




Fuels of the future – what is powering the US energy transition?

A 2019 poll illuminates Americans' perceptions
on energy – their current priorities and their
future expectations



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Whether it's pulled from the ground or harnessed from the sun or wind, energy powers the every day. However, where energy comes from and how we use it has evolved over the course of history. Will the energy of today eventually be as outdated as horse-drawn buggies and whale-oil lamps? Understanding the current landscape of the energy industry is essential to predicting the future.

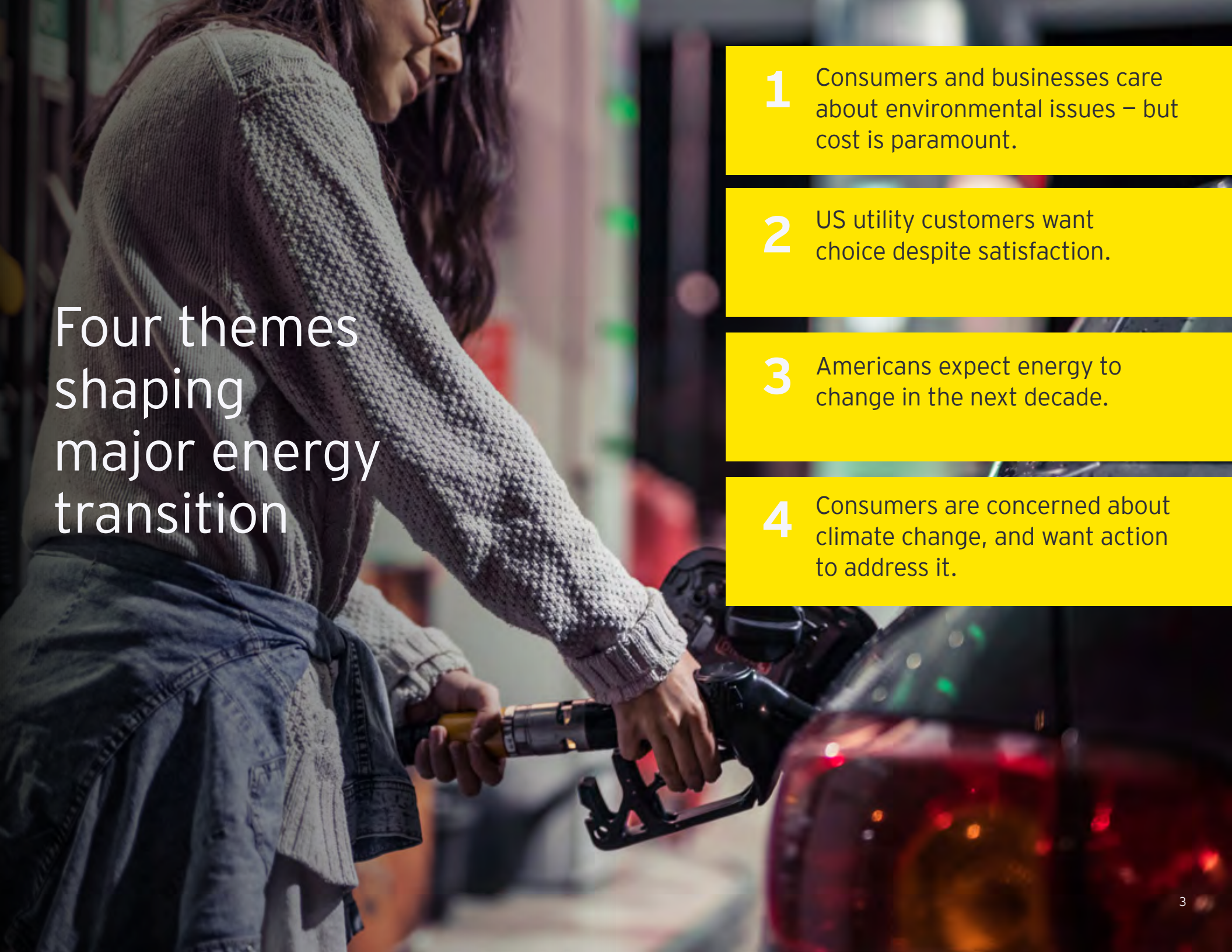
To fully appreciate that landscape, this year EY set out to gather both consumer attitudes and preferences, as well as the evolving corporate mindset on everything energy. In the US Fuels of the Future survey, we polled 1,500 consumers and more than 100 corporate energy decision-makers, and found one theme was clear across the board – change.

Survey respondents expect the next 10 years in energy will see massive disruption, with energy demand, end uses and application all on the edge of revolution. Throughout the survey, it becomes crystal clear that price is the primary catalyst for change.

However, respondents are also increasingly hungry for green, more environmentally friendly energy options. They express this in a willingness to spend more for fuel sources with less carbon, in views on independent-power generation and utility choice, and via concerns and desire for action on climate change.

Thanks to a confluence of market, political and demographic shifts, there's little question that the energy industry we know is poised for massive disruption in the next several years.

While disruptive change can sometimes be a threat, helping clients and industry partners understand and prepare for the future will position them for the incredible opportunity ahead.



Four themes shaping major energy transition

1 Consumers and businesses care about environmental issues – but cost is paramount.

2 US utility customers want choice despite satisfaction.

3 Americans expect energy to change in the next decade.

4 Consumers are concerned about climate change, and want action to address it.



Theme

1

Consumers and businesses care about environmental issues – but cost is paramount

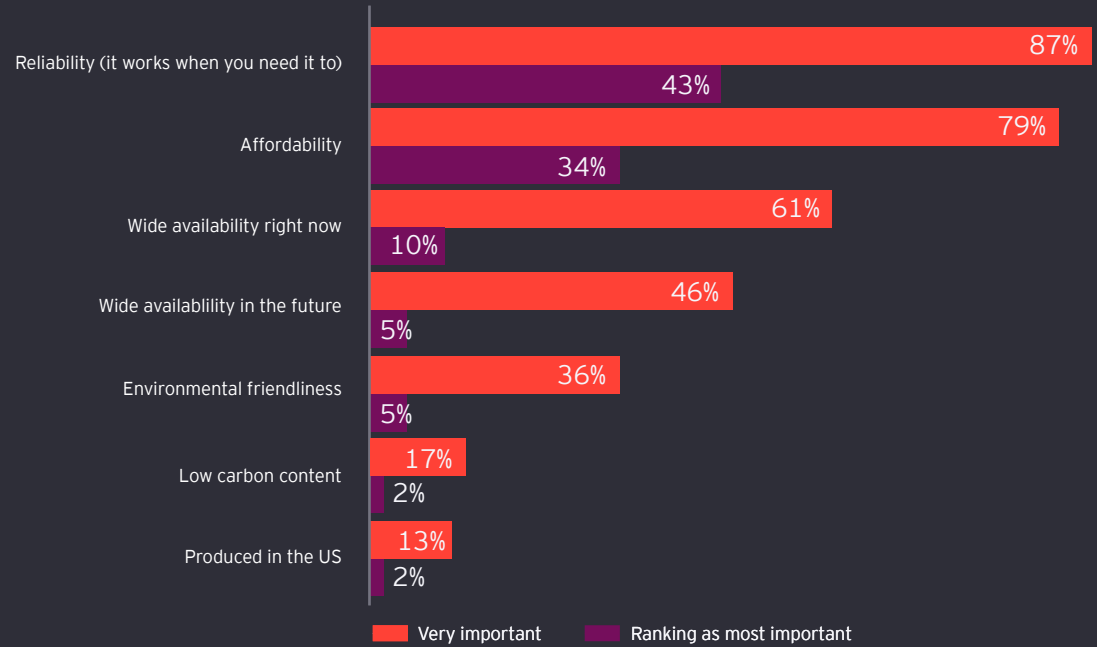
Cost is paramount

For American consumers, affordability is the most important quality in a fuel source, followed by reliability. As income increases, the importance of affordability declines, while the importance of environmental friendliness and low carbon content remain flat.

