



The Winter Storm of 2021

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The Winter Storm of 2021

Introduction

Winter Storm Uri began to hit parts of Texas on February 13, 2021 and its onslaught left close to 4.5 million homes and businesses without power at its peak. The preliminary number of deaths attributed to the storm as of this writing totals 111 (with several major counties still not reporting any fatalities), including 31 in Harris County alone, and the storm's economic toll is estimated to be as high as \$295 billion. And all the while, people continued to live under pandemic conditions wrought by COVID-19.

In order to study Winter Storm Uri's impact on Texas, the Hobby School of Public Affairs at the University of Houston conducted an online survey of residents 18 and older who live in the 213 counties (91.5% of the state population) served by the Texas Electrical Grid, which is managed by the Electrical Reliability Council of Texas (ERCOT). The survey documents Texans' experiences during the storm and explores preferences among potential changes in policies regarding electricity and energy more generally. The survey also examines opinions about the lifting of statewide COVID-19 restrictions. The survey was fielded by YouGov between March 9-19, 2021 with 1,500 YouGov respondents, resulting in a confidence interval of +/-2.5. The respondents were matched to a sampling frame on gender, age, ethnicity/race, and education and are representative of the adult population in these 213 counties.

The results of the statewide survey will be presented in two individual reports on the 213 counties: Lifting the COVID-19 Restrictions and the Winter Storm of 2021. An oversample of 513 Harris County residents also was collected, with these findings on the winter storm to be provided in a third report.

Executive Summary: The Winter Storm of 2021

More than half of Texans prepared for the storm by buying additional food (61%) and bottled water (58%) and filling their vehicle with gas (55%). The next most common preparations were insulating pipes (44%), covering or moving plants (44%), and storing tap water (43%).

More than half of Texans relied either a great deal, somewhat, or a little on three information sources on the winter storm, before, during and after it hit: Local TV news (68%), neighbors and friends (63%), and The Weather Channel (55%). 50% relied on the local TV news either a great deal or somewhat compared to 38% for The Weather Channel, and 30% for local radio news.

More than two out of three (69%) Texans lost electrical power at some point February 14-20, for an average of 42 hours, during which they were without power on average for one single consecutive block of 31 hours, rather than for short rotating periods.

Almost half (49%) of Texans lost access to running water during this week period, with the average Texan who lost running water without it for 52 hours. During this same time frame, the average Texan with running water could not drink it for an average of 40 hours.

Other negative effects of the storm include difficulty obtaining food or groceries (75%), the loss of Internet service (71%), and difficulty obtaining bottled water (63%).

One-third of Texans (31%) reported that they suffered water damage, but fewer than one in five believed that their insurance was either likely or somewhat likely to cover the full cost of the damages.

When they lost electrical power and heat, one-fifth (18%) of Texans opted to leave their home. The most common destination (44%) was a local relative's home, while only 3% of this one-fifth (fewer than one in two hundred) went to a destination that was outside of the state.

Among those Texans who remained in their home without power, more than one in four (26%) used their gas oven or cooktop as a source of heat, and desperate to avoid hypothermia, 8% used a grill or smoker indoors and 5% who used an outdoor propane heater indoors.

More than three out of four Texans (78%) did not believe that the power outages in their area were carried out in an equitable manner, and 81% believe they would have benefited from more timely and accurate information before, during and after the winter storm.

Almost three out of four (74%) Texans disapprove of ERCOT's performance during the winter storm, with 65% strongly disapproving, compared to only 6% who approve. Almost half of Texans disapprove of Governor Abbott's performance during the winter storm, compared to 28% who approve.

In order to ensure Texas does not suffer a repeat of 2021, more than three-quarters of Texans support four policy reforms, which include requiring electricity generators to weatherize and boost their reserve capacity and natural gas companies to weatherize in order to be able to participate in the Texas market. They also support more rigorous oversight of electric utilities. These reforms are backed by more than four-fifths of Texas Democrats and three-fourths of Texas Republicans.

Substantial majorities of Texans oppose proposals that would require consumers pay an additional fee in order to fund electricity generator weatherization efforts and to increase the amount of reserve electricity generation capacity, with 62% and 54% opposed to these two policies respectively, compared to only 18% and 24% in support.

More than half (51%) of Texans are unwilling to pay any additional amount on their monthly electricity bill to safeguard the Texas electrical grid from severe weather, with 25%, 14%, and 6% willing to pay an additional \$5, \$10, and \$20 more a month, respectively.

More than two-thirds (69%) of Texans agree that due to climate change Texas is more likely to be adversely affected by severe weather than was the case 30 years ago. 95% of Democrats agree with this statement compared to 61% of Independents and 46% of Republicans.

