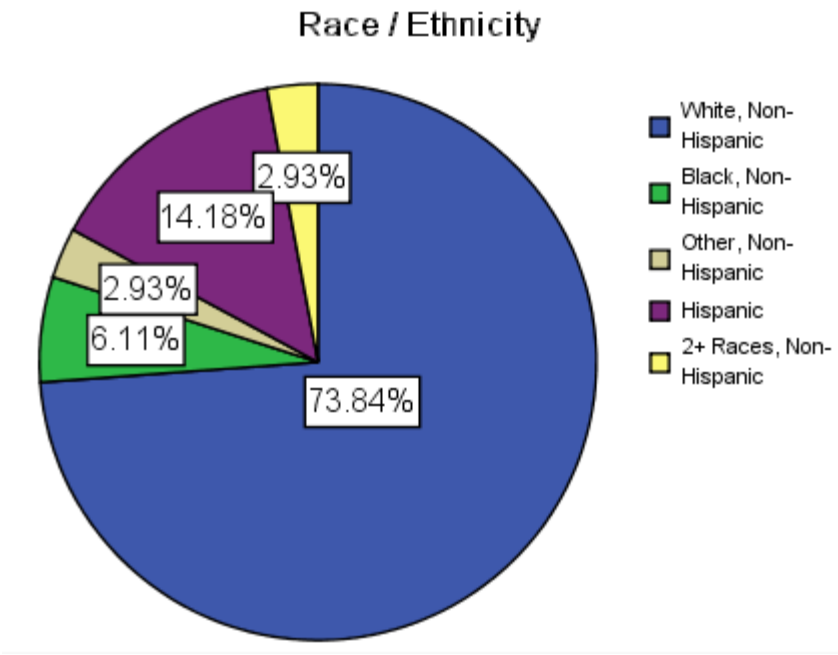
Demographic data, political and religious affiliation, and geographic location of respondents were provided by Knowledge Networks (see Sample description below).

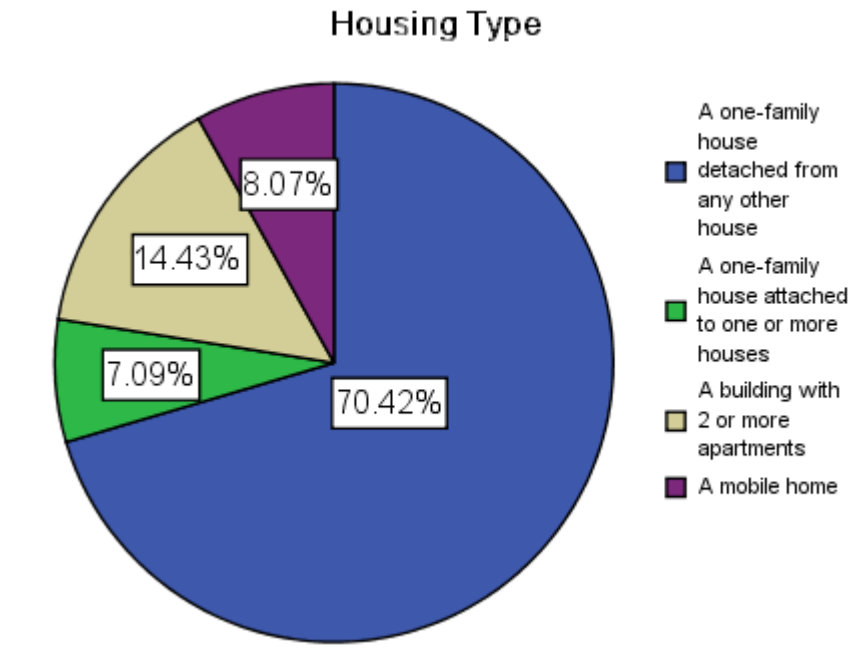
The questionnaire took respondents approximately 10 minutes to complete.

Sample description

Survey respondents were part of a Knowledge Networks' web-enabled KnowledgePanel®, a probability-based panel designed to be representative of the U.S. population. Respondents were initially recruited by a random-digit-dialing procedure. Persons in selected households were then invited by telephone to participate in the web-enabled Panel. Those who agreed to participate but lacked access to the Internet were provided appropriate access and equipment by Knowledge Networks. Panel members are typically sent emails three to four times a month inviting them to participate in research. For the current study, a randomly selected group of panelists in the state of Florida was invited to respond to the questionnaire.

A total of 409 Florida residents completed the questionnaire. The age range for survey respondents was 18 to 90 (M = 53, SD = 16.80). A high proportion of the respondents were White non-Hispanic (73.8%), well educated (61.1 percent had some college degree or higher) and had household incomes greater than $30, 000 (79.2%). About half of the respondents were male (50.1%). The majority had a household size of fewer than 3 persons (78.2%). With regard to respondents' homes, 70 percent lived in a one-family, detached house, and 83.6 percent of the respondents (or someone in their household) owned their homes. About half of the respondents (44%) worked as paid employees.

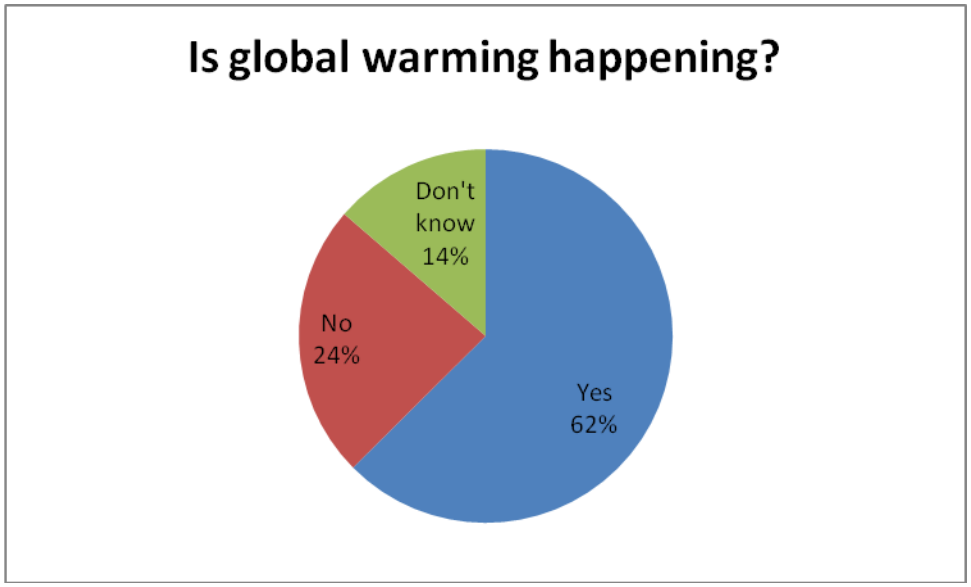

Race / Ethnicity
2.93%
14.18%
2.93%
6.11%
73.84%
White, Non-Hispanic
Black, Non-Hispanic
Other, Non-Hispanic
Hispanic
2+ Races, Non-Hispanic

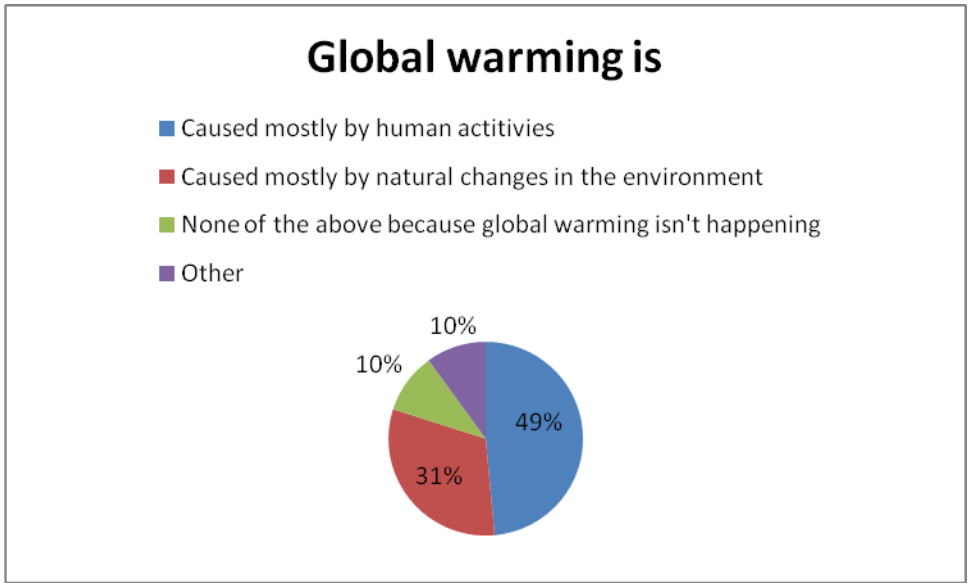

Housing Type
8.07%
14.43%
7.09%
70.42%
A one-family house detached from any other house
A one-family house attached to one or more houses
A building with 2 or more apartments
A mobile home

A majority (85%) of respondents reported a religious affiliation. Specifically, 18.2 percent were Baptist, 21.9 percent were protestant, and 24.5 percent were Catholic. Nearly half of the respondents (45%) said they go to religious service once or twice a month or more frequently.

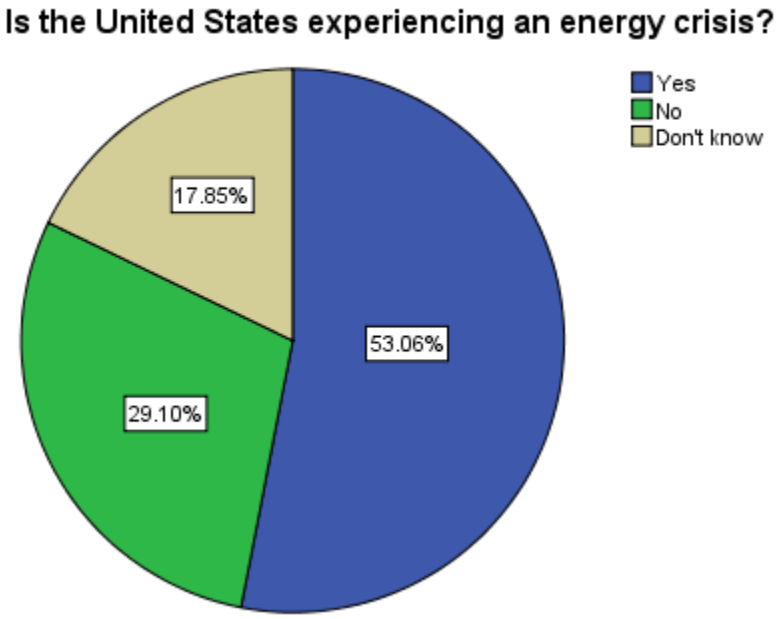
About one third of the respondents were Republicans, and one third were Democrats. The remaining respondents said they were independent or did not have a political affiliation.

