ASHLAND CLIMATE AND ENERGY SURVEY RESULTS

FINAL REPORT

Geos Institute

Southern Oregon University Research Center (SOURCE)

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GEOS INSTITUTE

SOUTHERN OREGON UNIVERSITY SOURCE RESEARCH CENTER

EXECUTIVE SUMMARY

The Geos Institute and Southern Oregon University Research Center (SOURCE) conducted a scientific survey of attitudes and actions related to climate change and energy in Ashland, Oregon. The survey is intended to inform the Climate and Energy Action Planning (CEAP) process that is ongoing by the City of Ashland.

Surveys were mailed to 2,000 randomly chosen households in Ashland, and 1,078 valid responses were returned. The survey asked questions about respondents' attitudes towards climate change, energy upgrades in their homes, energy saving behaviors, and what actions they want to see the City take, if any.

The most common upgrades that respondents reported taking in their homes included high efficiency light bulbs, energy efficient windows and appliances, extra caulking and insulation, and low-flow showerheads. Homeowners were more likely than renters to have energy upgrades in their homes. Only 5% of respondents reported having solar electric and 10% reported having solar, tankless, or on-demand hot water.

Energy-saving behaviors reported by respondents included recycling, eating local and in-season foods, adjusting the thermostat, buying used goods, and reducing their overall consumption. Few respondents reported that they drive a hybrid or electric car.

Survey respondents indicated that some of the barriers to saving energy include the cost of upgrades, inconvenience of alternative transportation, and the fact that they rent instead of own their homes.

Respondents stated support for additional actions led by the City for saving energy and combating climate change. Some preferred actions include investment in local renewable energy, electric buses, subsidized solar energy for low-income homes, expanded bus routes and times, and safer bike lanes.

Finally, the survey revealed 88% of respondents believe climate change is human-caused and over 76% indicated that immediate action is needed. Most respondents also supported adopting aggressive greenhouse gas emissions targets.

INTRODUCTION

The Geos Institute and Southern Oregon University Research Center (SOURCE) conducted a scientific public opinion survey on attitudes towards climate change, energy conservation, and renewable energy. This study was conducted in collaboration with the city-led Climate and Energy Action Planning (CEAP) process. In 2015, Mayor Stromberg appointed an ad-hoc committee to work with an outside contractor to develop Ashland's CEAP. The results of this Climate and Energy Survey will inform the types of goals, strategies and actions included in the CEAP. The survey also helps Ashland City staff and other groups working to implement the CEAP to develop the appropriate outreach, education, and messaging for local residents.

The Geos Institute and SOURCE developed a two-page mail-in survey for Ashland residents. The survey covered a variety of topics, including current actions people are taking in their homes to save energy, existing barriers to saving energy, what kind of action respondents would like the City of Ashland to take, attitudes on climate change, and how aggressive they think the community should be in reducing emissions.

METHODOLOGY

We used a probability sampling method to randomly choose a sample of 2,000 Ashland residents from a list of 10,090 Ashland household utility customers, and we received 1,078 valid responses. The address list was provided by the City of Ashland. All non-Ashland addresses were removed from the list.

Surveys were completely anonymous. We did not ask for name, address, or other identifying information on the survey, and we did not track respondents. We sent out a follow up survey approximately 3-4 weeks after the initial mailing, to increase overall returns. A sample of the survey is included in Appendix 1.

Five general/demographic questions were asked on the resident survey. The first was whether the resident lives in Ashland year-round. The second was whether they rent or own their home. They were also asked for information on age, gender, and level of education. Answers to these questions helped determine how the sample represented the larger Ashland population. For population statistics, the Ashland, Oregon results from 2015 US Census American Community Survey were used.[1]

In terms of gender, the sample reflected the larger population. The survey used an open-ended category for gender and 57% of respondents reported female, 42% reported male, and 1% reported a non-binary gender identity. The education and age of the respondents, however, did not completely reflect the larger Ashland population. Four percent of respondents have some high school or a high school degree, 17% have some college education, 31% have a 4-year degree, 46% have an advanced degree, and 2% checked "other". Comparable numbers for the population are 16% have some high school or a high school degree, 29% have some college education, 29% have a 4-year degree, and 26% have an advanced degree.

[1] https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

Age of the sample was similarly skewed. One percent of respondents fell within the 18-24 year old category, 5% were 25-34, 18% were 35-54, 23% were 55-64, and 53% were 65 and over. Comparable numbers for the population were 14% in the 18-24 year old category, 12% in the 25-34 year old category, 28% in the 35-54 year old category, 22% in the 55-64 year old category, and 25% were 65 years old and over.

Table 1. Age weighting to enhance representation and reduce response bias with 18-24 year olds omitted and percentages recalculated.