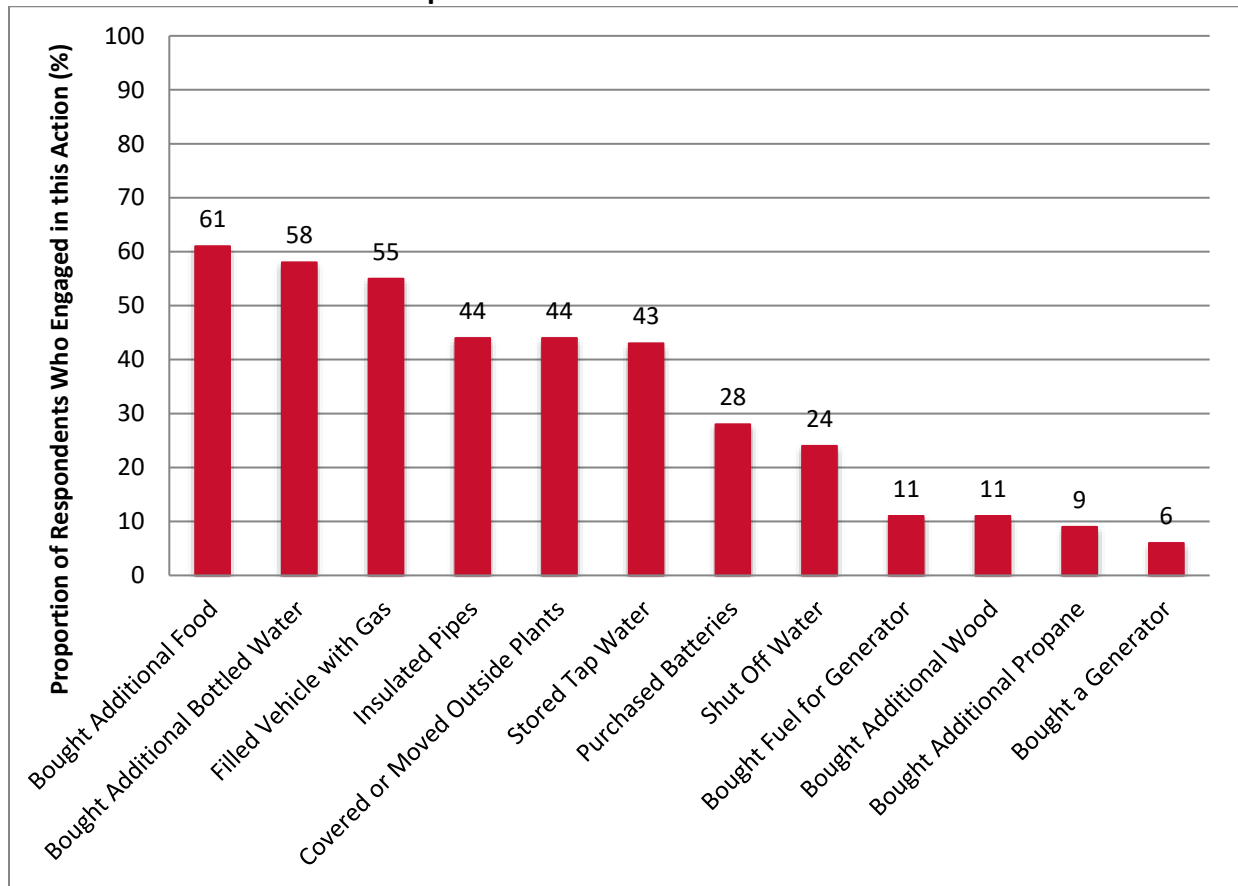
59% of Texans believe the most important priority for addressing America's energy supply is developing alternative sources like wind and solar, while 41% believe the most important priority should be expanding exploration and production of oil and natural gas. 85% of Democrats signal developing alternative sources as the priority while 77% of Republicans signal expanding oil and gas.

A majority of Texans favors expanding five sources of energy in the United States, all of which are renewable: solar (64%), geothermal (60%), hydrogen (57%), wind (56%), and hydroelectric (51%). A plurality favors reducing two sources of energy: fracking (40%) and coal (46%).

Preparing for the Winter Storm

The survey respondents were asked if they did any of 12 specific things as they prepared for the winter storm. The results are displayed in Figure 1, arranged from the most common preparation among these Texans to the least common.

Figure 1. Most to Least Common Ways Texans Prepared for The 2021 Winter Storm



More than half of Texans prepared for the winter storm by buying additional food (61%) and bottled water (58%) and by filling their vehicle with gas (55%). The next most common preparations, engaged in by more than two-fifths of Texans, were insulating the pipes in their home (44%), covering or moving outside plants (44%), and storing tap water (43%). Approximately one in four Texans purchased batteries (28%) or shut off the water in their home (24%), while one in ten bought gasoline or diesel fuel for a portable generator (11%), bought additional wood (11%), and/or bought additional propane (9%). And, a very prescient one in twenty bought a generator (6%).