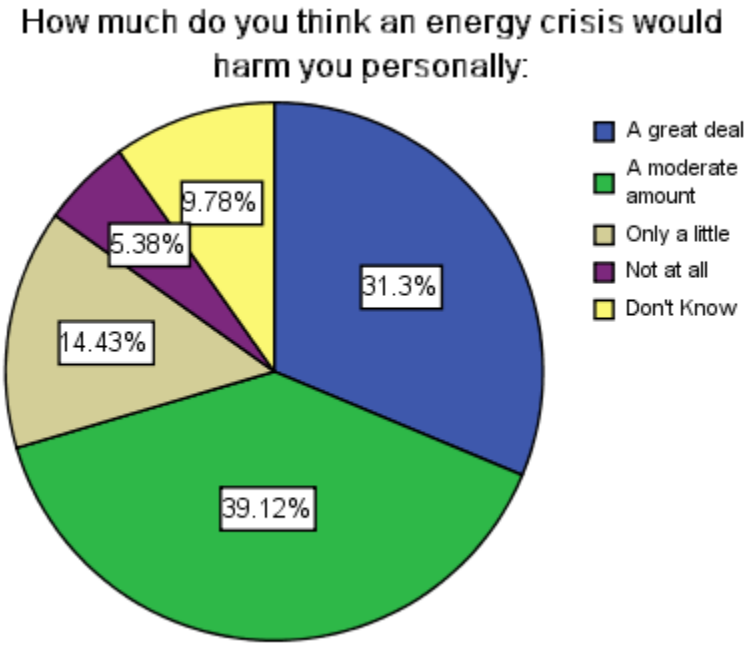
A majority of respondents (62%) said they believed that climate change was occurring; 24% said they did not believe climate change was occurring. Almost half (48%) who believed climate change was occurring said they believed such changes were caused mostly by human activities.



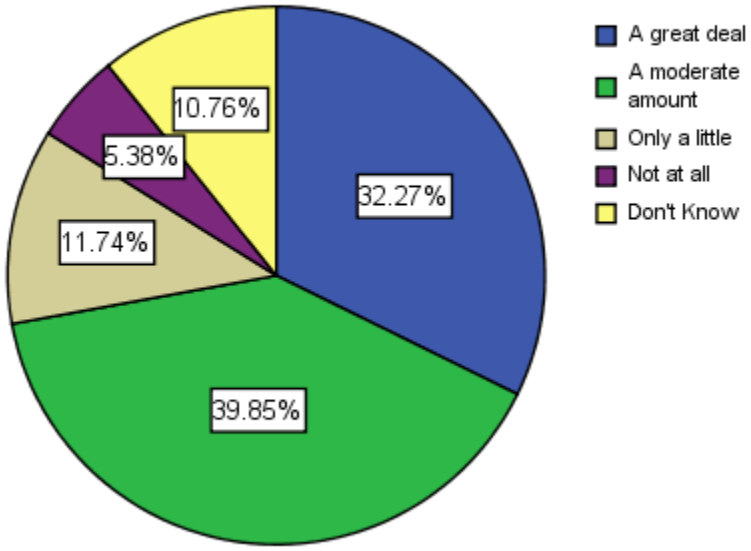


A slight majority of respondents (53%) believed that the United States was experiencing an energy crisis. Most participants (about 80%) believed an energy crisis would harm themselves, their family, and their community greatly or moderately.

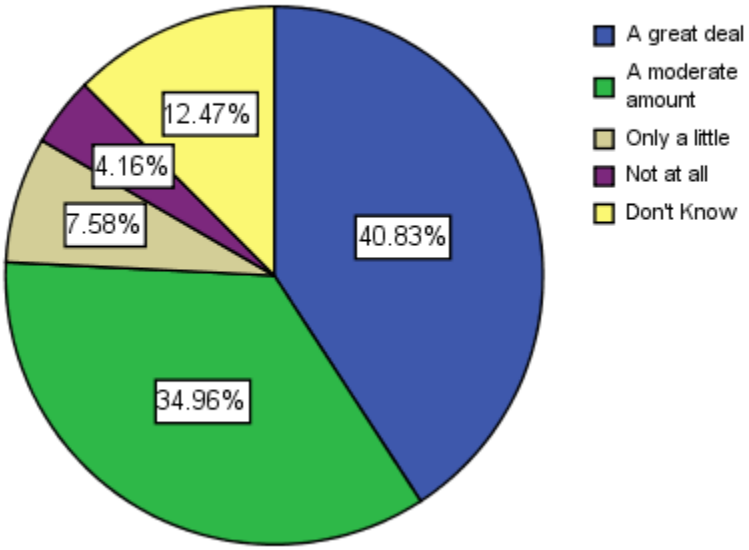




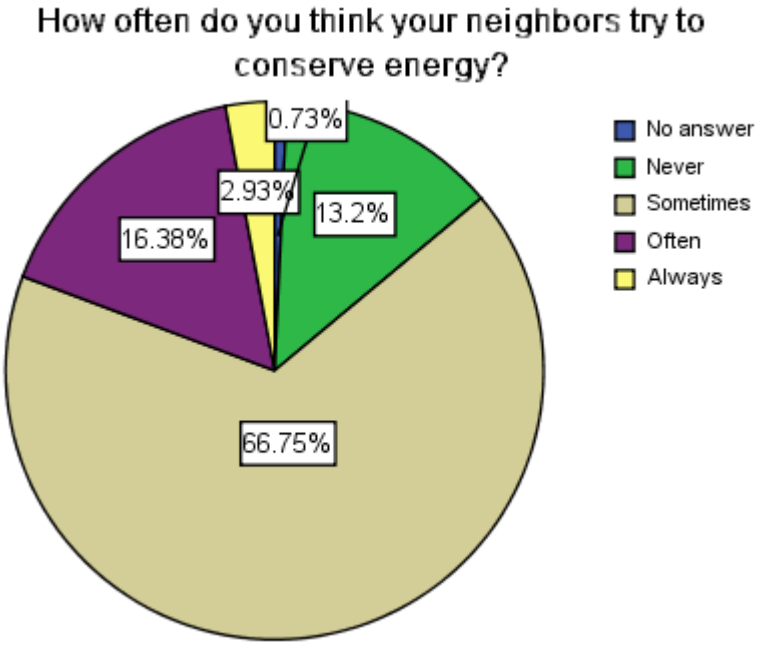
How much do you think an energy crisis would harm your family:

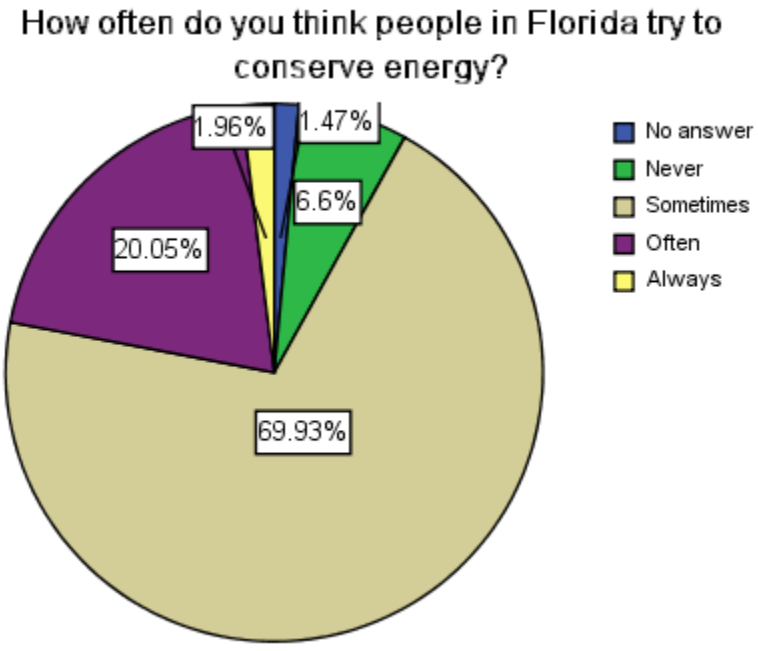


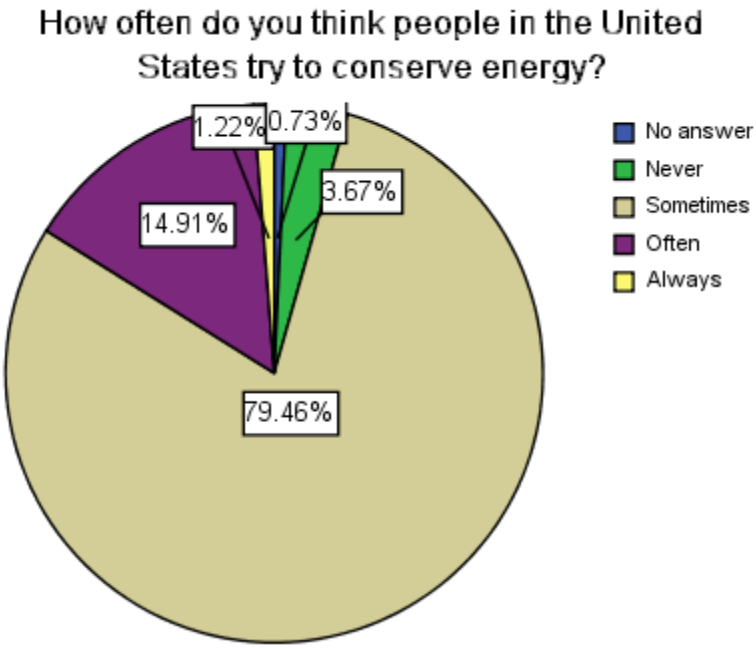
How much do you think an energy crisis would harm Your community:



Finally, most respondents believed that their neighbors, people in Florida, and people in the United States try to conserve energy at least some of the time.





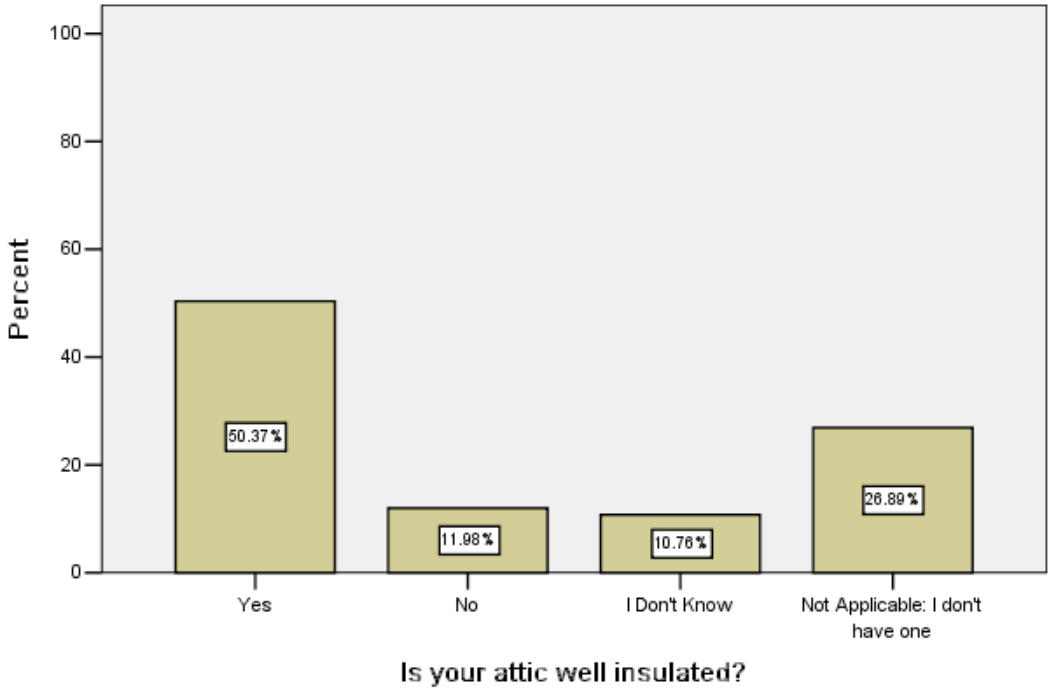

How often do you think people in the United States try to conserve energy?
1.22%
0.73%
3.67%
14.91%
79.46%
No answer
Never
Sometimes
Often
Always