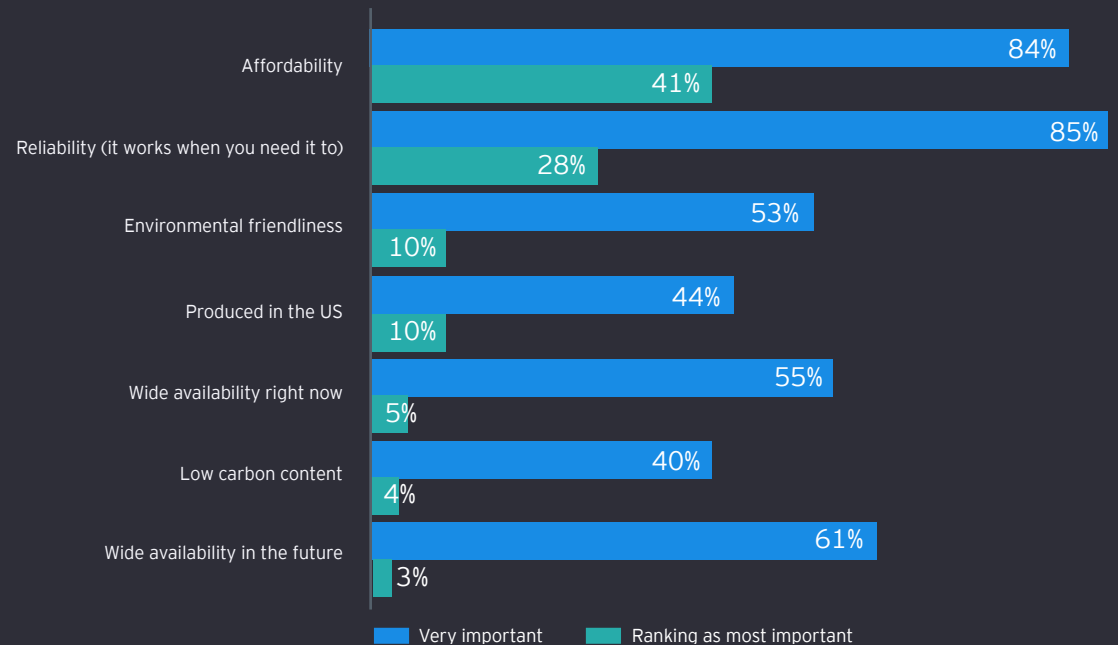
According to corporate energy decision-makers (EDMs), reliability is more important than affordability, though the threat of business interruption means that reliability is part of the bottom line.

Both consumers and EDMs rank natural gas as the most affordable and reliable fuel. Yet views diverge for the second and third most affordable fuels, with consumers ranking solar then wind, and EDMs listing oil then coal.

EDMs prioritize qualities of fuel sources



Consumers prioritize qualities of fuel sources

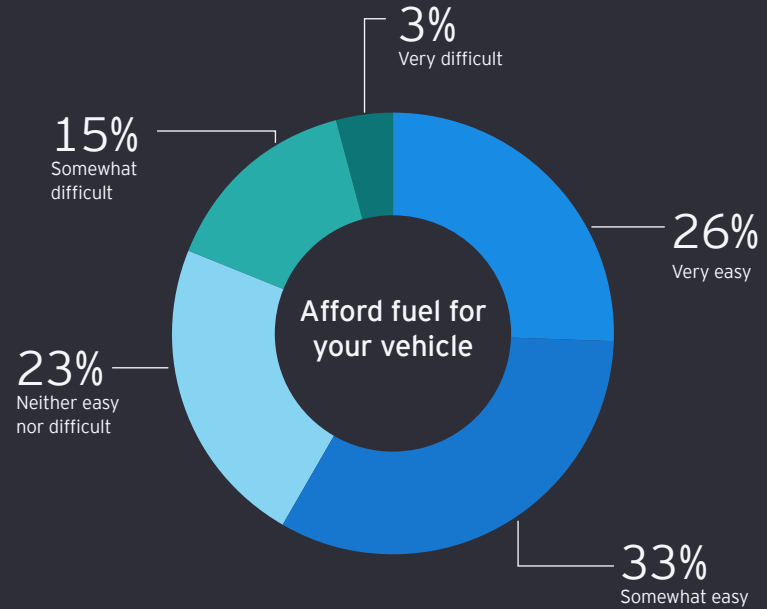


Environment is worth paying more

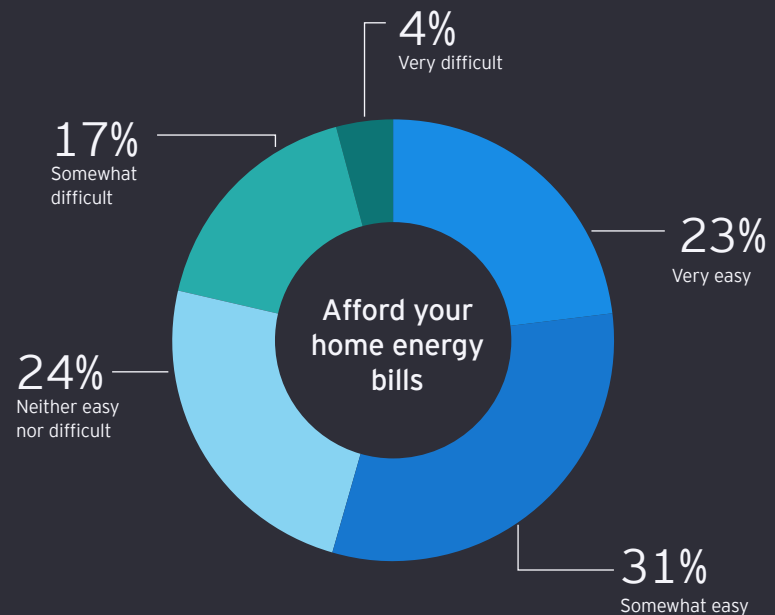
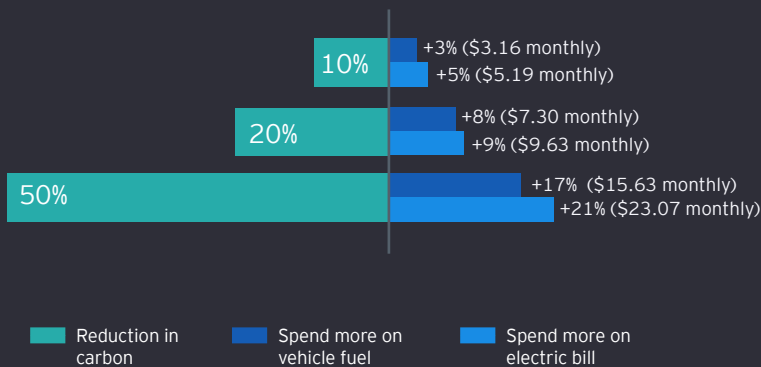
Consumers' cost-conscious behavior is partially due to necessity as approximately one out of five consumers struggle to afford energy for their vehicle or home each month.

Despite the importance consumers and businesses place on affordability, both groups were willing to pay for less carbon. Furthermore, three out of four Americans expressed concern about the environmental impact of the driving they do or their energy use at home.

Consumers rate whether it is easy or difficult to do the following each month



Consumers are willing to pay



A photograph of a residential street at dusk. The scene is illuminated by a warm, golden-orange light, likely from the setting sun. Several utility poles line the street, with multiple strings of warm white LED lights draped between them, creating a series of glowing arches over the road. On the left, a white house with a porch is visible, and a street sign is mounted on a pole. The road is paved and has a concrete curb on the right side. The overall atmosphere is cozy and serene.

Theme

2

US utility customers
want choice despite
satisfaction

Utilities are well liked, but residential customers want choice

American consumers are generally satisfied with their utilities, yet an overwhelming majority also want choice of their electric or natural gas provider. Most of these consumers want a choice of utilities for the opportunity to save money, with environmental reasons a distant second.

74%

say they **do not have a choice** of which utility company supplies **electricity** to their home, or there is only one company in their area

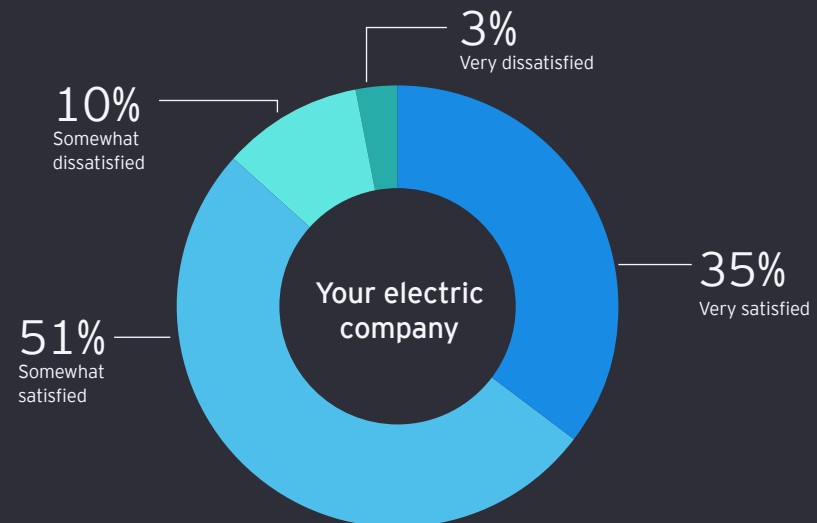
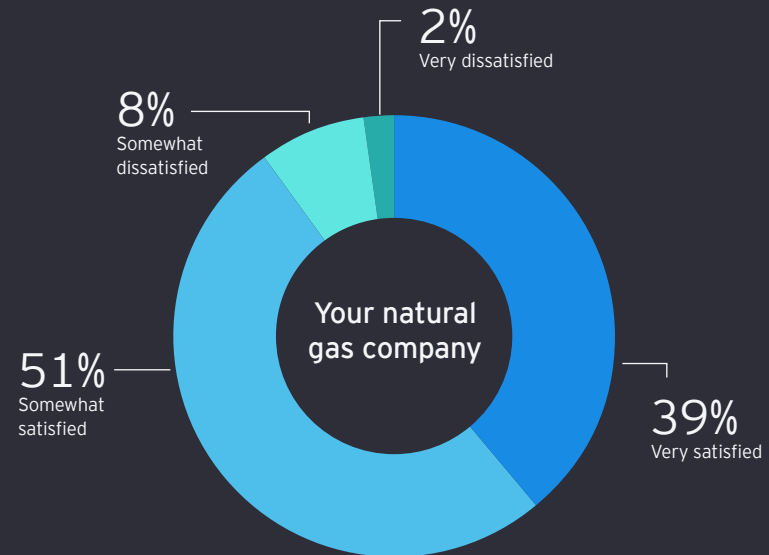
76%

say they **do not have a choice** of which utility company supplies **natural gas** to their home, or there is only one company in their area

68%

of respondents who only have one choice in either utility would **prefer to have more than one choice**

Consumers grade their satisfaction with their utilities



Corporations want utility choice too

While more corporate energy decision-makers say their company has a choice of utilities compared with consumers, those who do not have a choice are much more likely to want that choice.