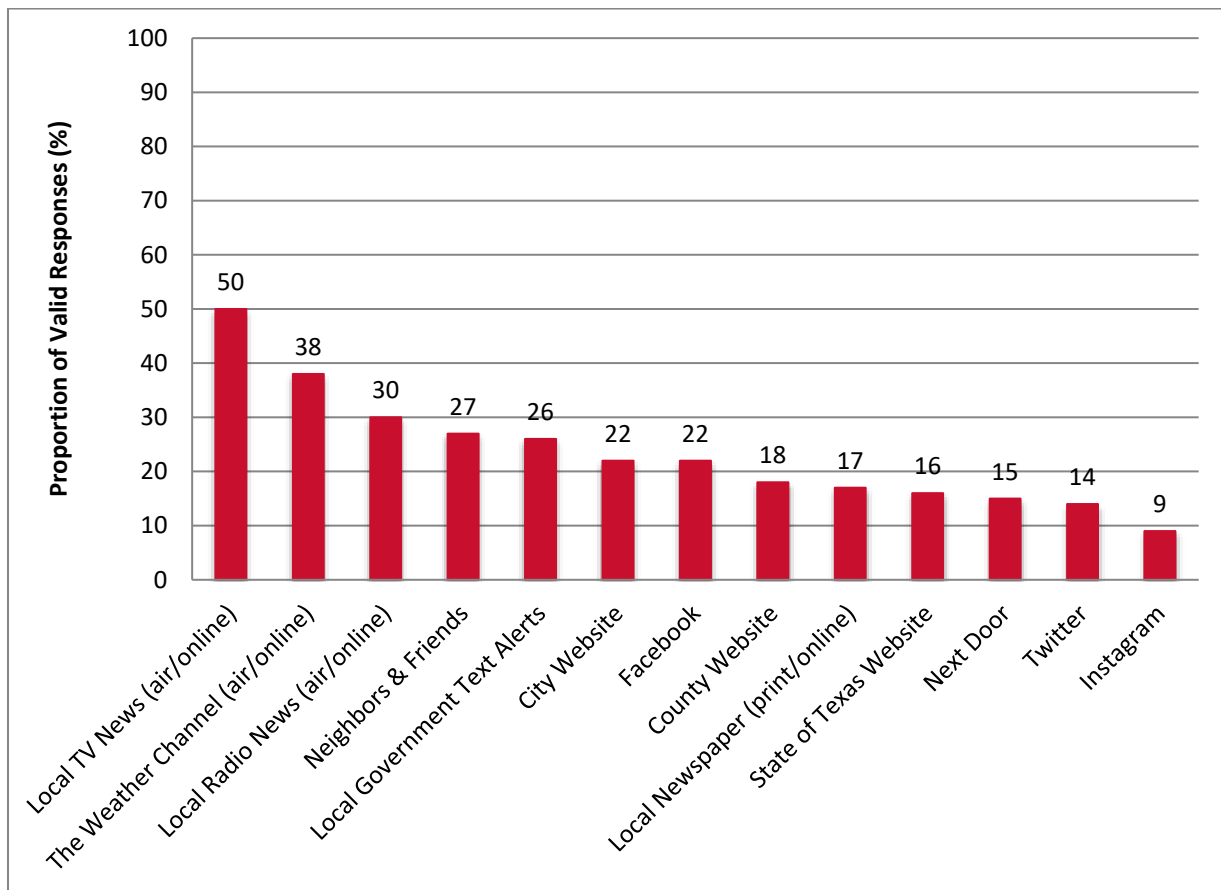
As Texans prepared for the winter storm, were in its midst, and were recovering from its aftermath, they consulted a wide range of sources of information. The survey asked them the extent to which during this period they relied a great deal, somewhat, a little or not at all on 13 different sources for information related to the winter storm. The results are displayed in Table 1. More than half of Texans relied either a great deal, somewhat, or a little on three media sources: Local TV news (68%), neighbors and friends (63%), and The Weather Channel (55%). In contrast, less than a quarter of Texans relied in any amount on Twitter (20%) and Instagram (16%) for winter storm information.

Table 1. Texan Reliance on Different Sources for Information on the Storm and Coping in its Aftermath
Percentage Distribution (%)

Information Source	A Great Deal	Somewhat	A Little	Not At All	Don't Know
Local TV News (air/online)	29	21	18	28	4
Neighbors & Friends	16	21	26	32	5
The Weather Channel (air/online)	17	22	16	41	4
Local Radio News (air/online)	12	18	16	49	5
Local Government Text Alerts	9	17	17	51	6
City Website	7	15	14	57	7
Facebook	9	13	16	58	4
County Website	6	12	14	61	7
Next Door	5	10	13	64	8
State of Texas Website	6	11	13	64	6
Local Newspaper (print/online)	6	11	11	66	6
Twitter	6	8	6	73	7
Instagram	3	6	7	79	5

Figure 2 displays the sources of information arrayed based on the proportion of Texans who relied on them either a great deal or somewhat for information before, during, and in the aftermath of the winter storm. The most popular sources of information were local TV news (50% relied on it either a great deal or somewhat), The Weather Channel (38%), and local radio news (30%). More than one-in-five Texans also relied a great deal or somewhat on neighbors and friends (27%), local government text alerts (26%), a city government website (22%), and Facebook (22%) for information about the storm. Only between one in ten and one in twenty relied a great deal or somewhat on a county government website (18%), a local newspaper (17%), a state of Texas government website (16%), Next Door (15%), Twitter (14%), and Instagram (9%) as a source for information on the winter storm.