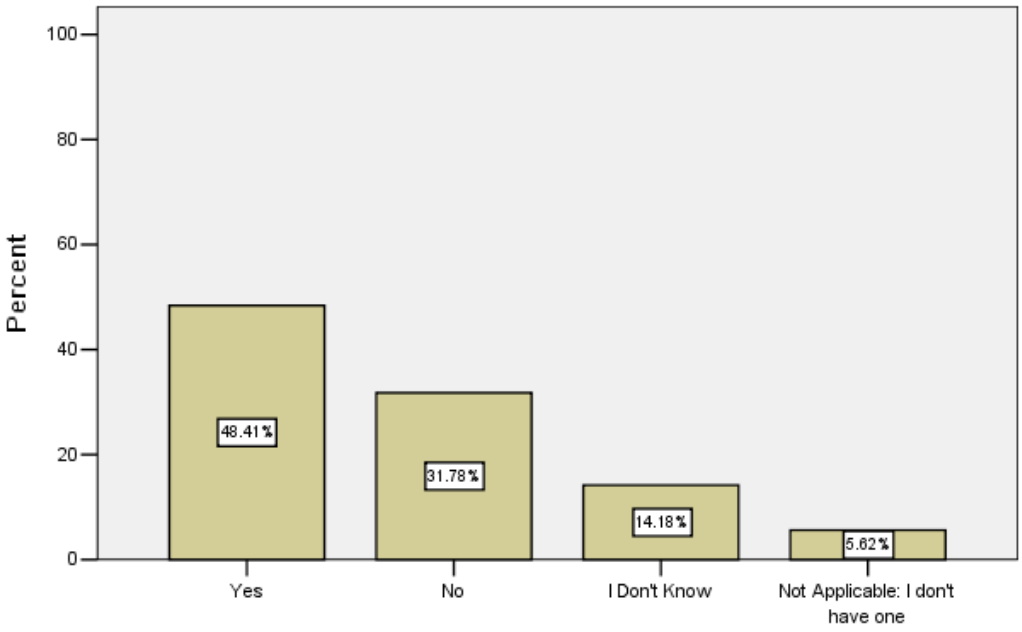
CURRENT ENERGY-RELATED BEHAVIORS

Current efficiency behaviors

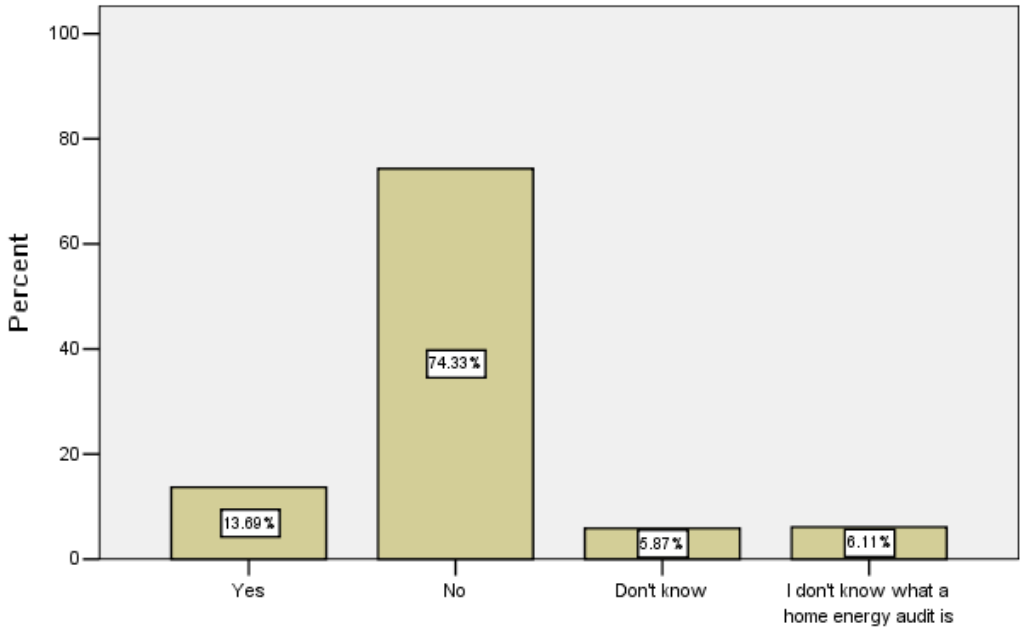
The least frequent efficiency behavior was having a home energy audit. An overwhelming majority of respondents said they had *not* received a home energy audit within the last three years. About half of the respondents said their attics were well insulated and that their homes had been caulked and weather stripped in order to reduce drafts. A slight minority of all respondents (42.06%) said they had replaced all or most of the light bulbs in their homes with compact fluorescent bulbs.

"The following questions ask about some actions you may have taken to save energy."

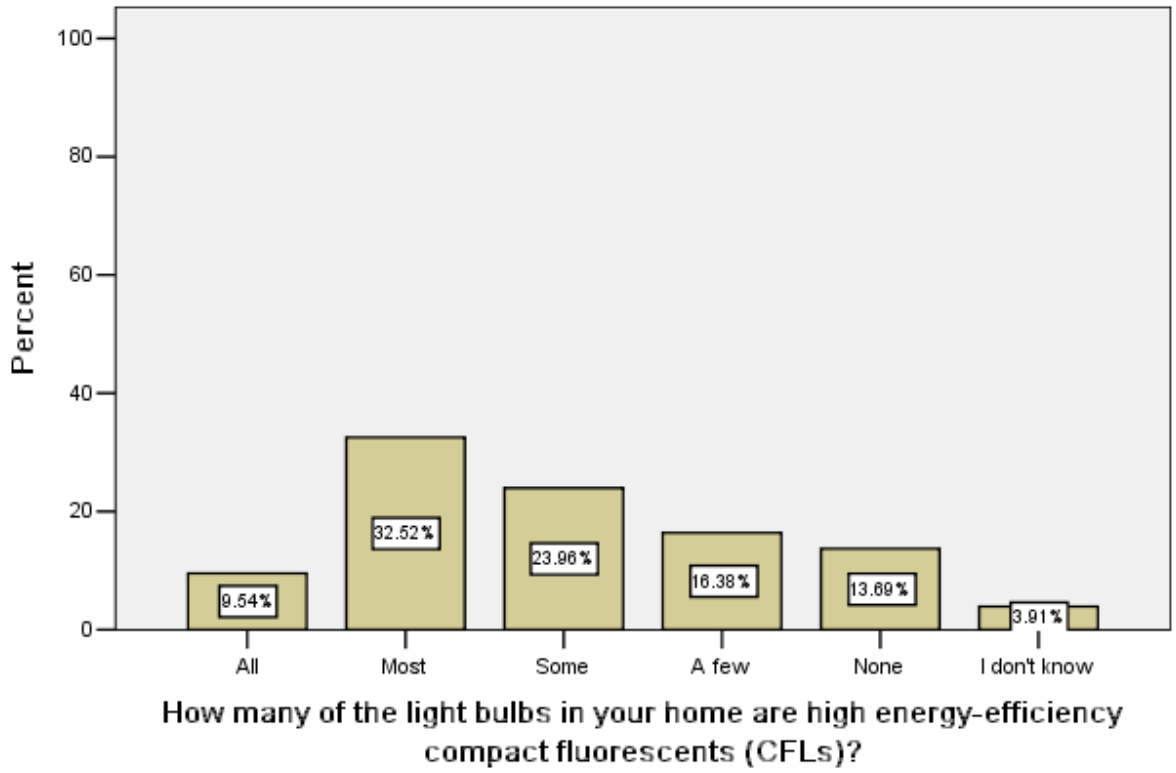




Has your home been caulked & weather-stripped to reduce drafts?



Have you had a home energy audit in the last 3 years?

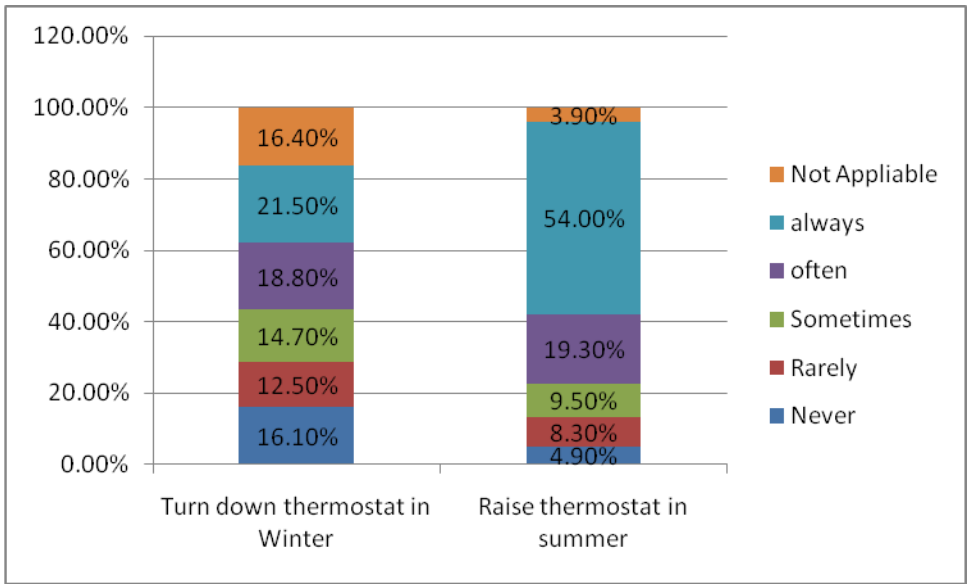

Percent
100
80
60
40
20
0
9.54%
32.52%
23.96%
16.38%
13.69%
3.91%
All
Most
Some
A few
None
I don't know
How many of the light bulbs in your home are high energy-efficiency compact fluorescents (CFLs)?

Current conservation behaviors

Respondents were more likely to set their thermostats to 78 degrees in summer than to set them at 68 degrees in winter.

"How often do you do the following things?"