Age Group	Pop %	Sample %	Weight
25-34	14.02%	4.66%	3.01
35-54	32.07%	18.65%	1.72
55-64	25.43%	23.31%	1.09
65+	28.49%	53.38%	0.53
		100%	100%

While age and education are both skewed in our sample as compared to the population, we weighted our sample for age only. Reasons for weighting by age include greater discrepancies between sample and population, especially at the higher end, and a number of the behaviors and actions on the survey were age related such as owning a home versus renting, car usage, and adjusting the thermostat. In the weighting process, we avoided response bias by eliminating the youngest age category (Table 1). This resulted in a final tally of 1,049 valid responses.

RESULTS

EXISTING HOME UPGRADES

We asked residents what measures they have already taken in their homes to reduce their energy use and/or switch to renewable energy. The most common measures included high efficiency light bulbs, energy efficient windows and appliances, caulking, insulation, and low-flow showerheads (Figure 1).

Many respondents indicated that they have additional home conservation features, including radiant heat, passive solar, whole house fans, and a variety of other measures. Numerous respondents provided additional information on water-saving measures in their homes.

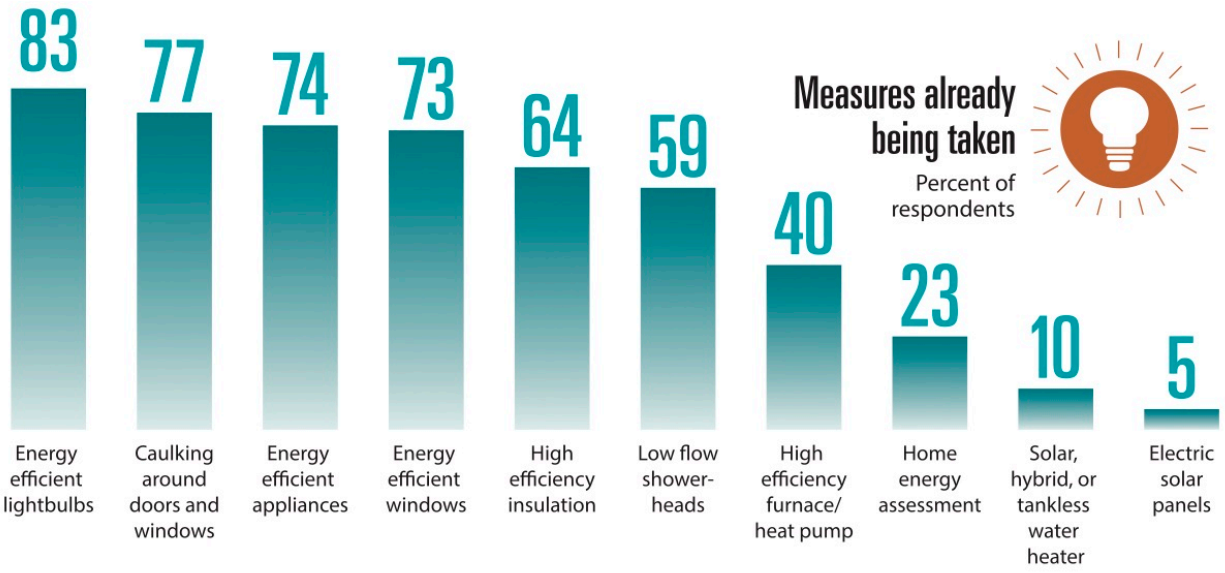

Figure 1. Percent of respondents who said the following energy-saving features apply to their homes. n = 1,026.

Own versus rent – Of all respondents, 69% said that they own their home, while 30% rent. About 1% rent or own a mobile home or another type of space. Homeowners were more likely than renters to respond affirmatively that their home has conservation upgrades (Table 2).

Table 2. Home upgrades displayed by home ownership. n = 1,022.

Percent of respondents reporting the following upgrades:	Home Owners	Renters
Energy efficient windows	87%	41%
CFL/LED light bulbs installed	91%	67%
Low-flow showerheads	67%	41%
Caulking around windows, doors, outlets, etc.	88%	53%
Energy efficient insulation	81%	24%
Energy efficient appliances	90%	38%
Home energy assessment was done	30%	6%
Solar, hybrid, on-demand, or tankless water heater	13%	4%
High efficiency furnace or heat pump	54%	11%
Electric solar panels installed	7%	1%

ENERGY-SAVING BEHAVIORS

In addition to asking about home upgrades, we asked residents what behaviors they use to save energy. Most respondents reported recycling, eating local and in-season foods, adjusting the thermostat, buying used goods, and reducing their overall consumption (Figure 2). In addition, 59% reported tracking their home energy use over time.