57%

of respondents say the majority of their facilities do not have a choice of **electric utility**

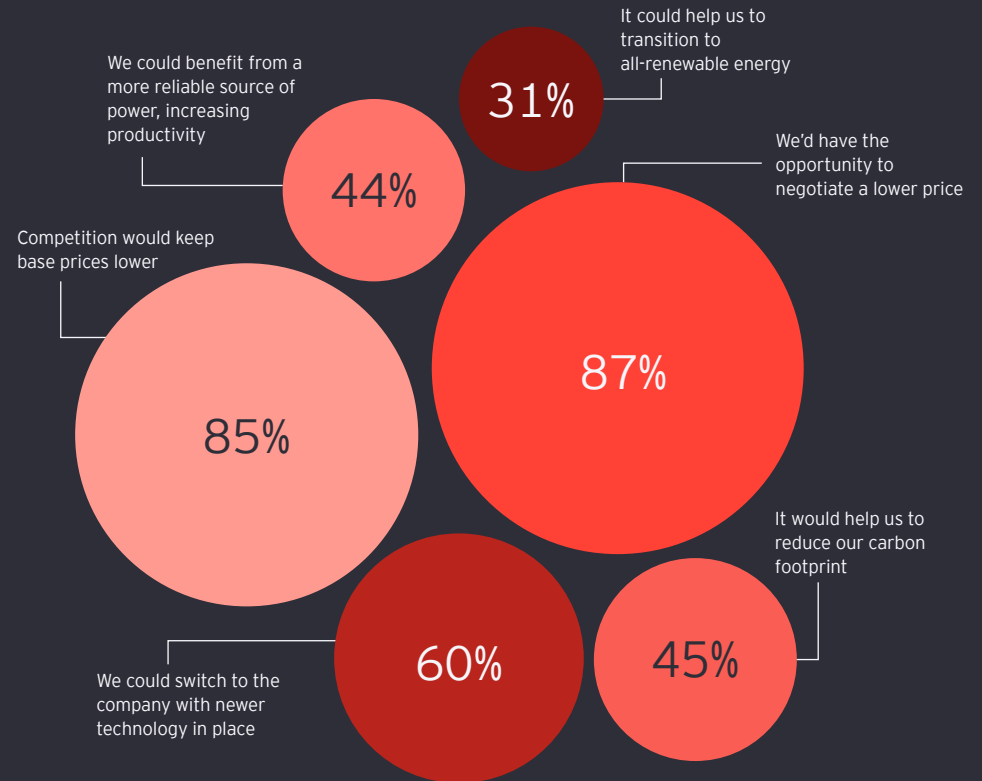
59%

of respondents say the majority of their facilities do not have a choice of **natural gas utility**

90%

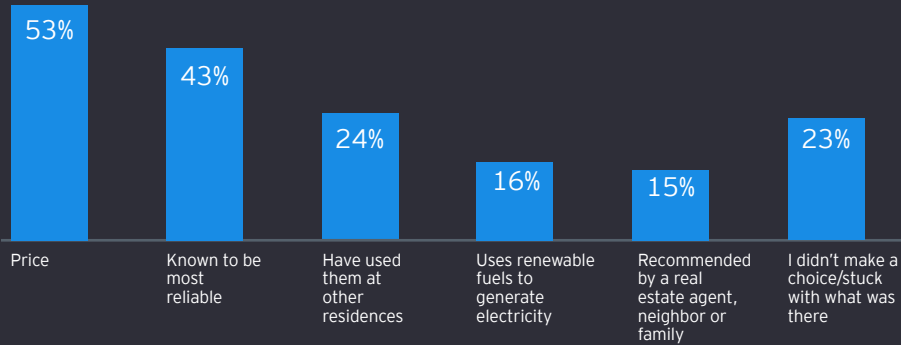
of these believe having a **choice** would **benefit** their company

EDMs explain why having a choice in utilities would benefit their companies



Price is the primary motivator for choice

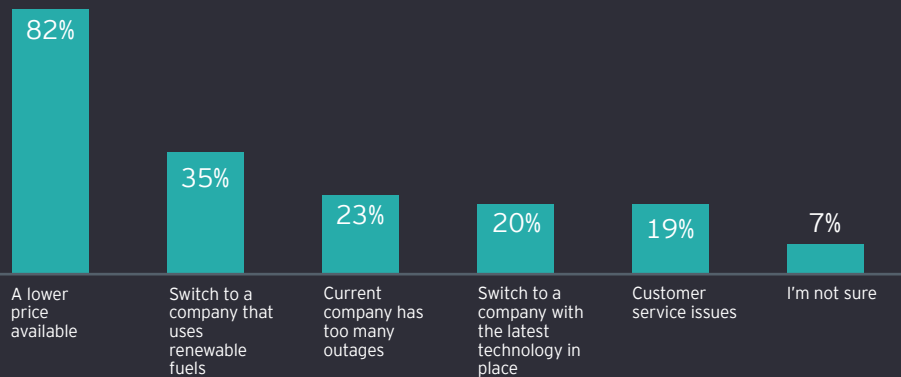
How respondents with choice select their utility



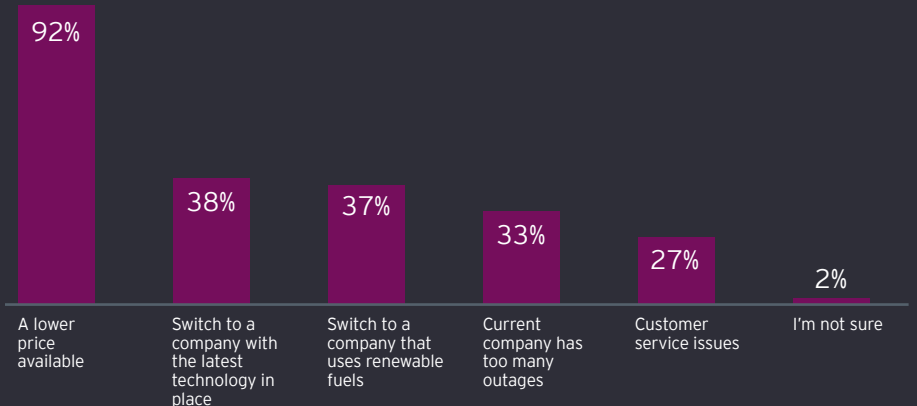
How companies with choice select their utility