- In the winter, set the thermostat to 68 degrees or cooler
- In the summer, set the thermostat to 78 degrees or warmer, or use less air conditioning



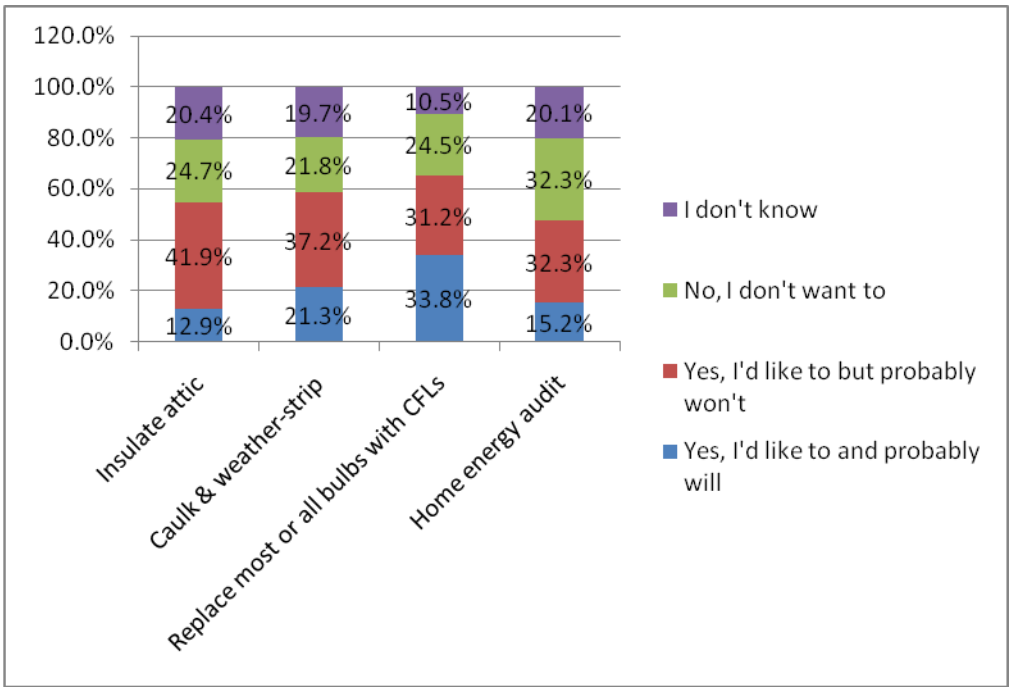
FUTURE ENERGY-RELATED ACTIONS

Intended efficiency actions over the next year

Respondents were most likely to say they would install more CFLs over the next year; they were least likely to say they would insulate their attics or have a home energy audit.

Most respondents intended to maintain their habits regarding where they set their thermostats in summer and winter.

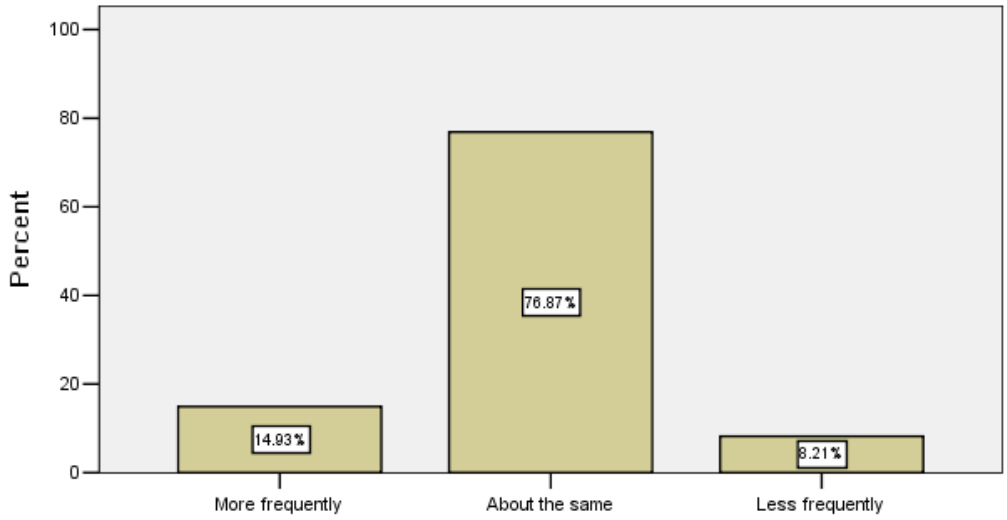
"Which of the following best describes what you are likely to do (with regard to the four actions listed above) over the next 12 months?"



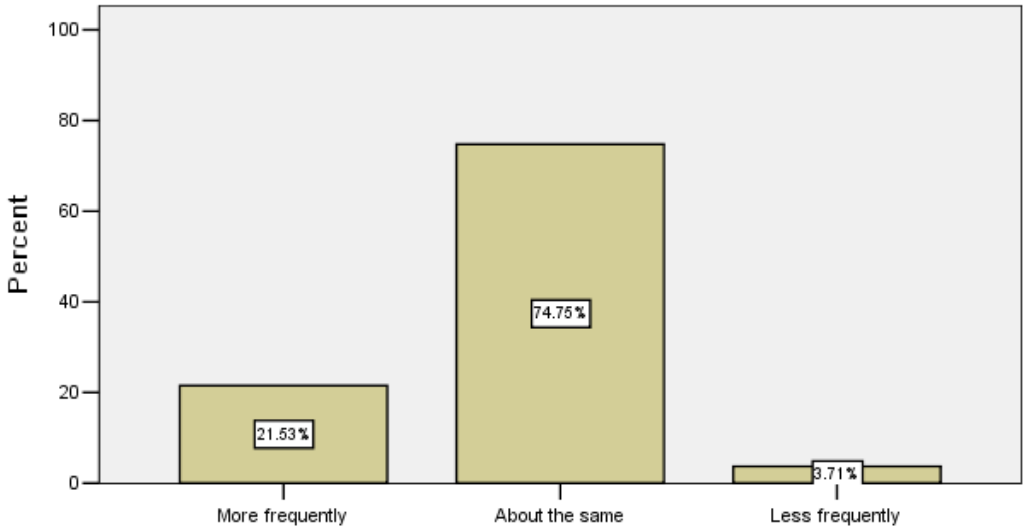
Intended conservation actions over the next year

"For each of the actions below, over the next 12 months, would you like to do this more frequently than you are now, less frequently than you are now, or about the same as you are now?

- In the winter, set the thermostat to 68 degrees or cooler



- In the summer, set the thermostat to 76 degrees or warmer, or use less air conditioning



BARRIERS TO EFFICIENCY AND CONSERVATION

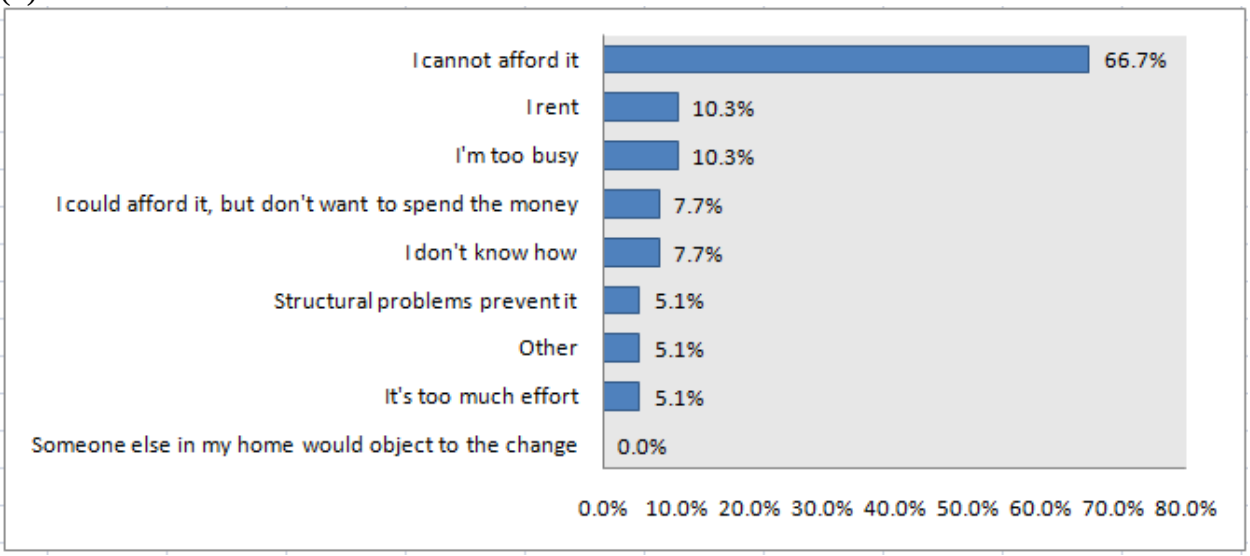
Economic concerns and realities were the most often stated reason for *lack* of intent to increase energy efficiency over the next year. However, lack of knowledge and misperceptions about the benefits of efficiency efforts also were evident in respondents' answers. Reported barriers to the specific behaviors in this study follow.

Barriers to insulating the attic

Inability to afford new insulation was the most frequently stated reason for not intending to increase insulation in respondents' attics. This finding suggests that efforts to inform Floridians about incentives and/or rebate programs should be increased. It is also interesting to note that almost 10% of respondents did not feel increased attic insulation would benefit them. An analysis of open-ended responses found that many respondents believed insulation was only important in cold climates. These findings indicate that educational efforts regarding the benefits of insulation in warm climates should also be increased, focusing on the ability of insulation to reduce the need for air conditioning.

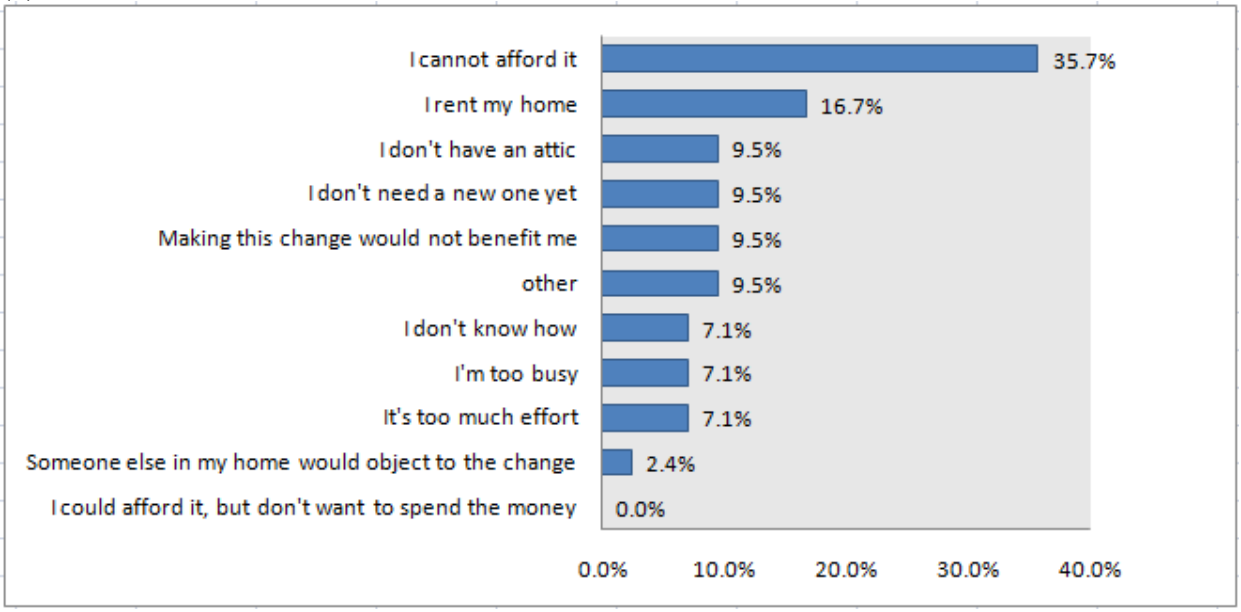
"There are many reasons why people don't install new insulation in their attics. Please check all of the reasons below that apply to you."