Figure 2. Proportion of Texans Who Relied a Great Deal or Somewhat on the Source for Information about the Storm and Coping with its Aftermath



Loss of Power and Water During the Winter Storm

Figure 3 highlights that more than two out of every three Texans (69%) lost electrical power during the winter storm (between February 14-20), while nearly one-half (49%) was left without running water during this same period. Figure 4 displays the proportion of the members of the state's three largest ethnic/racial groups, Anglos (44% of the survey population), Latinos (37%), and African Americans (12%), that lost electrical power at some point during the winter storm (February 14-20). African Americans (76%) were modestly more likely to have lost power than Anglos (66%).

Figure 3. Did You Lose Electrical Power or Were You Without Running Water at Any Time During the Winter Storm?

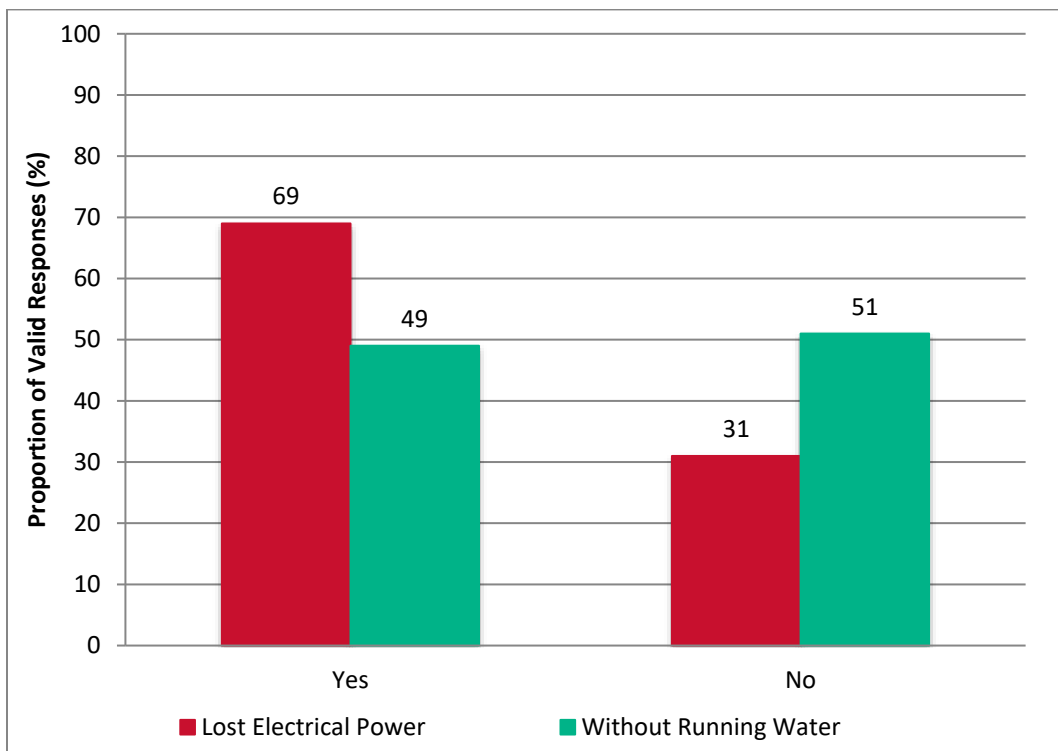


Figure 4. Ethnicity/Race and Loss of Electrical Power in Home During the Winter Storm

