Prolific_ID

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID

${e://Field/PROLIFIC_PID}

Informed Consent

Technology Survey

Informed Consent: Before agreeing to participate in this study, it is important that you read the following explanation of the research. This statement describes the purpose, procedures, benefits, risks, discomforts, and precautions of the program. Also described is your right to withdraw from the study at any time. No guarantees or assurances can be made as to the results of the study.

Description: You are invited to participate in a research study by Indiana University Bloomington researchers. The purpose of the study is to better understand consumers' perceptions of low carbon technologies.

Time Involvement: Your participation will take approximately 15-20 minutes.

Risks and Benefits: There are no foreseeable risks or benefits for participation in this study. We cannot and do not guarantee or promise that you will receive any additional benefits from this study.

Participant's Rights: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. The alternative is not to participate. You have the right to refuse to answer particular questions.

Confidentiality: All information provided in this survey will not be traced back to you in any way possible. All data will be aggregated and no individual could be identified

from these aggregated results.

Payments for Participation in Research: You will be compensated through Prolific.

Questions: If you have any questions, concerns or complaints about this research, its procedures, risks and benefits, contact the Protocol Director Dr. Shahzeen Attari at sattari@iu.edu.

Agreement: Thank you for agreeing to participate in our research. By clicking on the arrow button below, you are agreeing to participate in this study.

Please click on the arrow button below to move on.

To ensure clarity for the purposes of the survey please utilize the below definitions of electric vehicle and heat pump when answering survey questions.

Electric Vehicles have an electric motor instead of a gasoline combustion engine. They use a large battery pack to store electricity and power the electric motor. Hybrid vehicles are not considered electric vehicles for the purposes of this survey.

Heat Pumps are an electric alternative to furnaces and air conditioners. Heat pumps transfer heat rather than generating heat by burning fuel. During the winter, heat pumps warm your home by moving heat from outdoors to indoors. During the summer, heat pumps cool by moving heat from your house outdoors.

EV and HP Open ended questions

How familiar are you with electric vehicles?

- ○ not at all familiar
- ○ not very familiar
- ○ somewhat familiar
- ○ familiar
- ○ very familiar

Do you own or use an electric vehicle?

Yes No

How familiar are you with heat pumps?

- not at all familiar
- not very familiar
- somewhat familiar
- familiar
- very familiar

Do you own or use a heat pump?

Yes No

Are you seriously considering buying or leasing an electric vehicle in the next three years?

Yes No

What is the biggest barrier preventing you from buying or leasing an electric vehicle?

What is the main reason why you are interested in buying or leasing an electric vehicle?

What is the main reason why you bought or leased your electric vehicle?

HP Open ended questions

Are you seriously considering buying or leasing a heat pump in the next three years?

Yes No

What is the biggest barrier preventing you from buying or leasing a heat pump?

What is the main reason why you are interested in buying or leasing a heat pump?

What is the main reason why you bought or leased your heat pump?

Instructions Entire

We ask that you carefully read each of the statements in the next pages and assess whether the statement is True or False. Please note that some statements are true and some are false.

A **true** response indicates that the claims made in the statement are true.

A **false** response indicates that the claims made in the statement are false.

For each statement, we will then ask how confident you are in your answer on a slider scale which ranges from not at all confident to completely confident.

While answering the following questions, please think about the United States specifically.

HP Block Begins Recall

Recall that heat pumps are an electric alternative to furnaces and air conditioners. Heat pumps transfer heat rather than generating heat by burning fuel. During the winter, heat pumps warm your home by moving heat from outdoors to indoors. During the summer, heat pumps cool by moving heat from your house outdoors.