Why consumers would switch from their current utility



Why companies would switch from their current utility



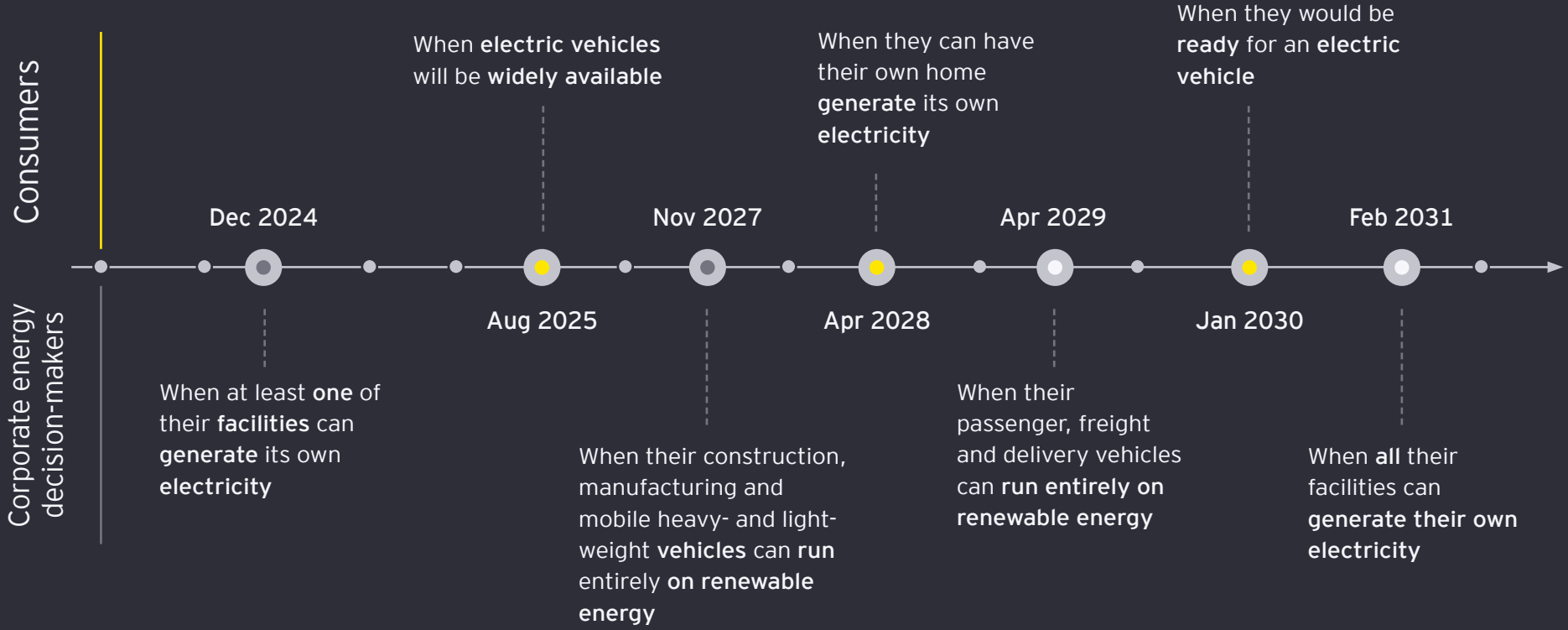


Theme

3

Americans expect energy to change in the next decade

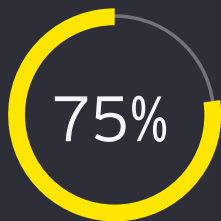
Energy users think change is coming by 2030



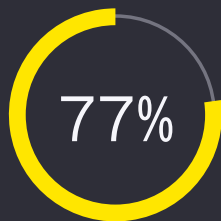
Consumers reticent to change in transportation

Consumers think it will be around 11 years before they can have an electric vehicle. Despite their dislike of gasoline, consumers can't picture living without a personal vehicle and still prefer gas-powered vehicles to every other single type of vehicle.

Cost is the primary hurdle for consumers who want but do not have an electric vehicle. A perceived lack of charging stations is the next most prominent rationale.

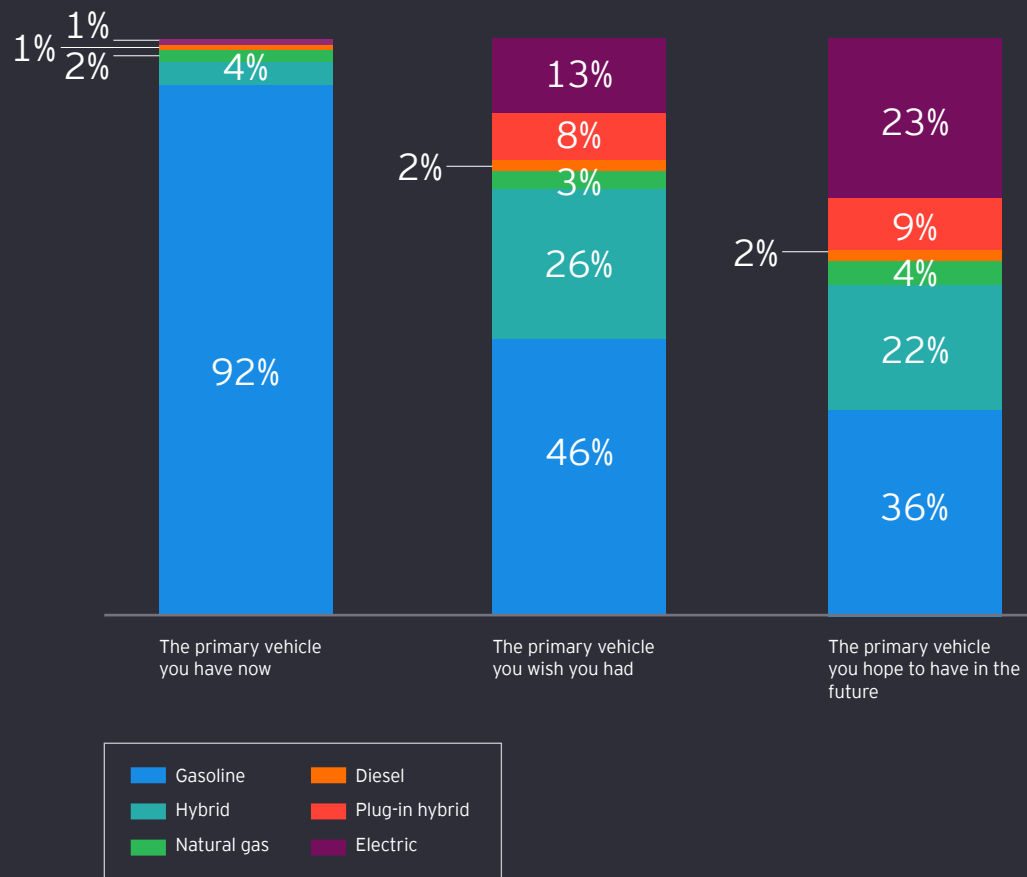


say **they could not maintain** their current lifestyle right now if they did not own or lease a personal vehicle



of these say there is **not a time in their lives** when they can imagine maintaining their current lifestyle without owning or a leasing a personal vehicle

Consumers' current and future vehicle preferences

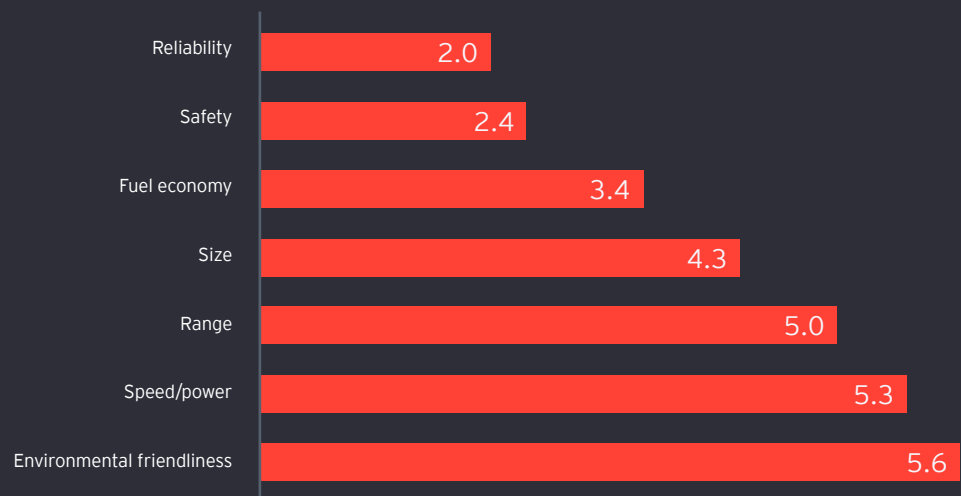


Theme three

Corporate energy decision-makers cite reliability, safety and fuel economy as the priorities for their transportation fleets. While a majority believes transitioning to an electric fleet would reduce profitability and pose dangers in the conditions their vehicles operate in, they are more open to transitioning to a natural gas-powered fleet.

Although 81% of EDMs say their vehicle fleets currently run on gasoline, 74% agree there is a time they could imagine their company's passenger, freight or delivery vehicles running entirely on renewable energy.