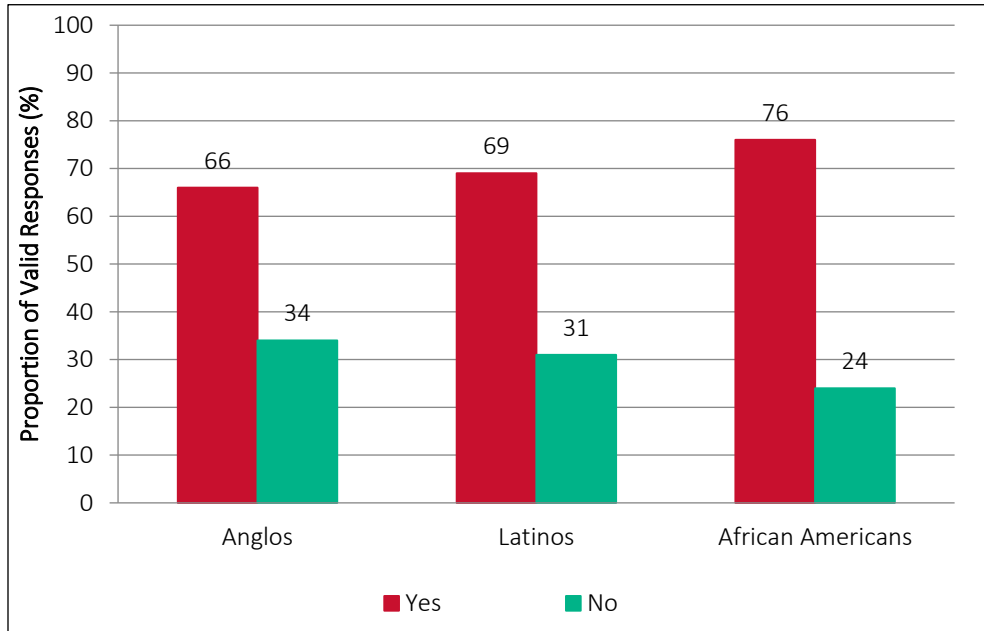


Figure 5 displays the average number of hours that the 69% of Texans who lost power at some point during the winter storm were without power. On average, these Texans were without electrical power for an average of 42 hours (this is the mean number of hours, the median number of hours without power was 36) during the week of February 14-20. Latinos (44 hours) who