(1)



Base = respondents who say (1) they have not insulated their attic or don't know, *and* (2) they ***would like to do it but probably won't***; N = 39

(2)



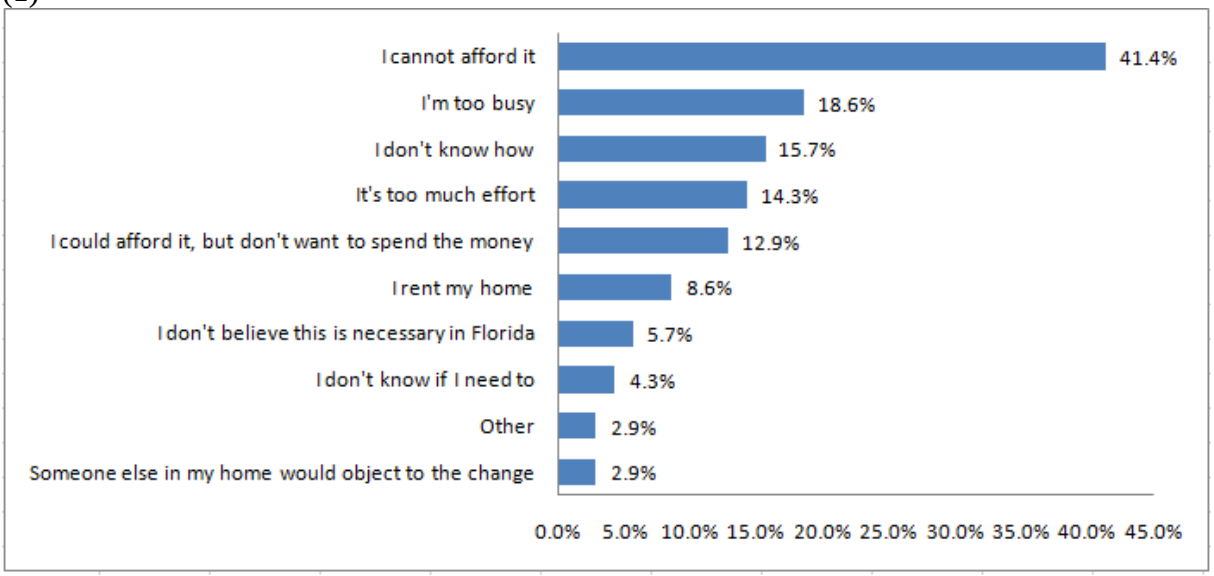
Base = respondents who say (1) they have not insulated their attic or don't know, *and* (2) they ***do not intend to do it in the next year, or don't know***; N= 42

Barriers to caulking and weather-stripping homes

Again, financial concerns topped the list of barriers to this behavior. This finding suggests Floridians may need more information about the relatively low cost but high payoff for this behavior. Lack of knowledge was also a frequently listed reason for not caulking and weather stripping. This finding suggests that efforts to educate Floridians about how to caulk and weather-strip their homes should be increased. Video demonstrations should be helpful in increasing Floridians' beliefs that they can perform this behavior, which should, in turn, increase the number of Floridians who take this important step to increasing efficiency (Martino, Collins, Kanouse, Elliott, & Berry, 2005). Additionally, as with insulation, an analysis of open-ended responses found that many respondents believed caulking and weather-stripping were only important in cold climates. These findings indicate that educational efforts regarding the benefits of caulking and weather-stripping should also be increased and should highlight information about the ability of caulking and weather-stripping to reduce the need for air conditioning as well as heating.

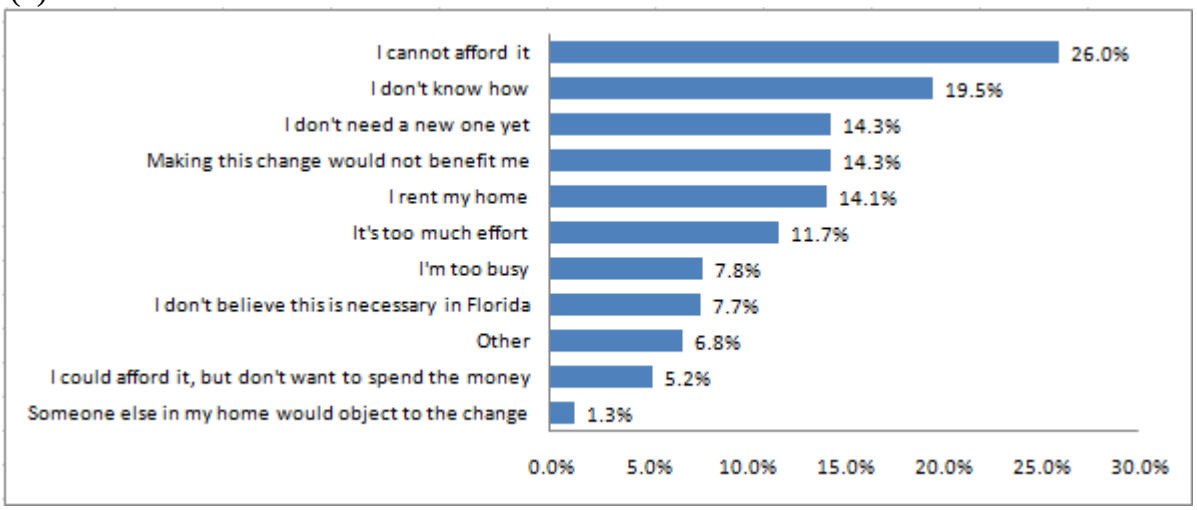
"There are many reasons why people don't caulk and weather-strip their homes to reduce drafts. Please check all of the reasons below that apply to you."

(1)



Base = respondents who say (1) they have not caulked and weather stripped their home or don't know, *and* (2) they ***would like to do it but probably won't***; N = 70

(2)



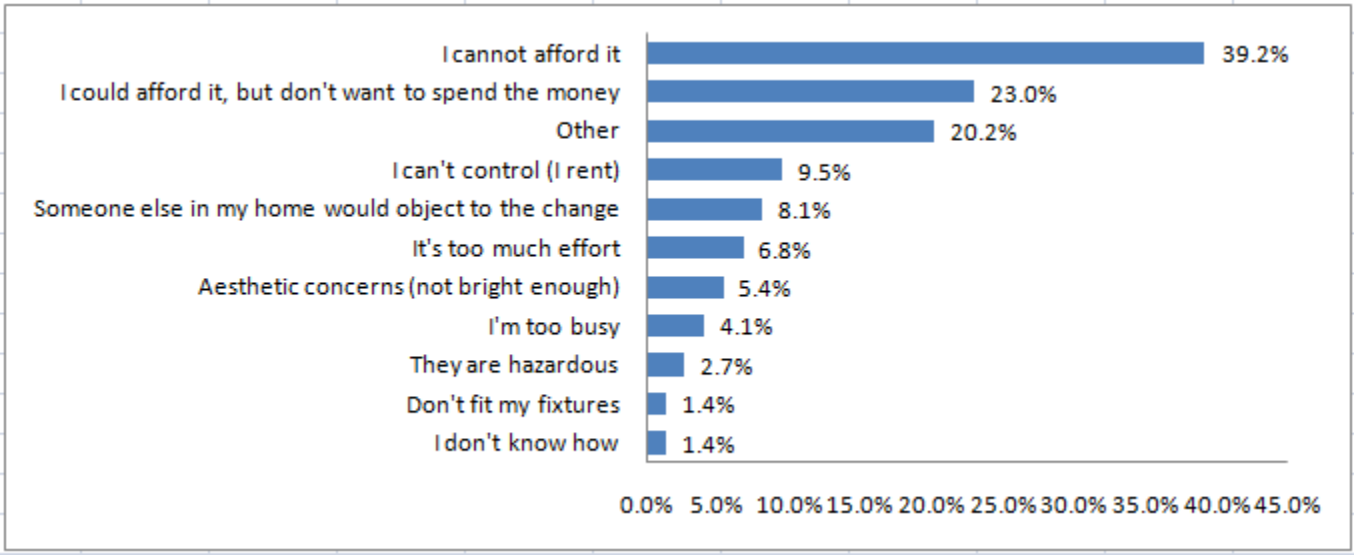
Base = respondents who say (1) they have not caulked and weather stripped their home or don't know, *and* (2) they ***do not intend to do it in the next year, or don't know***; N= 78

Barriers to installing CFLs

Among respondents who said they would like to but probably would not change most of their bulbs to CFLs, ability to afford new CFLs was the most frequent reason not doing so; not needing new bulbs yet was the most frequent reason for reporting a lack of intent to install CFLs. Other important and frequently listed concerns were aesthetic and the belief that the benefits of CFLs were not significant enough. These findings suggest that some Floridians should be educated about advances in CFLs that make the light less harsh than that of the original models and about energy savings associated with these bulbs. For those who do not perceive a personal benefit, it might be helpful to focus promotional efforts on the collective benefits of this simple and relatively inexpensive behavior.

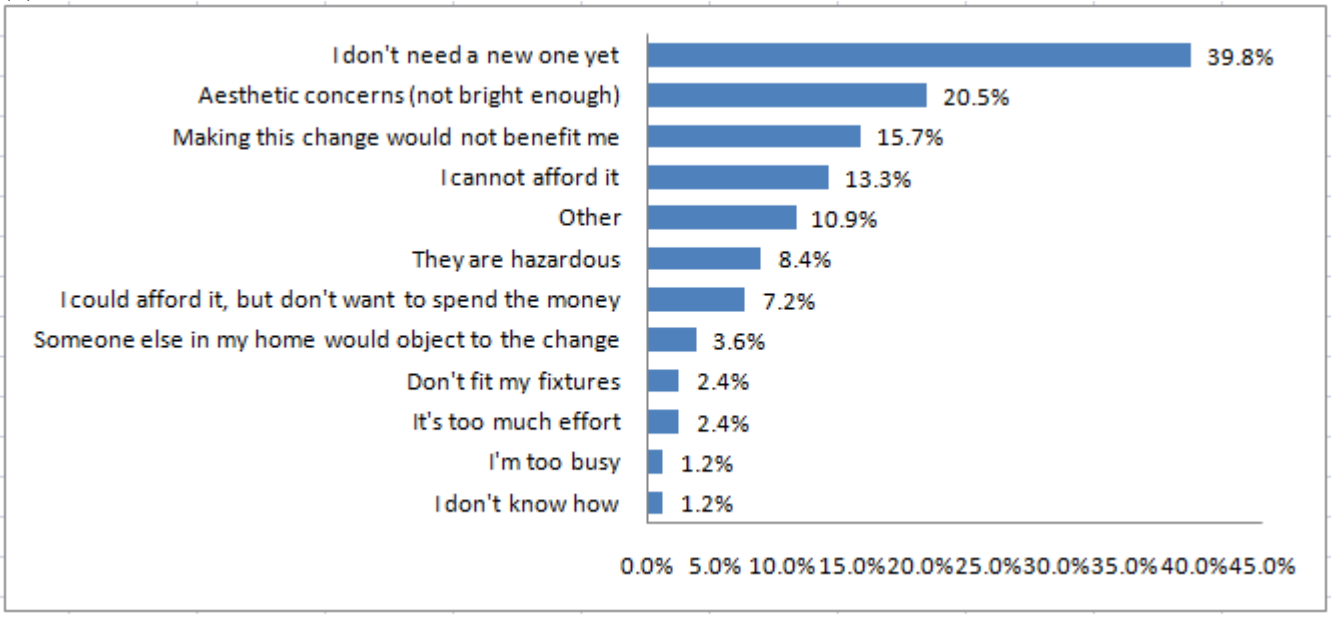
"There are many reasons why people don't change most of the light bulbs in their homes to high energy-efficiency compact fluorescents (CFLs). Please check all of the reasons below that apply to you."