EDMs rank priorities for company fleets from most to least important



agree their company could transition its entire fleet to natural gas-powered vehicles without negatively impacting operations



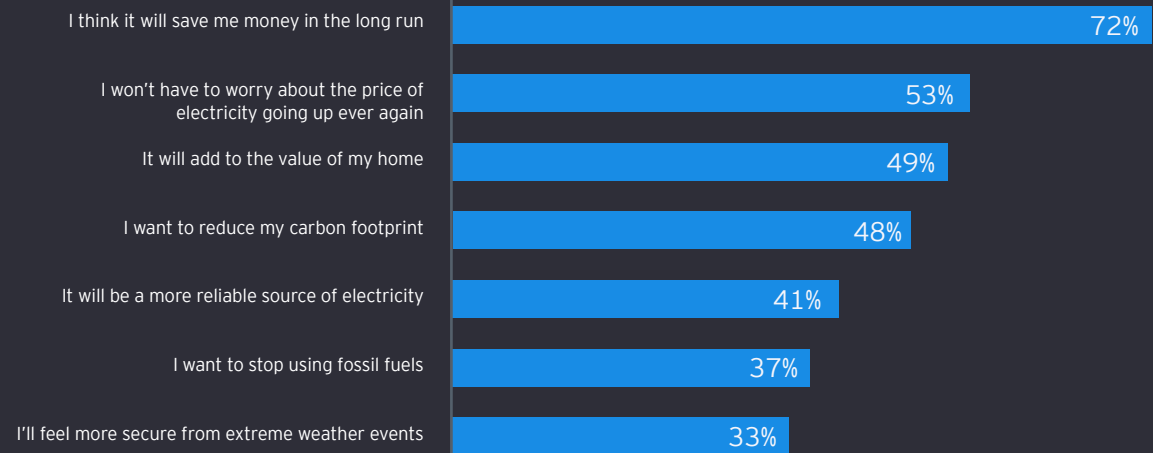
agree their company could transition its entire fleet to natural gas-powered vehicles while maintaining its current profitability

Consumer actions toward energy savings

Just over half of consumer respondents are familiar with the concept of independent power generation, with just 21% being very or extremely familiar with it. Yet after learning about it in the poll, 83% of consumers are interested in their home generating its own electricity – primarily because it will save them money.

However, consumers' actions toward energy efficiency may point to adoption hurdles. On average, they believe it will take nine years until it is technologically and financially feasible for their home to generate its own electricity. Respondents were more likely to have taken energy-efficiency steps tied to home improvements (such as appliances or installing fans). Yet only 22% have installed a smart thermostat.

Why consumers are interested in generating their own electricity

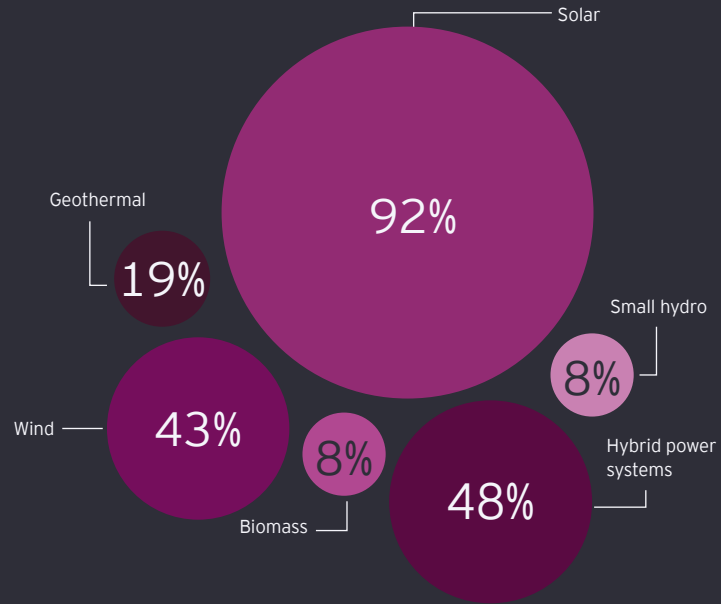


Corporations eye independent power generation

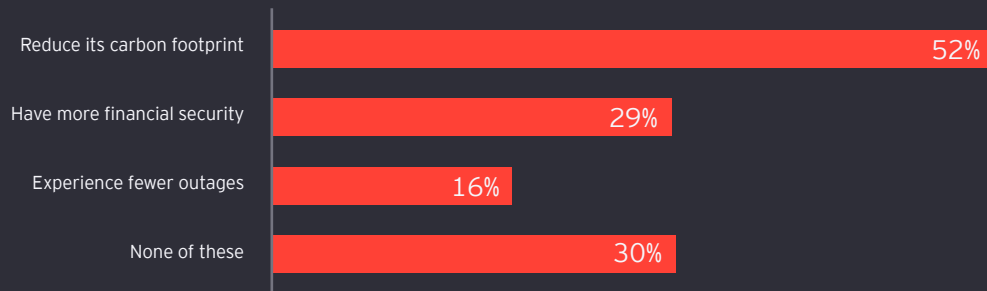
There is widespread interest among corporate energy decision-makers in adopting independent power generation (IPG) with 78% of respondents expressing interest in all of their facilities generating their own electricity and 85% expressing interest in at least some of their facilities generating their own electricity.

Saving money is the leading motivator to adopt independent power generation for EDMs, but half of the respondents are also interested in using IPG to reduce their carbon footprint.

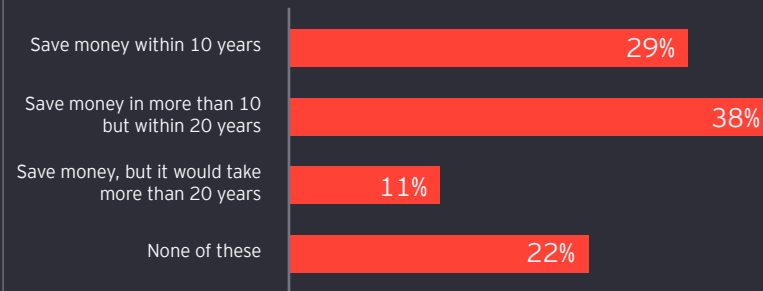
Fuel sources that companies are interested in pursuing for independent power generation



My company would _____ if it switched to generating all of its own electricity.



My company would _____ if it switched to generating all of its own electricity.





Theme

4

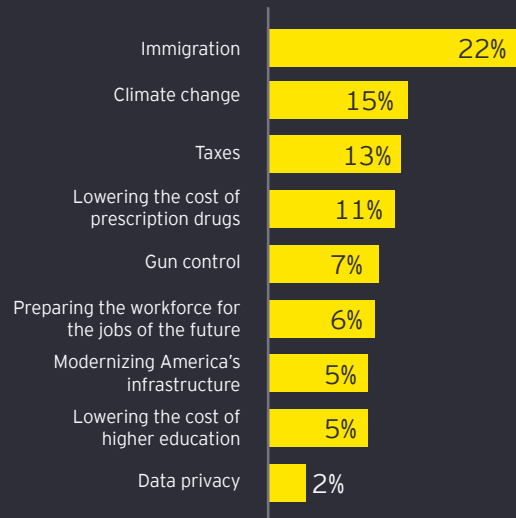
Consumers are concerned about climate change, and want action to address it

Voters want real action on climate change

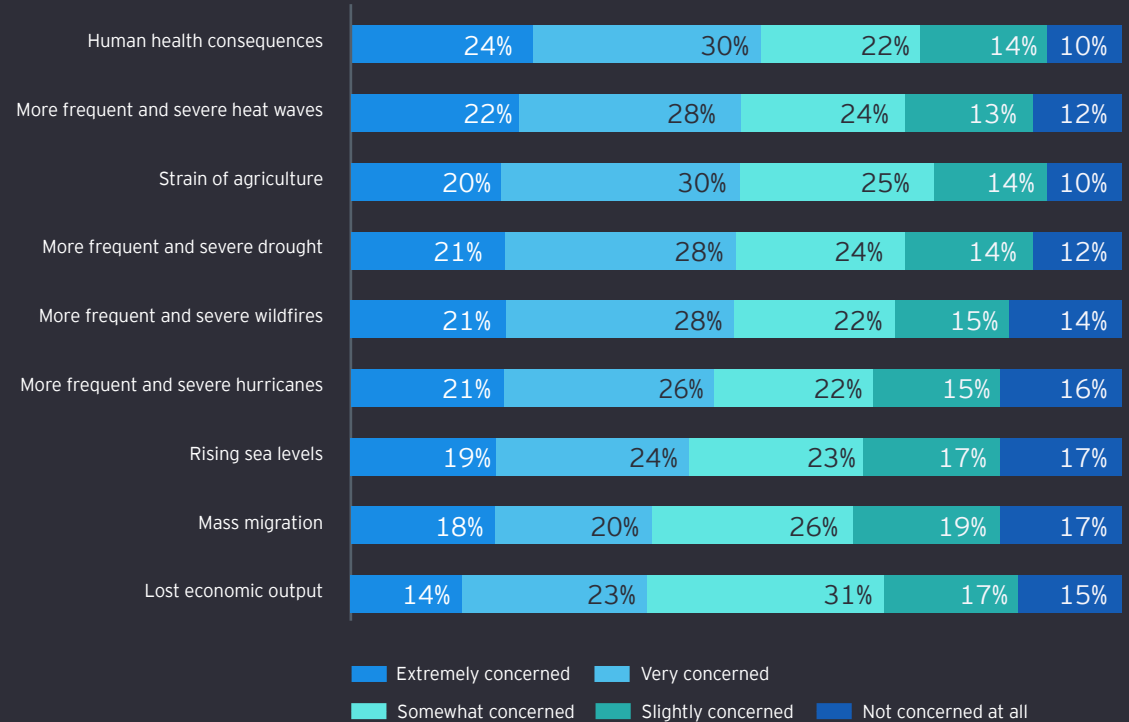
Climate change surpasses taxes, prescription drugs and gun control as the most important issue to voters.