were without power suffered this outage for a modestly longer period than African Americans (37 hours), though this difference is not statistically significant. The distribution of the hours that these Texans were without power is provided in Figure 5b.

Figure 5. Ethnicity/Race and the Mean Number of Hours Without Power

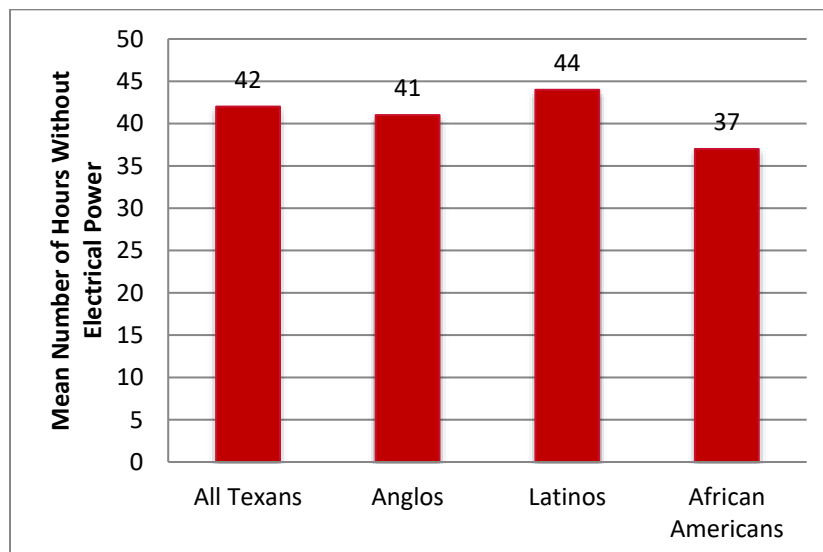
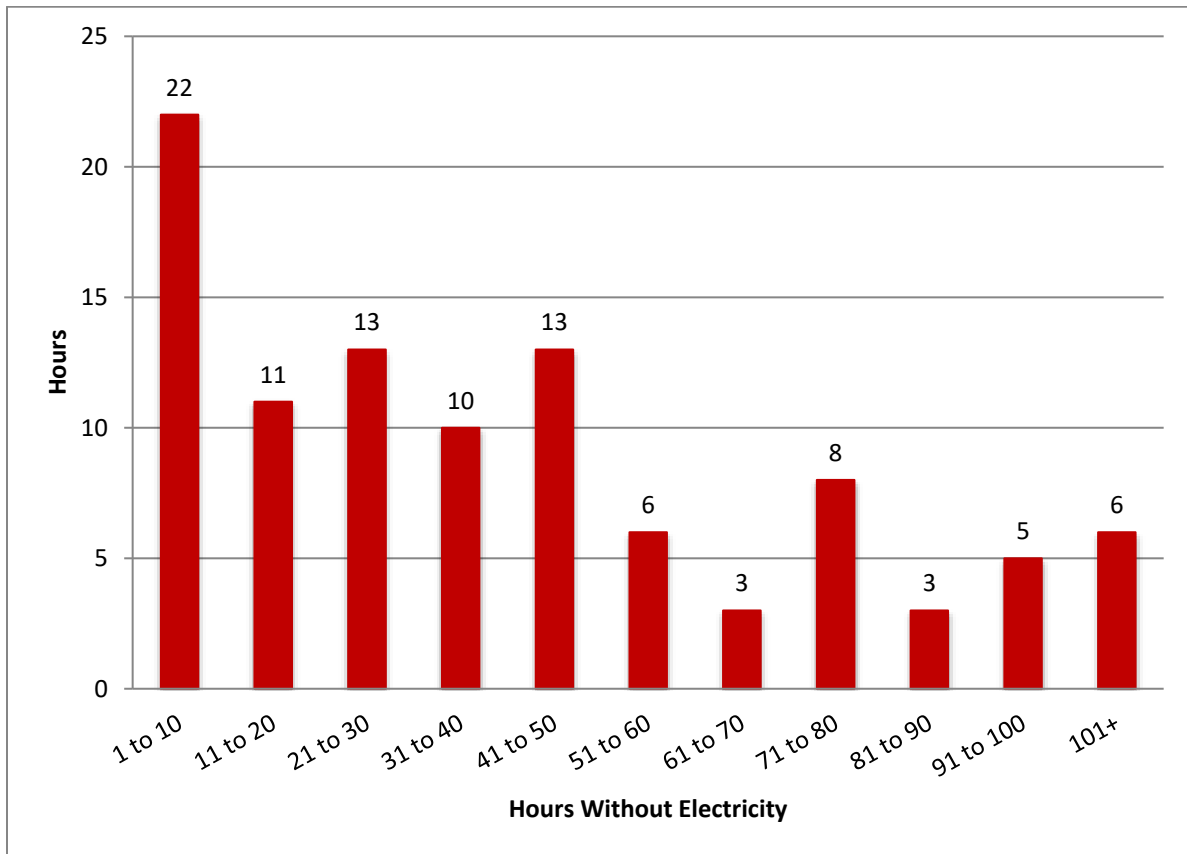