(1)



Base = respondents who say (1) they have no, few, or only some CFLs currently or don't know, *and* (2) they ***would like to do it but probably won't***; N = 74

(2)



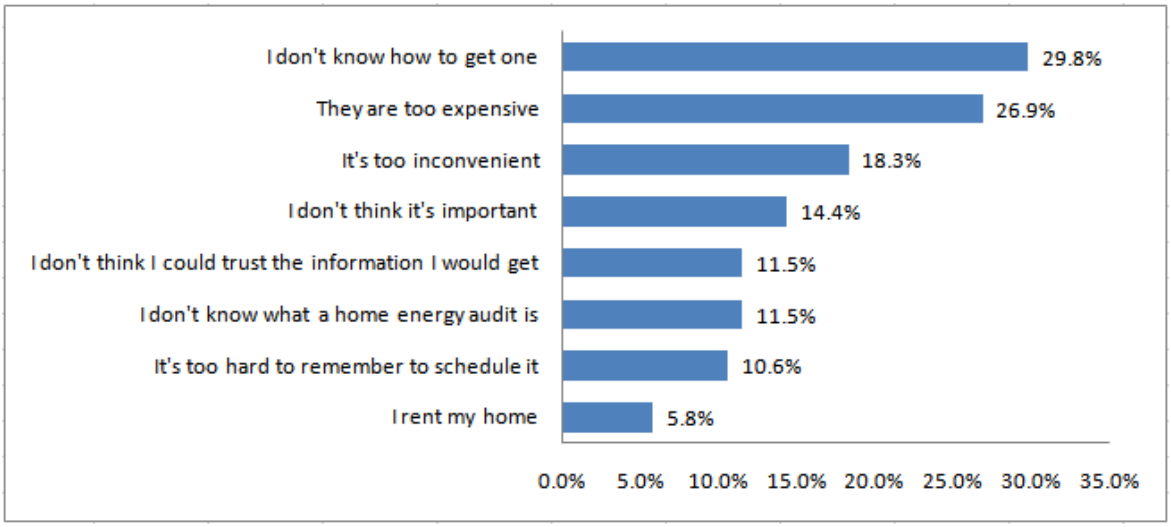
Base = respondents who say (1) they have no, few, or only some CFLs currently or don't know, *and* (2) they ***do not intend to do it in the next year, or don't know***; N= 83

Barriers to having a home energy audit

Lack of knowledge and misperceptions were the two most common barriers to this behavior. Most respondents who said they wanted to but would probably not get an audit said they did not know how to get one and/or they believed an audit was too expensive. Because energy audits are often offered free of charge by local utility companies, these barriers would seem easy to address via increased promotion by both utility companies and other agents. Respondents' reasons for lack of intent to get an audit suggest that promotion of audits should describe and stress the credibility of the information (many respondents' said they could not trust the information provided in an audit) and the benefits of an audit (many respondents felt an audit was not important).

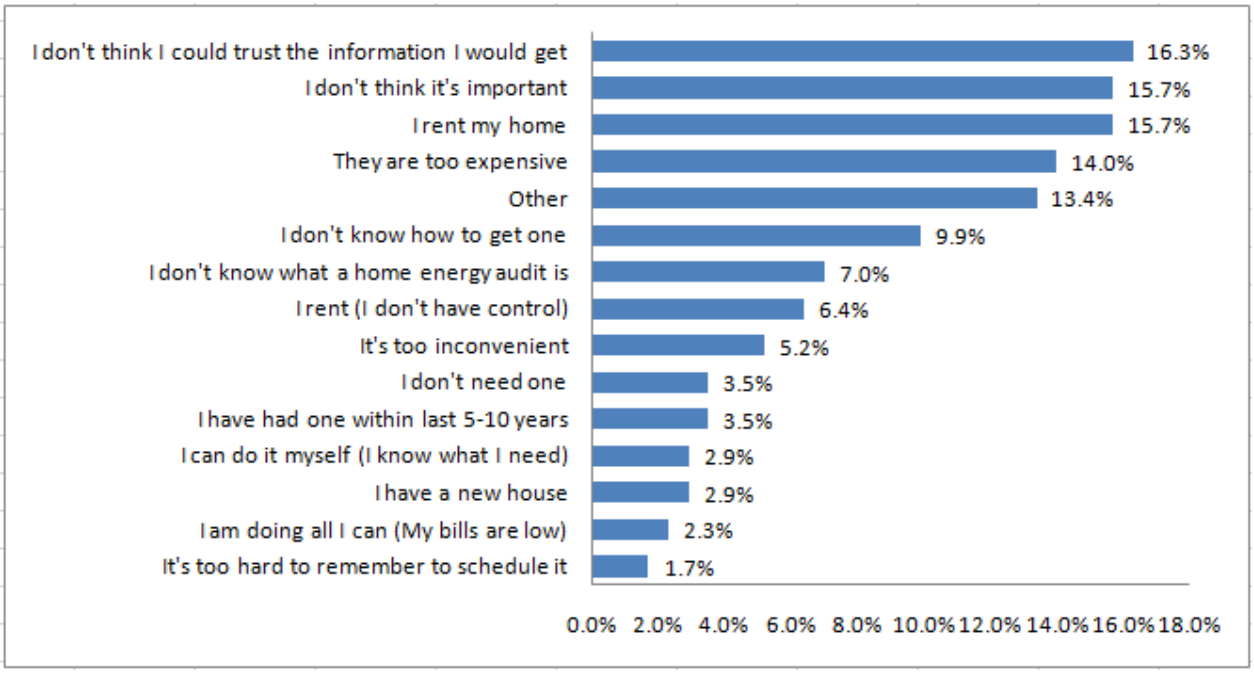
"There are many reasons why people don't have a home energy audit. Please check all of the reasons below that apply to you."

(1)



Base = respondents who say (1) they have not had a home energy audit or don't know, *and* (2) they ***would like to do it but probably won't***, N = 106

(2)

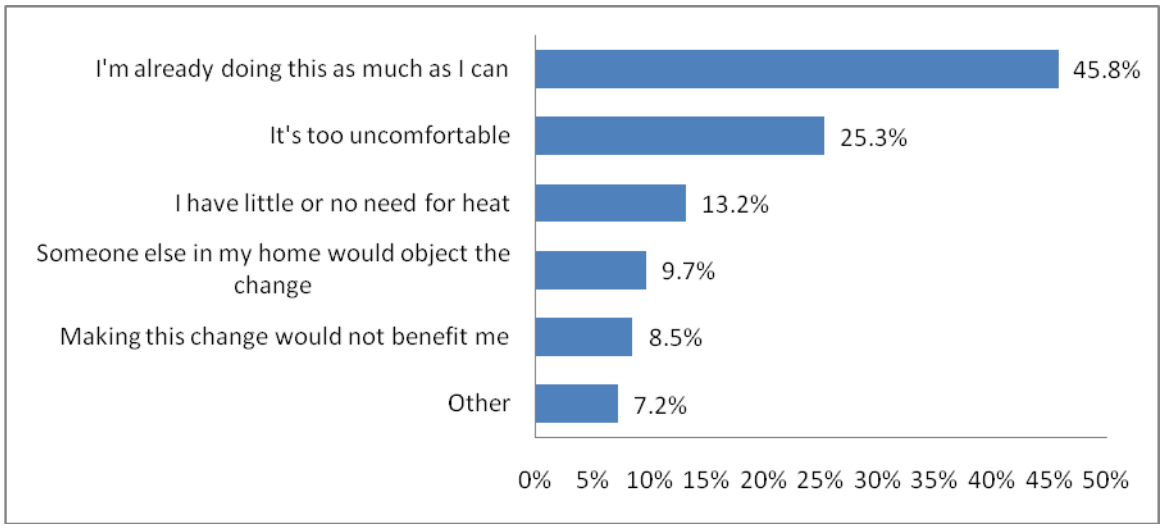


Base = respondents who say (1) they have not had a home energy audit or don't know, *and* (2) they ***do not intend to do it in the next year, or don't know***, N= 172

Barriers to lowering the thermostat in winter more frequently

Although many respondents said they were keeping their thermostats at recommended or lower temperatures in the winter (and therefore, could not improve their efforts in this area), lack of comfort was the next most frequently listed reason for not conserving more energy in this manner. Increasing insulation and caulking and weather- stripping via the outreach efforts described above could help Floridians use less heat in the winter.

"There are many reasons why people don't set the thermostat to 68 degrees or cooler in the winter. Please check all of the reasons below that apply to you."

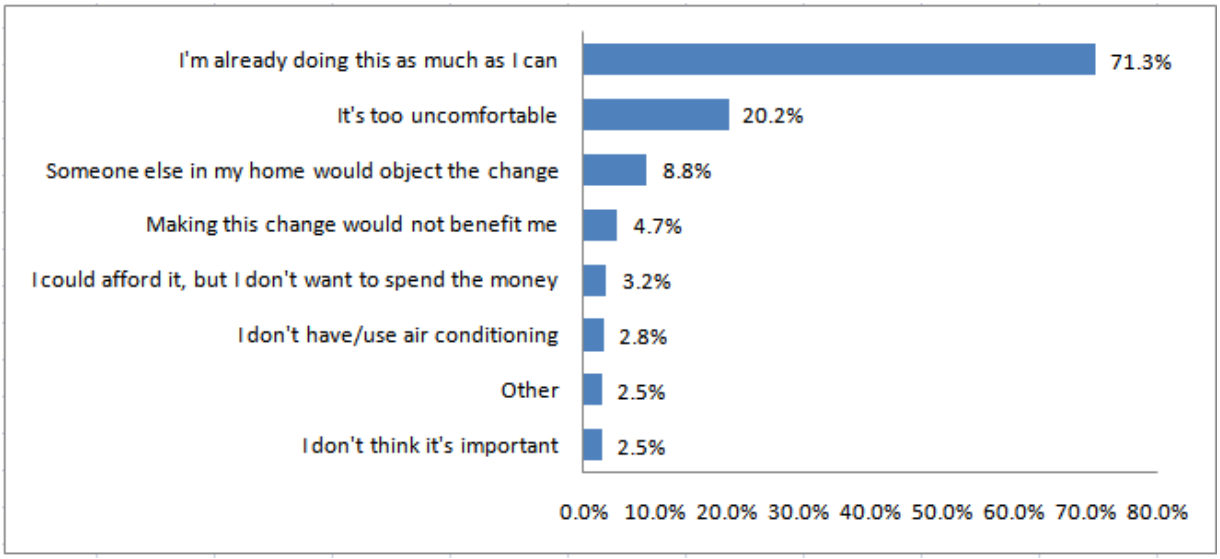


Base = respondents who say they intend to continue to do the same or to do so less frequently; N = 342.