The issue is most prominent for Gen Z and millennials; however, it is still a high-ranking issue among Gen X and baby boomers.

Most important issue in the 2020 elections



Consumers express concern on the following impacts of climate change



A shift in consumers' attitudes toward regulation

Asked how a prospective vote in Congress would influence their vote, consumers responded favorably to a range of energy and climate-related initiatives. Additionally, there is a surprising appetite among consumers to see the Federal Government regulate emissions more strictly.

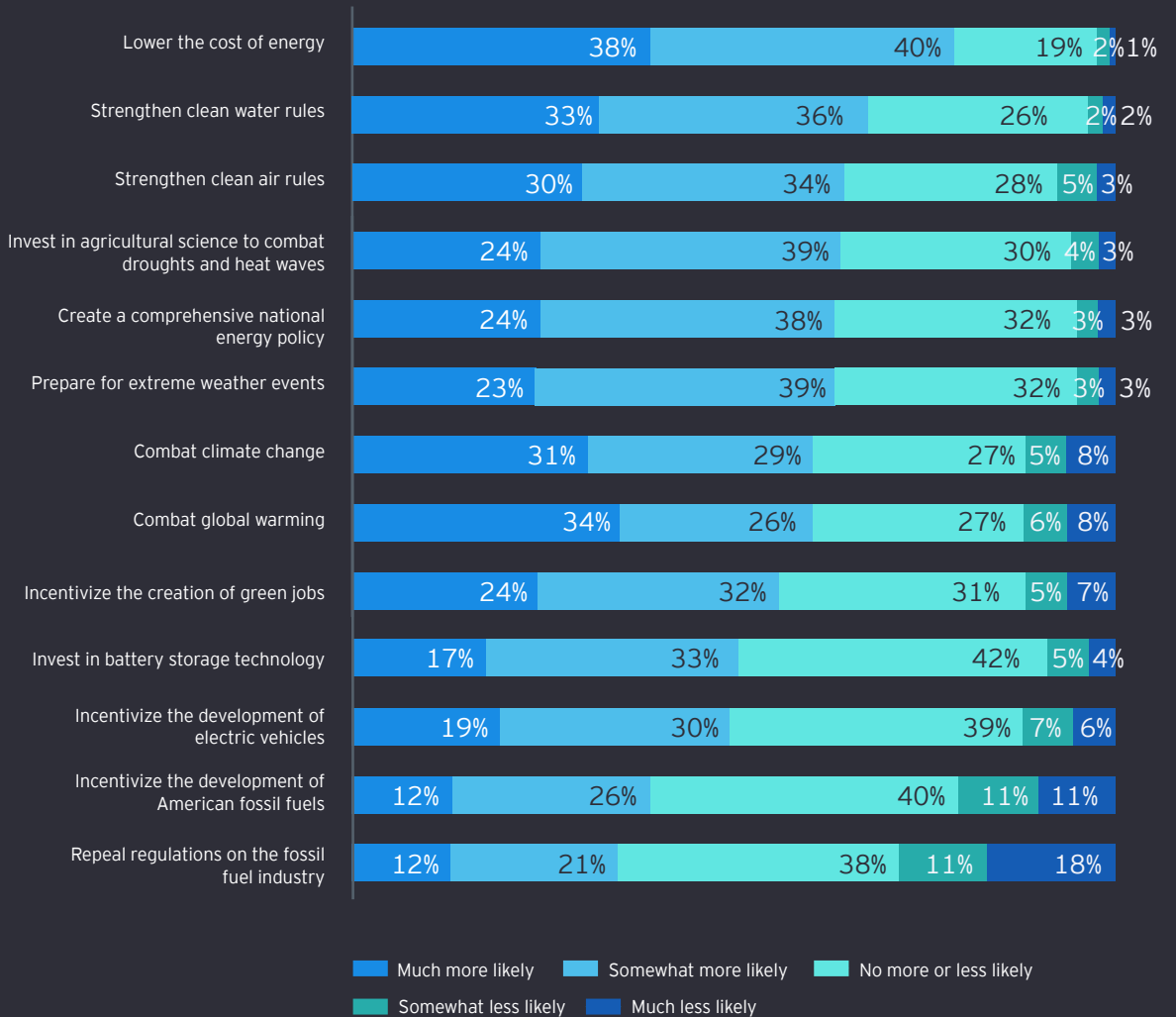
78%

said they would be more likely to vote for a member of Congress who voted "yes" to lower the **cost of energy**

60%

said they would be more likely to vote for a member of Congress who voted "yes" to combat **climate change**

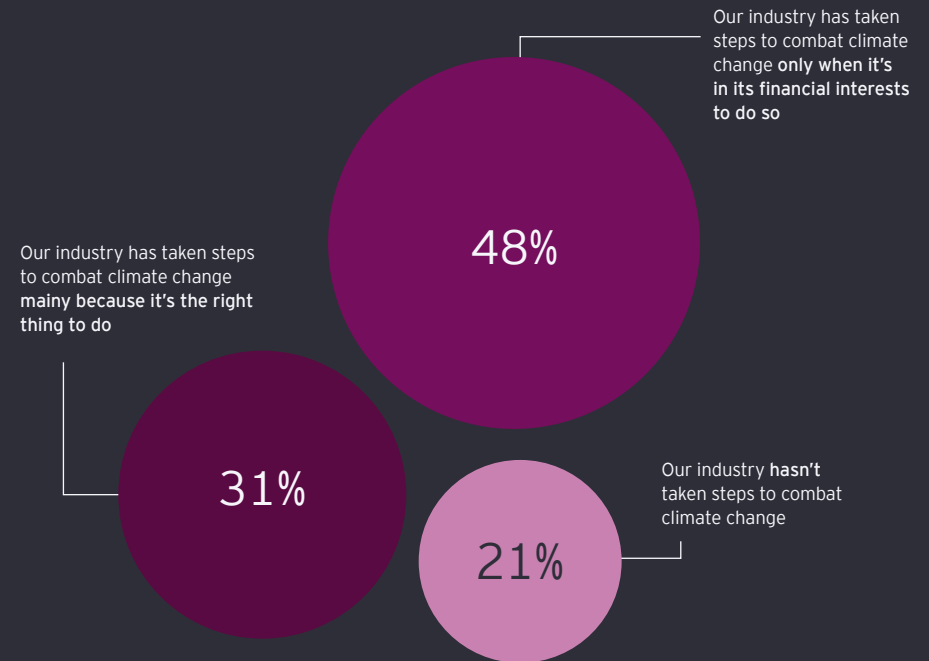
Consumers explain their likeliness of voting for a member of Congress who voted "yes" to do the following



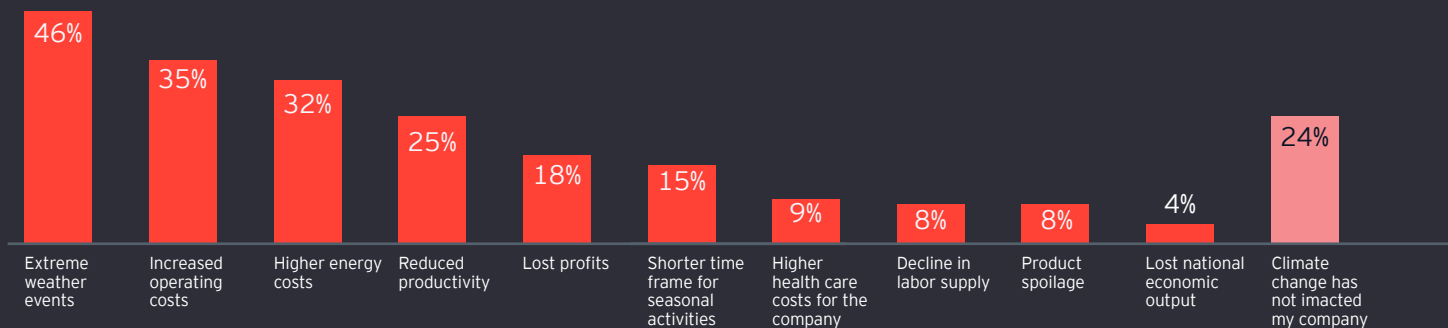
Climate change and business impact

Notably, 76% of EDMs believe their company has been negatively impacted by climate change, yet 48% say their industry only acts on climate change if it is in its financial interests. On the bright side, 70% of EDMs believe their industry could be part of the solution to climate change if it chooses to be.