Many respondents reported additional measures that they take at home to save energy and reduce their impacts on the environment. These included:

- having a garden
- conserving water
- composting
- volunteering
- turning off lights when not in use
- using reusable bags
- using non-toxic cleaners and pesticides
- opening windows for natural cooling at night/in morning

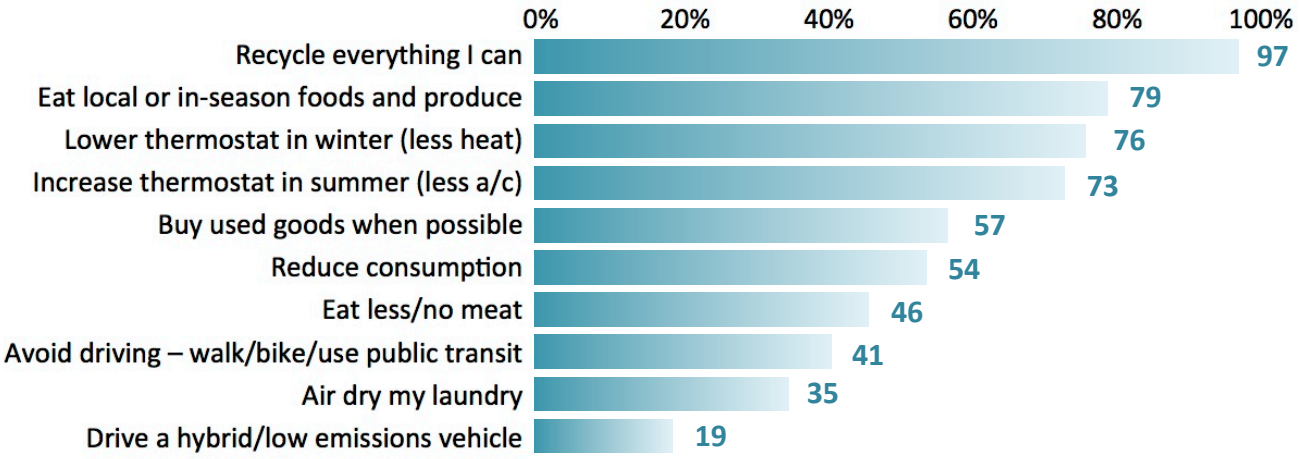

Figure 2. Percent of respondents who take specific actions to reduce their impacts on the environment. n = 1,043.

BARRIERS TO SAVING ENERGY

We asked residents what barriers have kept them from having a more energy efficient home (Table 3) and increasing personal action to save energy (Table 4). Respondents were primarily concerned with the cost of improvements, including new energy efficient appliances. In addition, we found that 30% of respondents were hesitant to make upgrades because they rent instead of own their homes.

In relation to behaviors, most respondents reported the inconvenience of public transportation or the distances they need to travel as barriers to reducing their impacts on the environment. The extra time needed for energy-saving activities was cited as a barrier.

Table 3. Responses to the question "What barriers keep you from reducing the environmental impact of the home you live in?" n = 1,013.

Percent of respondents reporting the following barriers:	
Home improvements are too expensive	44%
I live in a rental home or apartment	30%
New appliances are too expensive	18%
I don't know what actions to take	14%
Solar panels do not fit/work on my roof	13%
I do not qualify for incentives	6%
Other	14%
None	8%
I don't think it will make a difference	3%
Don't know	3%

Table 4. Responses to the question "What barriers keep you from reducing your impact on the environment?" n = 949.

Percent of respondents reporting the following barriers:	
Public transportation is too inconvenient	46%
My job/obligations are too far to walk or bike	40%
Extra time needed for these activities	29%
None	17%
Other	14%
Too expensive to buy local foods and produce	13%
Personal actions don't make a difference	4%
I don't know what actions to take	4%

Many respondents included written comments on the barriers that they experience. Some of the most frequent comments included:

- solar panels are too expensive
- payback period is too long
- monetary savings are too small
- existing appliances still good
- respondents might move soon
- home owners association restrictions
- upgrades detracting from the historic quality
- older homes being difficult and expensive to upgrade
- age and physical limitations
- the higher cost of behavioral changes
- lack of motivation to make changes
- rental restrictions and limitations
- not enough recycling options

CITY-LED ACTIONS

The City of Ashland already leads conservation and renewable energy programs that support both businesses and residents. We asked survey respondents what additional actions or initiatives they would like to see implemented by the city. Numerous actions had very high support from survey respondents, including investment in local renewable energy, electric buses, subsidized solar energy for low-income homes, expanded bus routes and times, and safer bike lanes (Fig. 3). Only 6% of respondents said that the city should not take additional action to reduce greenhouse gas emissions, with several of those respondents indicating fear of increasing the already high cost of living in Ashland.