Figure 5b. The Distribution of the Number of Total Hours Those Who Lost Power Were Without Electricity



The longest consecutive number of hours that these Texans were without power was on average 31 (with a median of 19 hours), underscoring that the bulk of the outage hours experienced by Texans occurred in a single continuous period, very distinct from what would have been the case had the power outages been rotating as initial reports suggested they would be. Figure 5c displays the distribution of the longest single bloc of time during which the respondent did not have electrical power. More than two-fifths of those Texans who lost electrical power were without it for a consecutive time period of greater than 24 hours between February 14-20.

Figure 5c. The Longest Single Consecutive Period During Which Those Who Lost Electrical Power Were Without Power

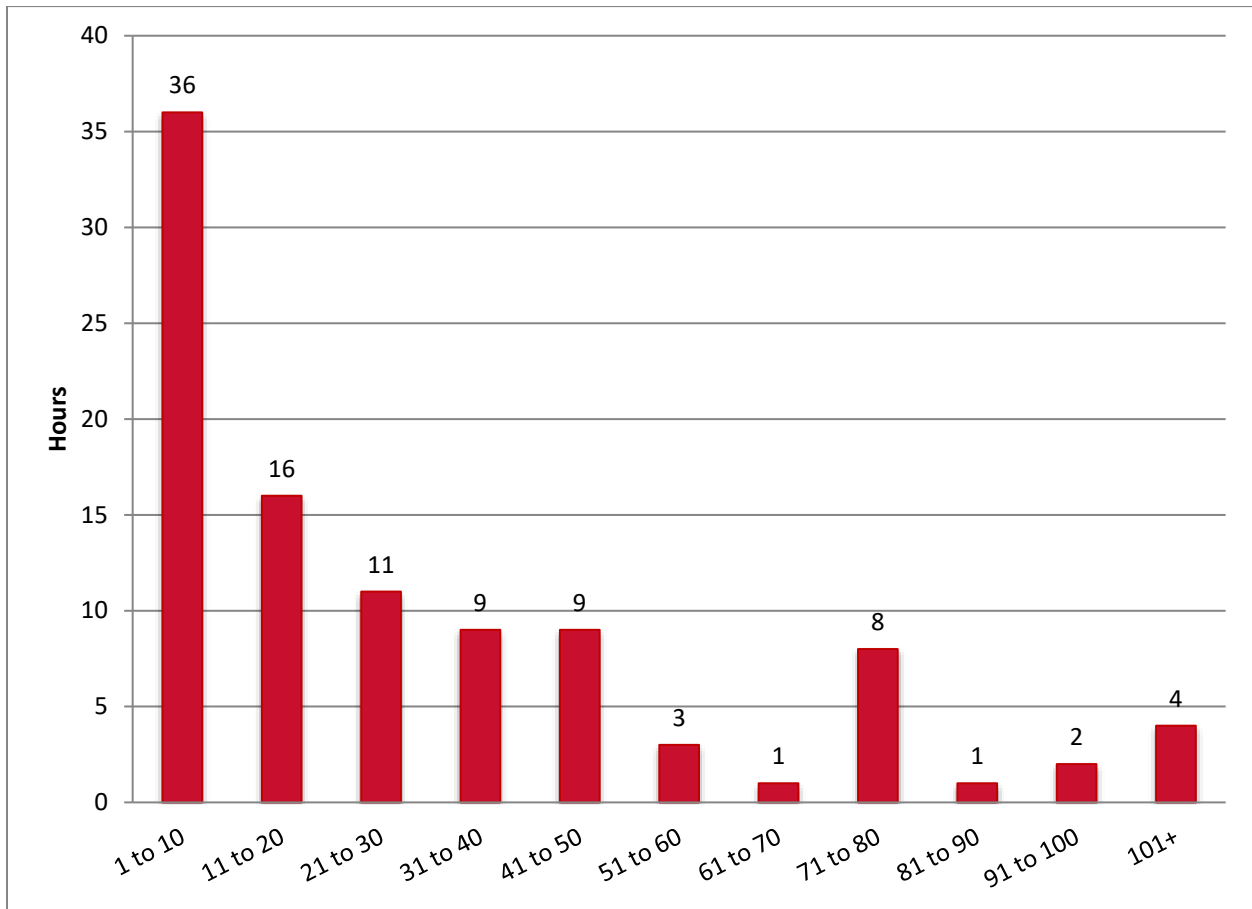


Figure 6 displays the proportion of Anglos, Latinos, and African Americans who were without running water at some point between February 14-20 during the winter storm. The proportions of the members of each ethnic/racial group who were without running water are extremely similar, ranging from 47% of African Americans to 50% of Latinos. Figure 7 also reveals that there were no noteworthy ethnic/racial differences in regard to the average number of hours people were without running water, with the ethnic/racial group averages very close to the overall population average of 52 hours without running water (with a median of 48 hours). Figure 7b provides the detailed distribution of the hours during which the one-half of Texans who were without running water did not have it.

Figure 6. Was Your Home Without Running Water at Any Time During the Winter Storm?

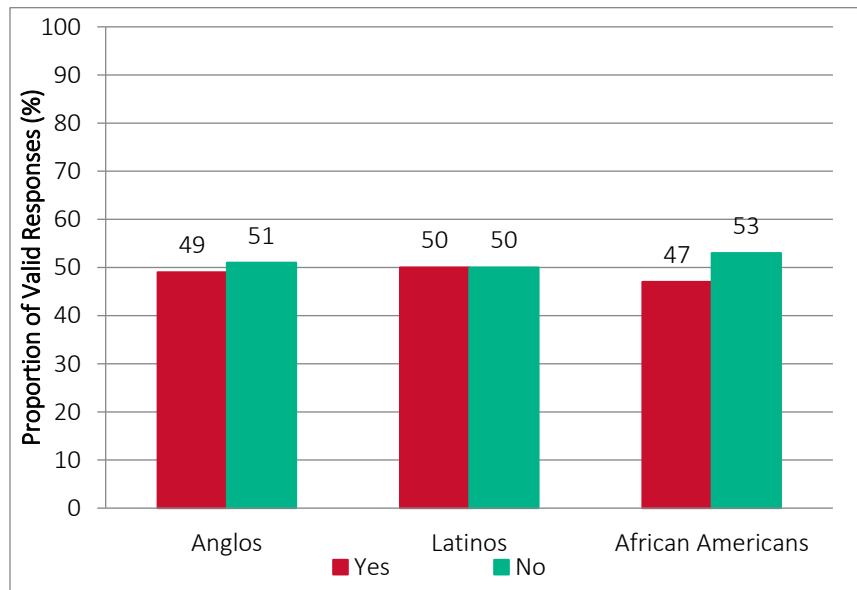


Figure 7. Ethnicity/Race & Average Number of Hours Without Running Water Among Those Who Were Without at Any Time During the Storm