EDMs gauge how their industry is reacting to climate change



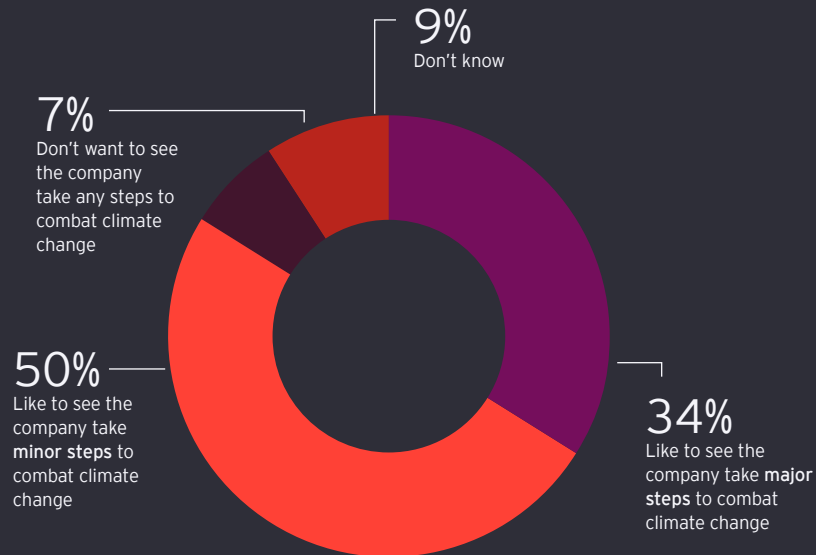
Ways EDMs say climate change has negatively impacted their company



Stakeholders expect action

With 91% of companies facing demand for action from shareholders and 77% facing it from customers, companies will increasingly deal with expectations from both Wall Street and Main Street with regard to climate change.

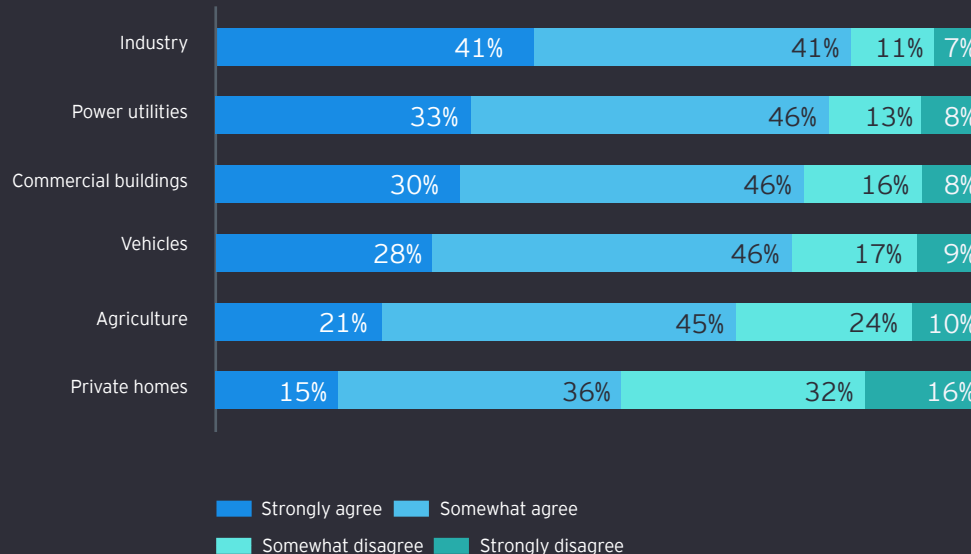
EDMs gauge rank-and-file employees' expectations on climate change



EDMs explain where pressure to minimize environmental impact is coming from



Consumers say they want the Federal Government to more strictly regulate the amount of greenhouse gas and other emission pollution from the following

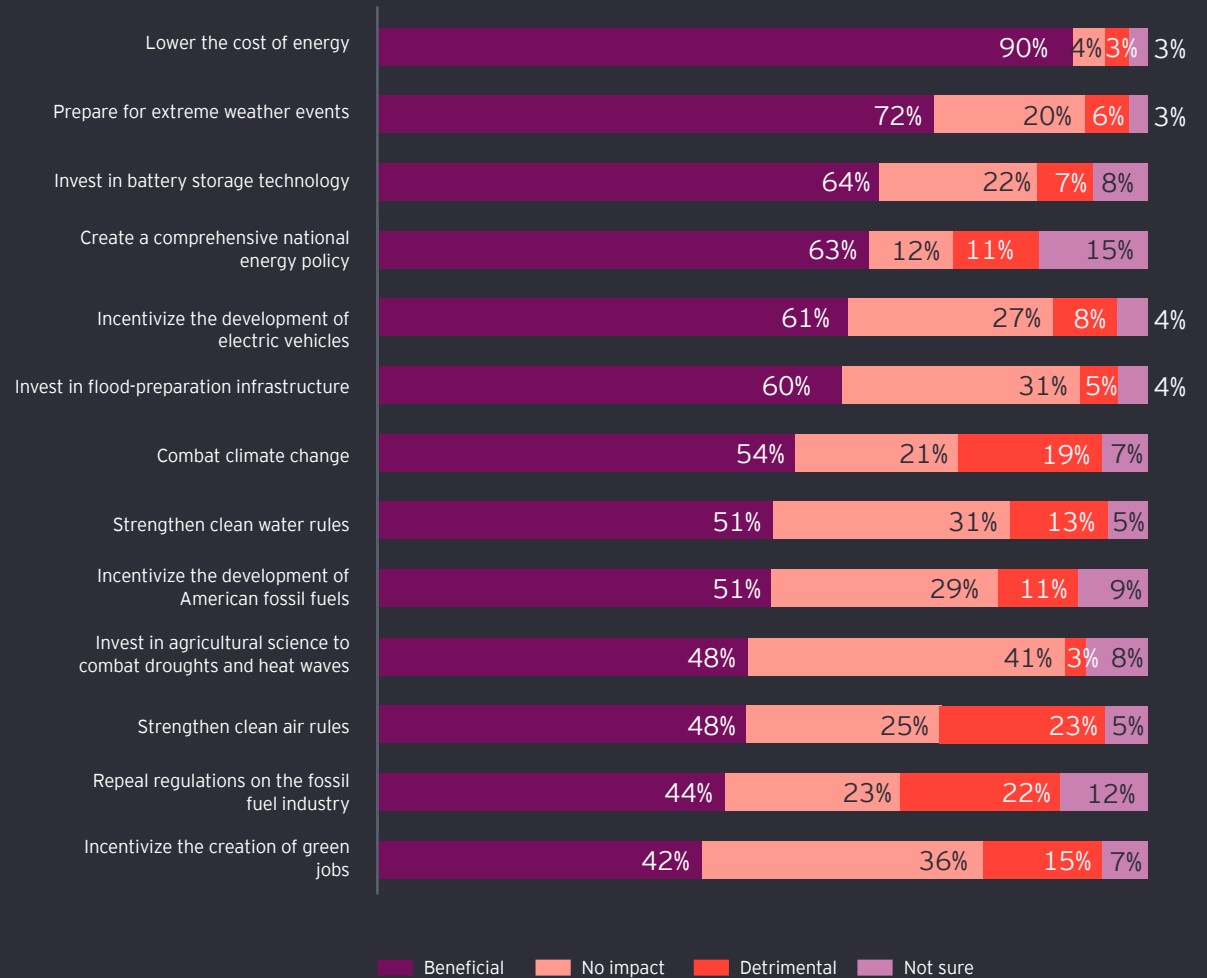


The impact of climate change on businesses

EDMs are predominantly supportive of potential legislative actions on energy-related topics.

More than half of corporate respondents believe companies like theirs would benefit from legislative action to combat climate change, while just one in five believe it would be detrimental to companies like theirs.

EDMs gauge how Congress or state legislatures voting in favor of the following bills would affect companies like yours



Methodology

TRUE Global Intelligence, the in-house research practice of FleishmanHillard, fielded two online surveys on behalf of EY.

Electric consumers (referred to within as “consumers”) – a survey of 1,500 Americans aged 18 and older who pay an electric bill each month. The survey was fielded April 4-22, 2019. The margin of error is $\pm 2.5\%$ and higher for subgroups.