Many respondents included written comments on the policies or initiatives that they would like the City of Ashland to implement. Some of the most frequent suggestions included:

- more incentives
- more/better recycling options
- assurance that taxes are not increased
- assistance for renters
- more education programs
- solar on public buildings
- shuttles
- more efficient building standards

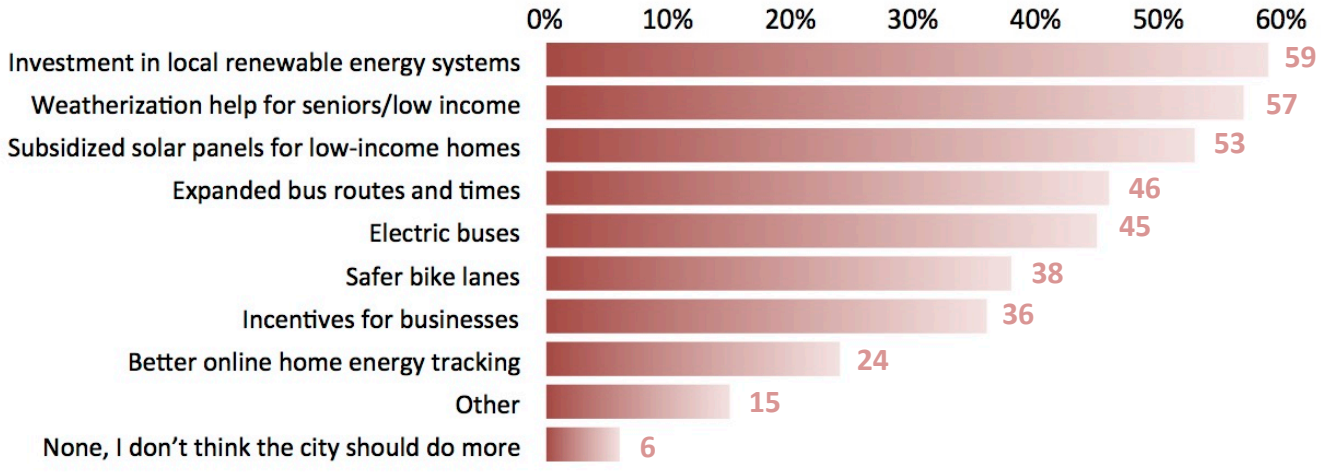

Figure 3. Percent of respondents who support the implementation of specific policies and initiatives by the City of Ashland to reduce greenhouse gas emissions. n = 1,006.

ATTITUDES ON CLIMATE CHANGE

One of the primary reasons for conducting this survey was to determine how Ashland residents view climate change and whether or not they support aggressive reductions in greenhouse gas emissions. Overall, a large majority of respondents stated that they believe that climate change is human-caused and that immediate action is needed. Some respondents chose more than one category but still indicated that they believe climate change is human caused. Overall, 88% of respondents believe it is human-caused and 76% think that immediate action is needed (Table 5).

Gender – Female respondents were more likely to indicate that climate change is human-caused and action needs to be taken (Table 5). However, an overwhelming number of respondents indicated this regardless of gender.

Table 5. Views on climate change, by gender. There were 960 responses that both identified gender and answered this question and 1,037 responses total that answered this question.

Percent of respondents who think:	Male n=385	Female n=564	Non-binary n=11	Overall n=1,037
Climate change is a hoax	1%	1%	0%	1%
Climate change is not human-caused	4%	3%	17%	4%
Climate change is human-caused, but it is too late to stop	7%	2%	0%	4%
Climate change is human-caused and immediate action is needed	73%	82%	25%	76%
Other	3%	2%	0%	3%
I don't know	5%	3%	0%	5%
Checked multiple categories but indicated climate change is human-caused	8%	7%	42%	8%
Checked multiple categories but indicated climate change a hoax or not human-caused	1%	1%	17%	1%

Age and education – Respondents with a higher level of education were more likely to state that climate change was human-caused and immediate action is needed (Fig. 4). Only 51% of respondents with high school degrees agreed with this statement while all other education levels indicated 75-79% agreement with this statement. Little variation in attitudes towards climate change was observed among different age groups (Fig. 5).