Barriers to raising the thermostat in summer more frequently

Respondents reported high levels of setting the thermostat at 78 degrees or higher in the summer, and understandably, most indicated that they felt they could not improve their conservation efforts in this area. Perceived lack of comfort was the next most frequently listed barrier. Again, increasing insulation and caulking and weather- stripping via the outreach efforts described above could help Floridians use less air-conditioning in the summer.

"There are many reasons why people don't set the thermostat to 76 degrees or warmer or use less air conditioning in the summer. Please check all of the reasons below that apply to you."



Base = respondents who say they intend to continue to do the same or to do so less frequently; N = 317

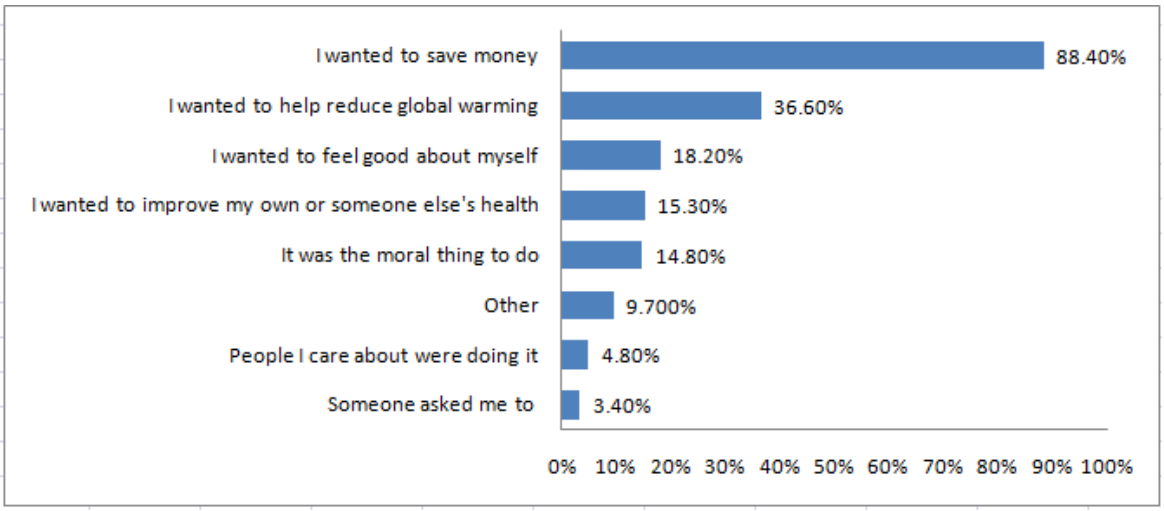
MOTIVATIONS FOR EFFICIENCY AND CONSERVATION BEHAVIORS

The desire to save money was the most frequently listed motivation for engaging in each behavior studied. Concerns about climate change ("global warming") and health were typically the next most frequently listed motivators. Of interest, those who listed a desire to reduce global warming were also likely to list improving their own or others' health as a motivator. Reported motivations for the specific behaviors in this study follow.

Motivations for efficiency and conservation actions already taken

Respondents who reported having already engaged in *one or more* energy-saving behaviors (regularly raising and lowering the thermostat to recommended levels in summer and winter, replacing most or all light bulbs in their homes with CFLs, caulking and weather-stripping windows and doors, ensuring sufficient levels of attic insulation, and having a home energy audit) were asked to indicate their motivation for taking that action. The desire to save money was overwhelmingly the most popular reason for having already engaged in any of the energy saving behaviors we listed. The desire to reduce global warming was the next most popular reason. The desire to feel good about one's self, to improve health, and to be moral were also relatively important motivators. Interestingly, social norms ("people I care about were doing it") did not seem to be an important motivator for past behaviors or intended future behaviors (described below). Given that research about factors that tend to influence health and some environmental behaviors consistently shows an important role for social norms (Bamberg & Möser, 2007; Chan, 1998; Kalafatis, Pollard, East, & Tsogas, 1999), this finding is somewhat unanticipated. It is possible that individuals either do not realize or want to admit to the influence of others' behaviors on their own behaviors. It is also possible that the particular behaviors we studied, because they occur in the privacy of one's home, are less subject to the influence of social norms than are other energy and environmental behaviors.

"Thinking about the actions you said you have taken to save energy in last few years. Please indicate the reasons why you have taken those actions."

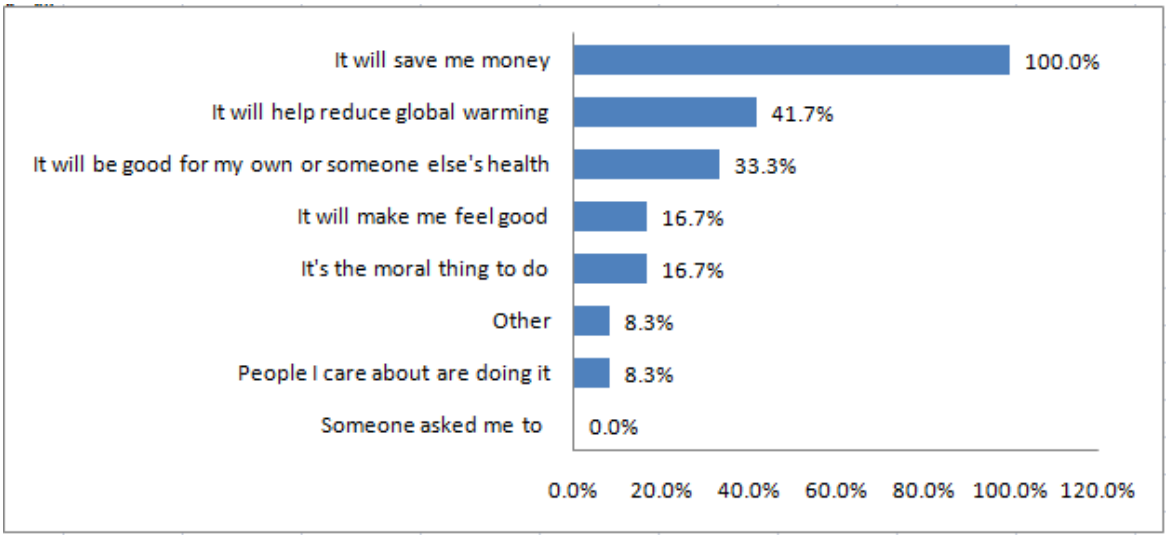


Base = respondents who say have taken some actions to save energy in last few years; N = 354.

Motivations for insulating the attic

Financial, environmental, and health concerns were the most-listed motivators for increasing attic insulation. However, the desire to feel good about one's self and being moral were also important motivators, suggesting that appeals to enhanced self-esteem and religious beliefs associated with protecting the Earth and others might be appropriate for relevant sub-populations when insulation and other efficiency behaviors are promoted.

"Why do you want to install new insulation in your attic? Please check all of the reasons below that apply to you."

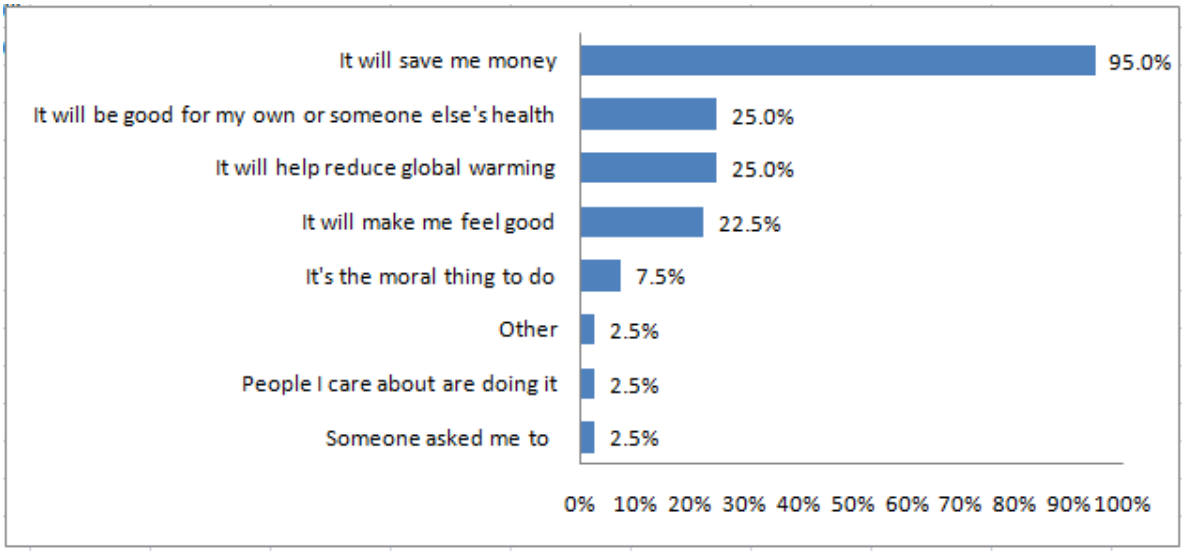


Base = respondents who say they intend to install new insulation in the attic; N = 12.

Motivations for caulking and weather-stripping

Economic, health, and environmental concerns were again the most-listed motivators for this behavior. However, desire to feel good about one's self was a close fourth, again suggesting the potential benefit of using appeals to enhanced self-esteem when promoting efficiency behaviors among relevant sub-populations.

"Why do you want to caulk and weather-strip your home to reduce drafts? Please check all of the reasons below that apply to you."

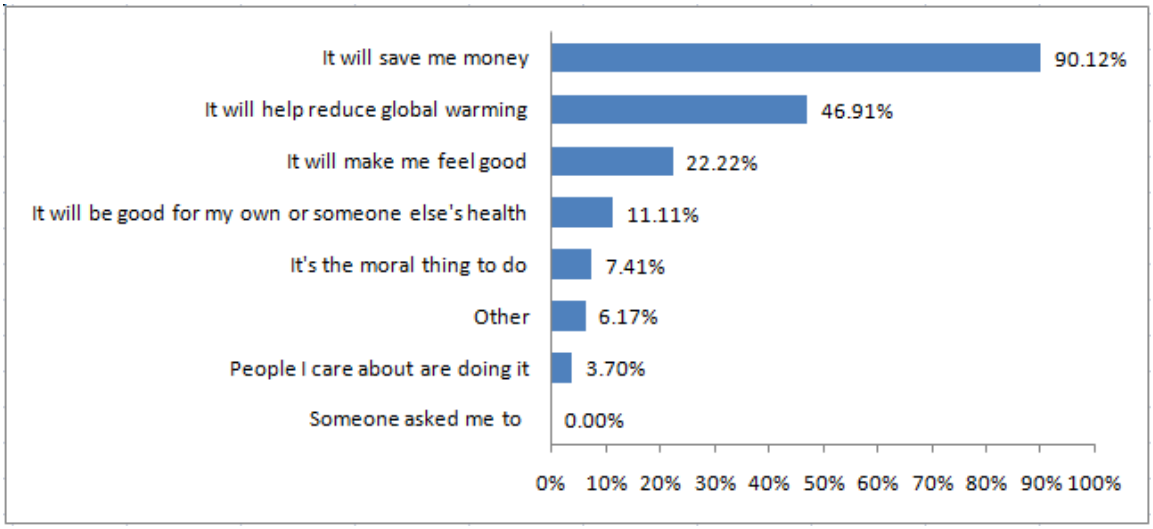


Base = respondents who say they intend to caulk and weather-strip your home to reduce drafts; N = 40.