Corporate energy decision-makers (referred to within as “EDMs”) – a survey of 102 corporate executives, fielded April 5-18, 2019, and managers. Respondents to this survey all met the following criteria:

- ▶ Work full-time
- ▶ Title equivalent to manager or higher
- ▶ Company energy decision-maker or can offer highly informed insight into their company’s energy use:
 - ▶ Responsible for selecting or overseeing, alone or with others, their company’s energy use, including any of electric, gas and fuel in their offices, manufacturing and distribution centers, other facilities and vehicle fleets
- Or
- ▶ Self-identifies as highly involved in, and can offer extensive insight into, their company’s energy use, including any of electric, gas and fuel in their offices, manufacturing/distribution centers, other facilities and vehicles
- ▶ Their Company has annual revenue of at least \$100 million

Demographics: consumer

Male	48%
Female	52%

Generations

Gen Z (18-22)	5%
Younger millennial (23-30)	14%
Older millennial (31-38)	17%
Younger Gen X (39-46)	10%
Older Gen X (47-54)	17%
Younger baby boomer (55-64)	17%
Older baby boomer (65-73)	19%
Silent generation (74+)	7%

US region

Northeast	19%
Midwest	22%
South	39%
West	20%

Own a vehicle

Yes	94%
No	6%

Household income

Less than \$30,000	20%
\$30,000 to \$49,999	17%
\$50,000 to \$74,999	18%
\$75,000 to \$99,999	14%
\$100,000 to \$119,999	12%
\$120,000 to \$149,999	10%
\$150,000 or more	8%

Bills paid each month

Your home's electric utility bill	100%
Your home's natural gas bill	60%
Car loan	36%
Student loan	13%
Mortgage/rent on your home	68%
Credit card bill	81%
Water	73%

Education

Less than a high school diploma	2%
High school diploma or equivalent	25%
Some college	32%
Bachelor's degree	25%
Graduate or professional degree	15%

Own or rent your home

Own	68%
Rent	31%
Neither	1%

Area lived

Urban	23%
Suburban	52%
Rural	25%

Political views

Progressive	25%
Moderate	31%
Conservative	34%
Other	10%

Demographics: corporate

Job title		Number of vehicles (among those with a fleet)		If involved, insight into company's use of energy	
Owner/partner/president/C-suite	3%	2 to 9	19%	Very deep insight	25%
SVP/managing director	10%	10 to 19	18%	Deep insight	75%
Vice president/director	70%	20 to 49	21%		
Senior manager	15%	50 to 99	18%		
Manager	3%	100 or more	25%		
Company's revenue		Company has, in addition to HQ		Number of employees	
\$100m to \$499.9m	33%	Branch offices	80%	Fewer than 500	9%
\$500m to \$999.9m	23%	Non-office facilities such as production, processing and distribution	64%	500 to 999	9%
\$1b or more	44%	A fleet of passenger, freight and/ or delivery vehicles	58%	1,000 to 1,499	9%
		A fleet of mobile equipment vehicles such as construction, manufacturing or other mobile equipment vehicles	29%	1,500 to 1,999	6%
		Stationary equipment	50%	2,000 to 4,999	16%
Public or privately owned		Responsibility for selecting and/or overseeing company's energy use		5,000 to 9,999	22%
Publicly owned	46%	Solely responsible	15%	10,000 or more	30%
Privately owned	54%	Shared responsibility	70%		
		Highly involved in selecting and/or overseeing	16%	Company operates	
				Globally	63%
				Nationally	27%
				Regionally	6%
				Locally	4%

Consumer questions

Page	Questions
	Q1 How important are each of the following qualities when it comes to fuel sources?
7	Q2 Please rank the following qualities from 1 to 7, with "1" meaning it is the most important quality for a fuel source to have and "7" meaning it is the least important.
	Q3 Please rank each of the following from 1 to 7, with "1" meaning it is the most affordable fuel source and "7" meaning it is the least affordable.
	Q8 Would you say it is easy or difficult to do the following each month?
8	Q6 "Carbon content" refers to the amount of carbon contained in a fuel source. The higher the carbon content, the higher the amount of carbon dioxide that is released when the fuel is burned. Carbon dioxide has been identified as one of the main pollutants causing climate change. With this in mind, please fill in the grid below.
	Q17 How concerned are you about the environmental impact of the driving you do?
	Q27 How concerned are you about the environmental impact of each of the following?
	Q21 Overall, how satisfied are you with each of the following?
10	Q22 For your primary residence, do you have a choice of which utility company supplies each of the following to your home?
	Q23 Would you prefer to have more than one choice of power utilities?
	Q24 For which of the following reasons would you prefer having a choice of power utilities?
	Q25 What criteria did you use to select the utility companies you chose?
12	Q26 What would lead you to switch from your current utility companies to other companies? You may select up to three responses.
14	Q16 Regardless of whether you want one, how many years do you think it will be until electric vehicles are widely available, and how many years do you think it would be until you, personally, would be able to get an electric vehicle?
	Q34 Regardless of whether you are currently interested, how many years do you think it will be before it is technologically and financially feasible for you, personally, to have your home generate its own electricity?
	Q10 Could you maintain your current lifestyle right now if you did not own or lease a personal vehicle?
15	Q11 Thinking about the future of vehicle technology, is there a time in your life when you could imagine maintaining your current lifestyle without owning or leasing a personal vehicle?
	Q12 Which of the following describes the primary vehicle you currently have, the primary vehicle you wish you had now, and the primary vehicle you hope to have in the future?

Page	Questions
	Q28 Below are some steps people can take to make their homes more energy efficient. For each one, specifically for the purpose of making your home more energy efficient, please indicate if you've done this, plan on doing this, want to do this but do not have plans to, or do not want to do this.
17	Q32 Before today, how familiar were you with the concept of independent power generation?
	Q33 Assuming it was technologically and financially feasible for you, how interested would you be in your home generating its own electricity?
	Q34 Regardless of whether you are currently interested, how many years do you think it will be before it is technologically and financially feasible for you, personally, to have your home generate its own electricity?
20	Q36 Changing topics, which of the following will be the most important issue to you in the 2020 elections?
	Q42 How concerned, if at all, are you about the following impacts of climate change on you personally?
21	Q37 Please indicate if you would be more or less likely to vote for a member of Congress who voted "Yes" for the federal government to do each of the following?
	Q39 Do you agree or disagree with the following statements?
23	Q16 Do you agree or disagree with the following statements?

EDM questions

Page	Questions
	Q1 How important are each of the following qualities when it comes to the fuel sources your company uses?
7	Q2 Please rank the following 1 through 7, with "1" meaning it is the most important quality for a fuel source to have and "7" meaning it is the least important.
	Q3 Please rank each of the following from 1 to 7, with "1" meaning it is the most affordable fuel source and "7" meaning it is the least affordable.
11	Q22 For the majority of your facilities, does your company have a choice of which utility company supplies each of the following?
	Q23 Would it benefit your company to have a choice of power utilities?
	Q24 In what ways would it benefit your company?
	Q25 Overall, how satisfied are you with each of the following?
12	Q26 For your primary residence, do you have a choice of which utility company supplies each of the following to your home?
	Q15 How many years do you think it will be before your company could switch these fleets to run entirely on renewable energy?
14	Q36 Regardless of whether your company is currently interested, how many years do you think it will be before it is technologically and financially feasible for your company to achieve the following?
	Q10 Changing topics, please rank the following from 1 to 7, with "1" meaning it is most important to your company when purchasing new vehicles and "7" meaning it is least important to your company when purchasing new vehicles.
	Q11 Which of the following do the vehicles in your fleet currently run on? Please select all that apply.
16	Q12 Do you agree or disagree with the following statements?
	Q13 Do you agree or disagree with the following statements?
	Q14 Thinking about the future of vehicle technology, is there a time you could imagine your company's vehicle and/or equipment fleets running entirely on renewable energy?
	Q16 How concerned are you about the environmental impact of each of the following?
	Q21 Please select the phrases that best complete the sentence for your company. Please select all that apply.
18	Q21X Please select the phrase that best complete the sentence for your company.
	Q32 Assuming it was technologically and financially feasible for your company, how interested would your company be in all of your facilities independently generating their own electricity?

Page	Questions
	Q33 How interested would your company be in some of your facilities independently generating their own electricity?
18	Q35 Which fuel sources is your company interested in using to pursue independent power generation? Please select all that apply.
	Q37 For which of the following reasons would your company be interested in its facilities generating their own electricity?
	Q47 In which of the following ways has climate change negatively impacted your company? Please select all that apply.
22	Q48 Do you believe your industry is part of the solution to climate change, could be part of the solution if it chooses to be, or part of the problem?
	Q49 Which of the following is closest to your view?
	Q42 Below are some actions related to energy policy that Congress and/or state legislatures could vote in favor of taking. For each one, please indicate if Congress and/or state legislatures voting in favor of bills to do these things would be beneficial to companies like yours or detrimental to companies like yours.
23	Q50 Think about your company's rank-and-file employees. Would they ...?
	Q51 How much pressure to minimize its environmental impact, if any, does your company feel from each of the following groups?
	Q24 Below are some actions related to energy policy that Congress and/or state legislatures could vote in favor of taking. For each one, please indicate if Congress and/or state legislatures voting in favor of bills to do these things would be beneficial to companies like yours or detrimental to companies like yours.
24	S5 Which of the following most closely describes your role in the company you work for?
	S6 Which of the following best describes your involvement in your company's use of energy, including electric, gas and other fuels in your facilities, equipment or vehicle fleets?
	S7 How much insight can you offer into your company's use of energy, including electric, gas and other fuels in your facilities, equipment or vehicle fleets?
26	S8 Which of the following categories includes your company's annual revenue? Your best estimate is okay.
	S9 Which of the following does your company have in addition to its headquarters office?
	D1 How many employees does your company have?
	D2 Does your company operate ... ?
	D5 How many vehicles does your company have?
	D8 Is your company publicly traded or privately owned?

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