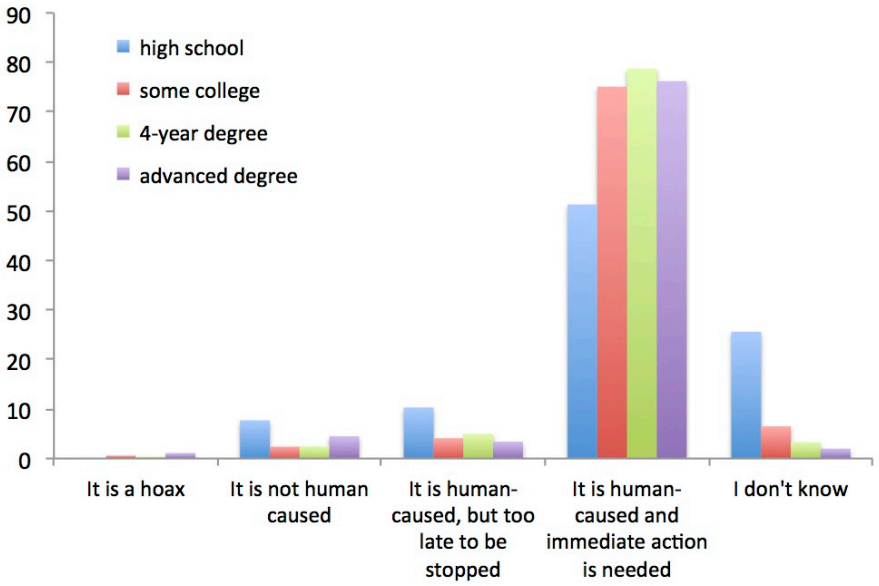

Figure 4.* Percent of respondents reporting their views on climate change, as shown by education level. n = 1,026.

*Only single answer responses regarding climate change are shown. Responses with more than one answer or that listed "other" are not shown, but are included in the total percentages. The one response with less than a high school degree and all education responses that indicated "other" are not shown.

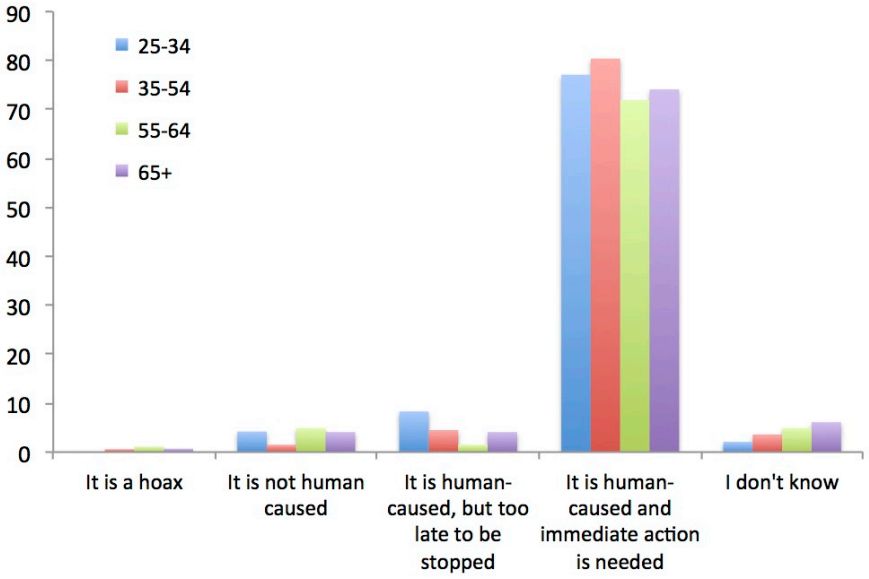

Figure 5.* Percent of respondents reporting their views on climate change, as shown by age category. n = 1,036.

*Responses with more than one answer regarding climate change or that listed "other" are not shown, but are included in the total percentages.

Emissions Targets – Survey respondents were asked to indicate where, along a spectrum from no new action to the most aggressive action, their beliefs most closely aligned with the statements in Table 6. Cities that reduce emissions by 100% are considered "carbon neutral" because emissions are equivalent to carbon sequestration or offsets. Cities that either produce more renewable energy than they consume, or sequester carbon in forests or soils, can become "carbon negative." Most respondents supported efforts to become carbon neutral or negative by 2050. These are both fairly aggressive targets.

Table 6. Where respondents' beliefs aligned with the following statements regarding emission reduction goals. n = 950.

Percent of respondents supporting the following level of emissions targets:	
Continue with business as usual.	5%
Meet state targets of 75% emissions reductions by 2040 through conservation and renewable energy production.	9%
Similar to Fort Collins, CO, reduce emissions by 80% by 2030 through conservation and renewable energy production.	26%
Similar to Portland and Seattle, reduce emissions by 100% by 2050 through conservation and renewable energy production.	31%
Reduce emissions by 100% AND sell excess energy to other communities by 2050.	29%

CONCLUSIONS

The results of the Climate and Energy Survey for Ashland highlight that Ashland residents are already taking numerous measures to save energy in their homes and their everyday lives. In addition, Ashland residents are concerned about climate change and support immediate and aggressive emissions reductions for the city. The very high levels of support for action are good news for the city as the Climate and Energy Action Plan nears completion and moves to implementation.

Ashland residents appear to be more tuned in to climate change than the nation or state as a whole. Nationally, 65% of Americans think climate change is human caused, and 64% are very concerned.[2] The state of Oregon generally tracks with national trends on climate opinion.[3] Respondents to our survey indicated a much higher percentage who think that climate change is human caused and immediate action is needed.