HP_System

Heat pumps can both heat and cool my home.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Practical

Widespread adoption of heat pumps is practical today because we have enough electricity across all states to keep them powered.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Climate Change

Heat pumps are better for the climate than traditional furnaces because they emit fewer greeenhouse gases when in use.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Incentives

With all the federal and state purchase incentives available for heat pumps, most owners typically spend less than $5,000 on purchase and installation.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP List Price

All central heat pump models sold in the United States costs more than $10,000 to buy and install.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP maintenance

Furnace and air-conditioner system require more frequent and extensive maintenance than heat pumps.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP cold conditions

Heat pumps do not require a backup heating system in subzero temperatures (below 0° Fahrenheit).

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP infrastructure integration

Heat pumps cannot be integrated into existing systems and ductwork, making them incompatible with most homes.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Dealer

Contractors are more likely to sell me a natural gas furnace than a heat pump system.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP efficiency

Heat pumps use electricity to transfer heat which is more efficient than burning fossil fuels.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Overseas

Most of heat pump manufacturing takes place overseas.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP refrigerants

Leaking refrigerants from heat pumps contribute more to climate change than fossil fuels used in furnaces.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Workers

The United States has more than enough trained workers to install heat pumps nationwide.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP Fuel

Heat pumps end up being more expensive to run because electricity is more expensive than natural gas.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP lifespan

Heat pumps do not last as long as a furnace system.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

HP supply chain delays

People have to wait a long time to get parts to fix their heat pumps.

True ○ False ○

How confident are you in your answer?

Not confident	Somewhat confident	Completely confident

HP Installation

All heat pumps require the installation of a new and expensive electrical panel.

True ○ False ○

How confident are you in your answer?

Not confident	Somewhat confident	Completely confident

EV Definition

Recall that electric vehicles have an electric motor instead of a gasoline combustion engine. They use a large battery pack to store electricity and power the electric motor. Hybrid vehicles are not considered electric vehicles for the purposes of this survey.

EV Electrical practicality

Widespread adoption of electric vehicles is practical today because we have enough electricity across all states to keep them charged.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Time

Even with the fastest charging technology, it takes several hours to charge an electric vehicle.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Public

Four of every five electric vehicle owners are not able charge their cars when visiting a public charging station.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Climate

Electric vehicles have a smaller carbon footprint than gasoline cars, even when accounting for the electricity used for charging.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Incentive

With all of the federal and state purchase incentives available for electric vehicles, most consumers spend less on an electric vehicle than a comparable gasoline vehicle.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Maintain

Gas-powered vehicles require more frequent and expensive maintenance than electric vehicles.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Cold

An electric vehicle can drive as far as a gasoline car in freezing conditions.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Fuel

Charging an electric vehicle from your home is equivalent in cost to purchasing gasoline for under $1.20 per gallon

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Charging

A significant barrier to electric vehicle adoption is lack of public charging stations.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Range

The driving range of an average electric vehicle is enough to meet the average long-distance road trip needs of typical Americans.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Efficiency

Electric vehicles use electricity more efficiently than gas powered cars use gasoline.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Dealer

Dealers are more likely to sell me a gas-powered vehicle than an electric vehicle.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Fires

Electric vehicles are more likely to catch fire than gasoline vehicles.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Battery Recycling

It is economically viable to recycle the whole battery of an electric vehicle.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Overseas

Globally, China makes most of the parts used in electric vehicles.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV List Price 40k

All new electric vehicle models sold in the United States cost more than $40,000.

True False

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

EV Mining

Electric vehicles are bad for the environment because of the mining practices required to build them.

True ○ False ○

How confident are you in your answer?

Not confident | Somewhat confident | Completely confident

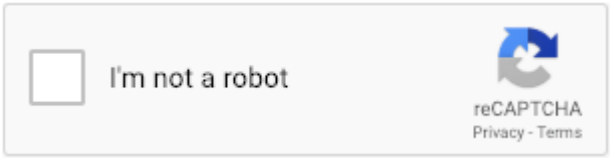
Manipulation

How did you feel about the kinds of statements you read about electric vehicles and heat pumps?