Motivations for changing to CFLs

Economic and environmental concerns were the two most-listed motivators for this behavior. However, the desire to feel good about one's self was the third most frequently listed motivator. Health was a less important motivator of this behavior, suggesting that temperature and air quality concerns are more likely than concerns about efficient lighting to be associated with concerns about health within this sample (as evidenced by more concern about health reported in response questions about insulation and caulking/weather-stripping).

"Why do you want to change most of the light bulbs in your home to high energy efficacy compact fluorescents (CFLs)? Please check all of the reasons below that apply to you."

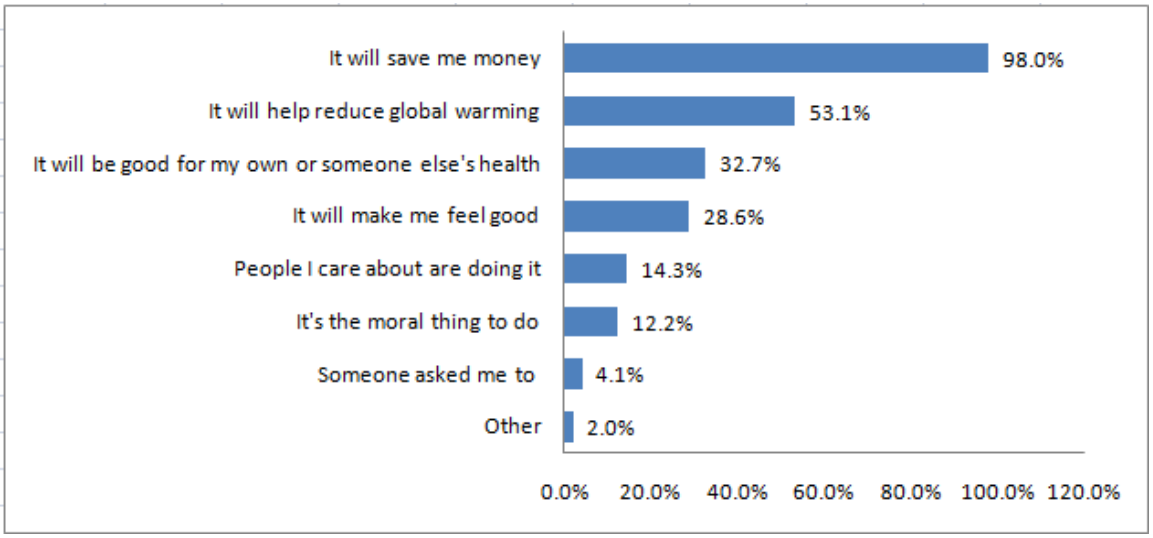


Base = respondents who say they intend to change most of the light bulbs in your home to high energy efficacy compact Fluorescents (CFLs); N = 81.

Motivations for having a home energy audit

Economic and environmental concerns were again the most-listed motivators for this behavior. However, concern about health was the third most-listed reason. This is likely due to respondents having some knowledge that audits will address insulation, heating, cooling, and air flow, all of which they seem to relate to health issues. Including an appeal to health (in addition to ease and lack of expense) when promoting energy audits might be provide that extra impetus for Floridians to request an audit. The data suggest that appeals to self-esteem might also be effective.

"Why do you want to have a home energy audit for your home? Please check all of the reasons below that apply to you."

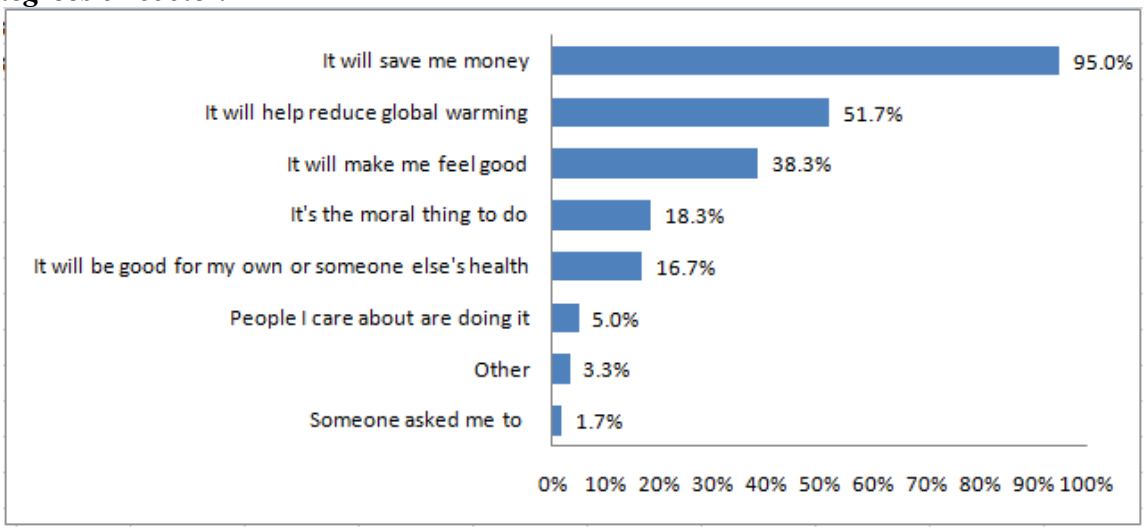


Base = respondents who say they intend to have a home energy audit; N = 50.

Motivations for lowering the thermostat in winter

Financial and environmental concerns were the most-listed motivators for this behavior. A desire to feel good was also relatively important to respondents. The data suggest that appeals to self-esteem could be effective in increasing this relatively easy behavior. Stressing the importance of collective action, especially in messages targeted to the altruistic and/or environmentally concerned seems warranted. Again, making clear the link between reduced need for heating/cooling and increased insulation and caulking/weather-stripping could further motivate this conservation behavior.

"Why do you want to do these things more frequently? …Set the thermostat in winter to 68 degrees or cooler."

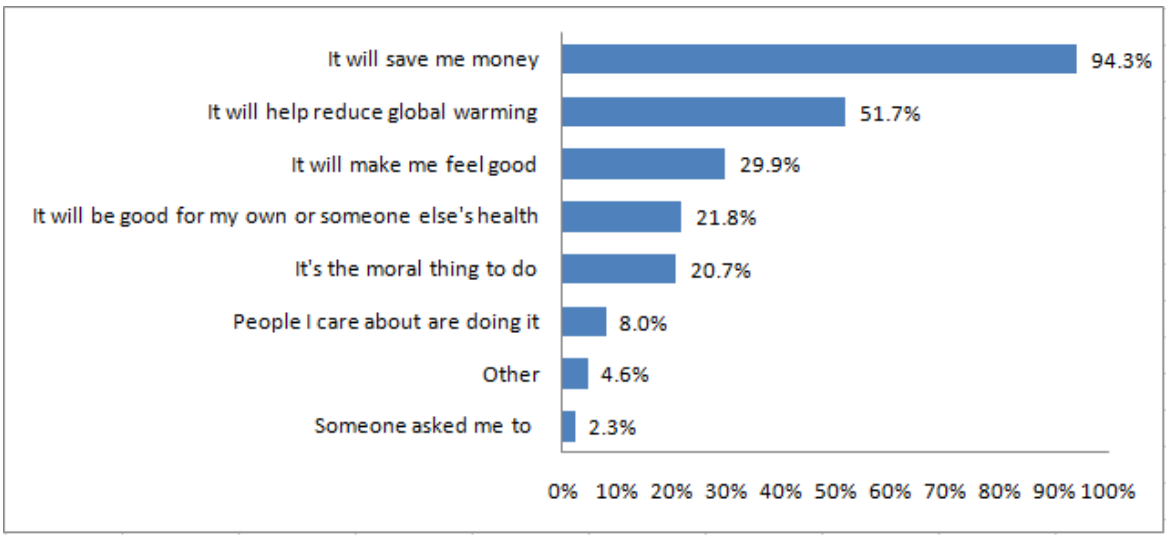


Base = respondents who say they intend to lower their thermostat more in winter over the coming year; N = 60.

Motivations for raising the thermostat in summer

Responses to this question were understandably similar to those for the question about lowering the thermostat in winter. Financial and environmental concerns were the most-listed motivators for this behavior. A desire to feel good was also relatively important to respondents, but not as important as it was for lowering the thermostat. This likely reflects the fact that reducing the use of heat is less difficult than reducing the use of air conditioning in Florida. Nonetheless, the data still suggest that appeals to self-esteem could be effective in increasing this behavior. Again, making clear that increased insulation and caulking/weather-stripping reduce the need for cooling could increase this conservation behavior.

"Why do you want to do these things more frequently? …Set the thermostat in summer to 78 degrees or warmer or use less air conditioning."



Base = respondents who say they intend to raise their thermostat more in summer over the coming year; N = 87.

RECOMMENDATIONS

Research on promoting health and environmental behaviors has consistently shown that in order to increase desirable behaviors, individuals must be convinced they should take action, know how to take action, and be able to take action (Axelrod & Lehman, 1993; Lindsay & Strathman, 1997; Schultz, Oskamp, & Mainieri, 1995). Therefore, removing barriers to and increasing incentives for engaging in energy-saving behaviors is necessary to increase those behaviors, as is educating individuals about the need and process necessary to engage in them. Currently, financial incentives for increasing attic insulation, caulking and weather stripping, and receiving home energy audits are available. Because our respondents list economic reasons for not engaging in these behaviors, more promotion of incentives seems necessary to increase energy efficiency and conservation in Florida. Additionally, more education regarding how to engage in some behaviors (e.g., requesting an energy audit and caulking/weather stripping) also seems necessary. Finally, promotional efforts seem needed to better convince some Floridians that a few fairly low-investment behaviors (e.g., installing CFLs, reducing heat and air-conditioning use, and caulking/weather stripping) promote individual and collective well-being. Based on the findings described above, the following outreach actions for increasing energy efficiency and conservation in Florida are recommended:

1. Educational efforts regarding the benefits of attic insulation, caulking and weather stripping – even in a warm climate -- should be increased. Promotion of available incentives and/or rebates for insulation should be increased.

2. Educational efforts regarding the relatively low cost but high payoff (in terms of energy savings) of caulking and weather stripping should be increased. Available financial incentives should also be heavily promoted and continue to be made available.

3. Educational efforts regarding *how to* caulk and weather-strip Floridians' homes should be increased. Video demonstrations, in particular, should be helpful.

4. Floridians should be better educated about advances in CFLs that make the light less harsh than that of the original models and about energy savings associated with these bulbs. Distributing one free bulb to households could aid with eventual replacement of most or all bulbs in the household. Promotional efforts might also focus on the collective benefits of this simple and relatively inexpensive behavior.

5. Increased promotion of energy audits that are offered for free should be considered by utility services and other agents. Promotions should describe and stress the credibility of the information and concretely describe the benefits that an audit can instigate (stressing financial savings first and foremost).

6. Promotional materials should focus on the economic benefits of efficiency and conservation, but should also appeal to environmental concerns, health concerns, and self-esteem among target audiences for whom such appeals are compelling and/or serve as a repeated prompt to engage in those behaviors they already feel favorably toward.

ENDNOTES

[1] Across all intended behaviors the motivation response options of "It will be good for my or someone else's health" and "To help reduce global warming" were significantly correlated, $r(202) = .35$, $p < 0.01$.

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