Interestingly, all age groups are equally concerned about the need for immediate action on climate change, but respondents with an education level beyond high school were more likely to indicate that climate change is human caused and requires immediate action.

Ashland City Council will be voting on whether to adopt a city ordinance and the Climate and Energy Action Plan for the city in early 2017. This study shows that there is a mandate from local residents to take immediate action and set aggressive goals and targets. In addition to overall attitudes, the survey provided important insights into actions and behaviors that can be addressed to increase efficiency and renewable energy.

Many of the comments that were received cited the cost of upgrades as the primary barrier to taking action. The City of Ashland already has extensive programs and incentives that

[2] 2016 Gallup Poll - http://www.gallup.com/poll/190010/concern-global-warming-eight-year-high.aspx

[3] Howe, P., Mildenberger, M., Marlon, J.R., and Leiserowitz, A., "Geographic variation in opinions on climate change at state and local scales in the USA," *Nature Climate Change*. http://environment.yale.edu/poe/v2014/

provide support for home upgrades and renewable energy systems. New approaches may need to be adopted in order to expand incentives and increase effectiveness.

Some possible approaches include:

- Increase in dedicated staff to conduct outreach and education on energy savings.
- Dedicated staff to seek outside grant funding and other opportunities to promote energy efficiency.
- New partnerships with non-profits, Jackson County, and/or state agencies that serve vulnerable populations. Existing programs could be "tweaked" to also provide energy upgrades that improve quality of life and provide monetary savings.
- Partnerships with local banks to provide more funding options for energy upgrades.
- City-led weatherization assistance for low-income households and seniors.
- Creative financing for increasing rooftop solar installments for low- to middle-income households.

Very few respondents reported having rooftop solar and/or solar or on-demand hot water. This indicates an area of opportunity for the city to provide additional incentives and outreach to expand these measures to a much higher proportion of households.

Many respondents cited limitations with public transportation as a reason that they have not taken action on reducing emissions related to car travel. In this survey and during previous outreach to the public, an Ashland electric bus route has been frequently suggested. Because traffic is a primary contributor to Ashland's greenhouse gas emissions, a city-owned electric bus that serves diverse neighborhoods should be considered. Such a bus could serve tourists as well as residents, thereby also reducing downtown demand for parking and traffic congestion.

Another important insight from this study is the need to consider additional approaches to promoting energy and efficiency upgrades for rental properties. A substantial proportion of respondents was renters. Nationally, rental units use more energy per square foot than

owner-occupied homes, and renters pay a higher proportion of their income in energy costs.[4] In response to the Ashland survey, renters were less likely to have homes that are upgraded in all 10 of the categories covered. Because of this, rental properties, and especially older properties, represent a substantial opportunity for reducing energy demand.

Research shows that increasing efficiency in rentals can be achieved in three ways - by providing incentives or subsidies to landlords for making improvements, adding regulations that mandate efficiency standards, and/or making energy efficiency and costs more transparent so that tenants can choose more efficient properties.[4] In Ashland, these will need to be weighed against the consideration that rents are already quite high and renters often have little choice due to the tight rental housing market.

Energy upgrades are not only important for reducing greenhouse gas emissions. They also save residents money, increase comfort and health, and protect people from more extreme conditions associated with climate change. The co-benefits associated with upgrading peoples' homes are extensive and include overall community resilience. These co-benefits need to be communicated and considered as decisions are made for where and how to invest in new energy and conservation programs.

Acknowledgements

This study was funded by grants from the Oregon Community Foundation and Clif Bar, as well as the City of Ashland. Numerous volunteers assisted in preparing the mailings, including Isaac Bevers, Christina Mills, Sarah Lasoff, Davidson Graham, Maile Bennett, and Sophie Dunleavy. Data entry was done by Laurie Hultquist , Lauren Lancaster, Estefani Martinez, Myana Dhenin, and Isaac Bevers.

[4] Carliner, M. 2013. Reducing Energy Costs in Rental Housing. Joint Center for Housing Studies of Harvard University. Research Brief 13-2.I

Appendix 1. Sample survey

Ashland Climate and Energy Survey

1. Do you currently live in Ashland year-round?

☐ Yes ☐ No (please explain): _____

2. Do you own or rent the home you live in in Ashland?

☐ Own ☐ Rent ☐ Other (please explain) _____

3. Which of the following apply to your Ashland home?

YES	NO	SOME	DON'T KNOW	
☐	☐	☐	☐	Energy efficient windows
☐	☐	☐	☐	CFL/LED light bulbs installed
☐	☐	☐	☐	Low-flow showerheads
☐	☐	☐	☐	Caulking around windows, doors, outlets, etc.
☐	☐	☐	☐	Energy efficient insulation
☐	☐	☐	☐	Energy efficient appliances
☐	☐		☐	Home energy assessment was done
☐	☐		☐	A water heater that is Solar, Hybrid, On-demand, or Tankless
☐	☐		☐	High efficiency furnace or heat pump
☐	☐		☐	Electric solar panels installed
☐	☐		☐	Other:_____