- ○ They were primarily positive
- ○ Some were positive and some were negative
- ○ They were primarily negative

Captcha

Please complete:



Attitudes

Should the US transition away from gasoline vehicles towards electric vehicles?

Strongly Agree

Agree Neutral

Disagree

Strongly Disagree

Should the US transition away from furnaces and air conditioners towards electric heat pumps?

Strongly Agree

Agree Neutral

Disagree

Strongly Disagree

EV Exposure

Have you ever driven an electric vehicle?

Yes No

Have you ever charged an electric vehicle?

Yes No

Have you seen an electric vehicle in person or in an advertisement?

Yes No

Do you know of any friends or family members who have purchased an electric vehicle?

Yes No

HP exposure

Have you seen a heat pump in person or in an advertisement?

Yes No

Do you know of any friends or family members who have purchased a heat pump?

Yes No

Proportions

What percentage of homes in the U.S. have heat pumps?

What percentage of people in the U.S. have an electric vehicle?

Do you pay your utility bills/ownership

Do you rent or own your home?

- ○ Rent
- ○ Own

Do you pay your own electric utility bill?

- ○ Yes
- ○ No
- ○ Does not apply

Do you pay your own gas utility bill?

- ○ Yes
- ○ No
- ○ Does not apply

Community

Has anyone in your community ever talked to you about a heat pump?

Yes	No
○	○

Has anyone in your community ever talked to you about an electric vehicle?

Yes	No
○	○

Climate Change Perceptions

Do you think that climate change is happening?

- ○ Yes, definitely
- ○ Yes, probably
- ○ No, probably not
- ○ No, definitely not

How important is the issue of climate change to you personally?

- ○ Very important
- ○ Somewhat important
- ○ Not too important
- ○ Not important at all

Demographics

How many hours a day do you spend on social media (this includes YouTube, Facebook, TikTok, Instagram etc.)?

0 2 4 6 8 10 12 14 16 18 20 22 24

Number of hours: ☐

Which best describes your political orientation?

- ○ Very conservative
- ○ Conservative
- ○ Somewhat conservative
- ○ Moderate
- ○ Somewhat liberal
- ○ Liberal
- ○ Very liberal

What is your age?

What is your gender?

- ○ Man
- ○ Woman
- ○ Non-binary
- ○ [ ] Other
- ○ Prefer not to answer

What is your racial identity?

- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Black or African American
- ○ Hispanic or Latino
- ○ Native Hawaiian or Other Pacific Islander
- ○ White
- ○ Middle Eastern or Arab
- ○ [ ] Other
- ○ Prefer not to answer

What is the highest level of education you have attained?

- ○ Some schooling, but no diploma or degree
- ○ High school diploma or GED
- ○ Some college
- ○ College degree
- ○ Some graduate school
- ○ Graduate degree

During 2023, what was your yearly household income before tax? Your best

estimate Is fine.

- ○ None
- ○ less than $20,000
- ○ $20,000 - $40,000
- ○ $40,000 - $80,000
- ○ $80,000 - $120,000
- ○ $120,000 - $200,000
- ○ $200,000 - $300,000
- ○ More than $300,000

What is your zip code?

Closing Thoughts

Do you have any additional thoughts or comments about the survey that you would like to share with us?

End of survey

Some of the narratives you read were true and some were false. We recommend you to do your own research to find out what is true about both these technologies. Below we have provided several links about electric vehicles and heat pumps to help get you started:

Electric vehicles
https://www.epa.gov/greenvehicles/electric-vehicle-myths
https://homes.rewiringamerica.org/projects/driving-homeowner

https://www.jdpower.com/business/press-releases/2023-us-electric-vehicle-consideration-evc-study

Heat pumps
https://www.epa.gov/burnwise/heat-pumps
https://www.rewiringamerica.org/circuit-breakers-heat-pumps

Thank you for completing the survey.

Please continue to the next screen to be automatically redirected to Prolific.