4. What barriers keep you from reducing the environmental impact of the home you live in? *(Check all that apply.)*

☐ Home improvements are too expensive	☐ Solar panels do not fit/work on my roof
☐ I don't know what actions to take	☐ I do not qualify for incentives
☐ I don't think it will make a difference	☐ Other:_____
☐ New appliances are too expensive	☐ None
☐ I live in a rental home or apartment	☐ Don't know

5. Do you track your home energy usage over time?

☐ Yes ☐ No If yes, how? _____

6. What actions do you take to reduce your impact on the environment? *(Check all that apply.)*

☐ Recycle everything I can	☐ Air dry my laundry
☐ Avoid driving - walk/bike/use public transit	☐ Reduce consumption
☐ Eat local/in season foods and produce	☐ Drive a hybrid/low emissions vehicle
☐ Eat less/no meat	☐ Buy used goods when possible
☐ Lower thermostat in the winter (less heat)	☐ Other:_____
☐ Increase thermostat in the summer (less a/c)	☐ None

OVER→

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7. What barriers keep you from reducing your impact on the environment? *(Check all that apply.)*

☐ Public transportation is too inconvenient	☐ Too expensive to buy local foods and produce
☐ My job/obligations are too far to walk or bike	☐ I don't know what actions to take
☐ Extra time needed for these activities	☐ Other:_____
☐ My personal actions don't make a difference	☐ None

8. What policies or initiatives would you like to see the City of Ashland implement to reduce community carbon emissions? *(Check all that apply.)*

☐ Electric buses	☐ Expanded bus routes and times
☐ Safer bike lanes	☐ Investment in local renewable energy systems
☐ Weatherization help for seniors/low-income	☐ Subsidized solar panels for low-income homes
☐ Incentives for businesses	☐ None, I do not think the city should do more
☐ Better online home energy tracking	☐ Other: _____

9. Do you believe human-caused climate change is occurring? *(Please check one below.)*

☐ No - it is a hoax	☐ Yes - immediate action is needed
☐ No - climate change is not human-caused	☐ Other: _____
☐ Yes - but it is too late to stop it	☐ I do not know/am not sure

10. The City of Ashland is considering reducing greenhouse gas emissions through energy conservation efforts and renewable energy production. Please put an "X" where your beliefs most closely agree with the statements on the scale below regarding emission reduction goals.

Continue with business as usual.	Meet state targets of 75% emissions reductions by 2040 through conservation and renewable energy production.	Similar to Fort Collins, CO, reduce emissions by 80% by 2030 through conservation and renewable energy production.	Similar to Portland and Seattle, reduce emissions by 100% by 2050 through conservation and renewable energy production.	Reduce emissions by 100% AND sell excess renewable energy to other communities by 2050.

11. What is your age? *(Please check one below.)*

☐ 18-24 ☐ 25-34 ☐ 35-54 ☐ 55-64 ☐ 65+

12. Please write in your gender. _____

13. What is the highest level of education you have completed? *(Please check one below.)*

☐ Some high school	☐ Some college/2-year degree	☐ Advanced degree
☐ High school graduate	☐ 4-year degree	☐ Other

THANK YOU FOR YOUR TIME.

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Appendix 2. Climate and Energy Survey Flyer

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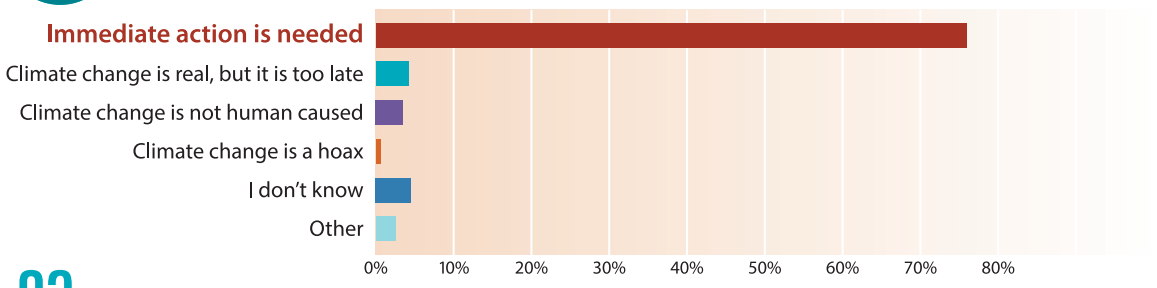
Ashland Survey on Climate and Energy

This summer, you may have received a survey in the mail about your attitudes and actions related to energy and climate change. Southern Oregon University Research Center (SOURCE) and the Geos Institute mailed surveys to 2,000 randomly selected residences in Ashland. We had an incredible response, with 1,049 valid surveys returned.

What did we hear?

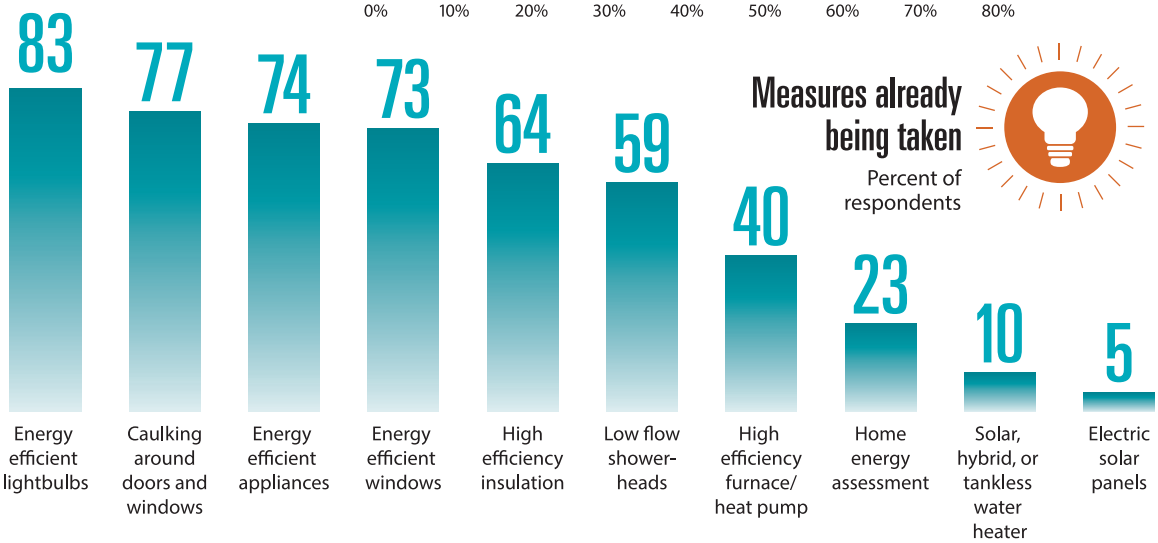
We heard loud and clear that a majority of respondents understand that climate change is a threat that needs immediate action. We also heard that many residents are already saving energy in their homes and daily lives, but they often hit barriers that keep them from doing more. Renters, for instance, have limited options for energy upgrades compared to homeowners. And many people find alternative transportation to be too inconvenient to meet their needs. Respondents expressed interest in having the city provide more support for weatherization, alternative transportation and renewable energy.

Respondents' views on climate change



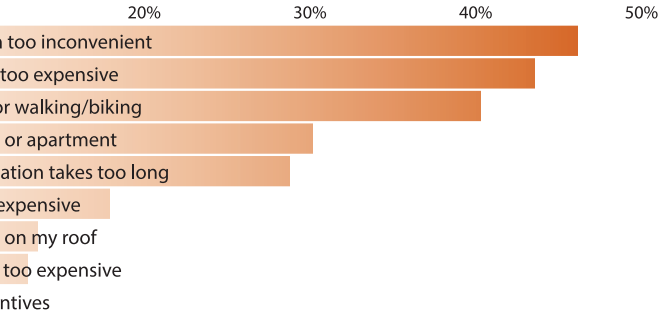
Measures already being taken

Percent of respondents

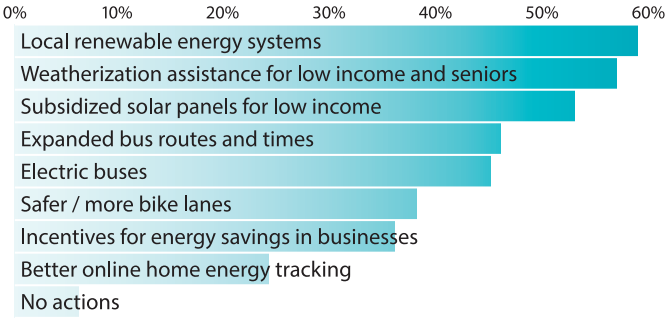


Barriers to conservation and renewable energy

Percent of respondents



The City of Ashland already does a lot to support conservation and renewable energy. When asked what additional actions residents would like the City to take, respondents said they would like the city to invest in:



A majority of survey respondents support aggressive action on climate change!

Cities around the nation are setting greenhouse gas emissions targets and taking action on climate change. How aggressive should Ashland be compared to others? We asked residents this question, and this is what we heard.