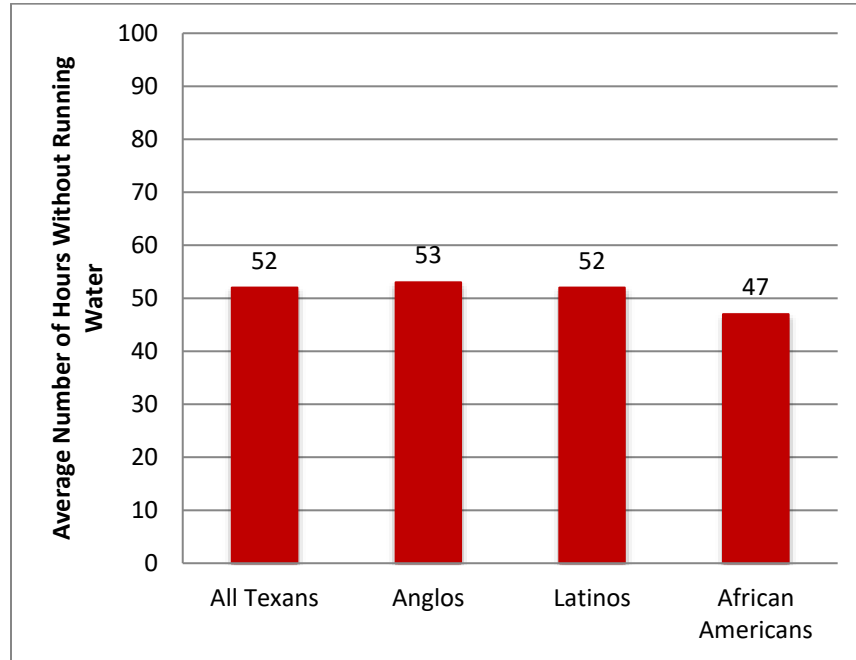
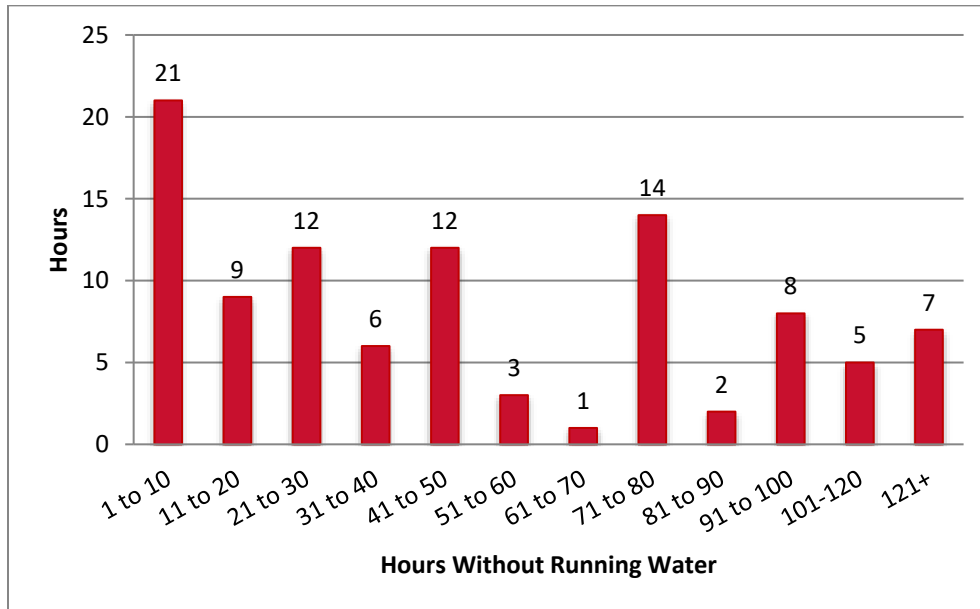
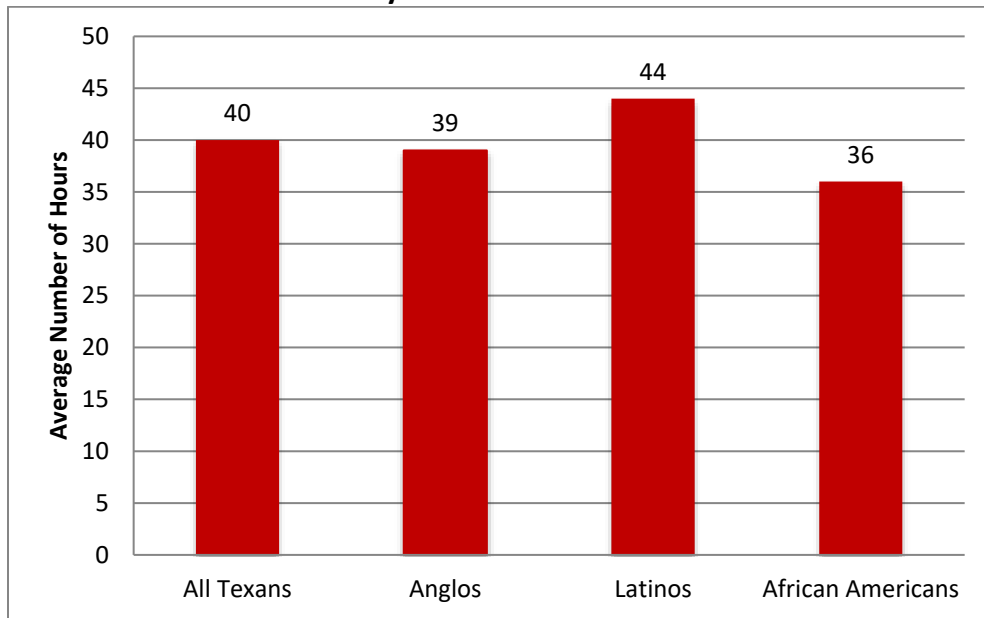


Figure 7b. The Distribution of the Hours That Those Who Lost Running Water Were Without Water



While the loss of all water service was a problem faced by Texans, the average Texan who did have access to running water during the week of the storm did not have access to potable water for an average of 40 hours during the February 14-20 period. Figure 8 provides the details both for the overall Texas population as well as among the state's three principal ethnic/racial groups, where the average number of hours without potable water among the three ethnic/racial groups was quite similar, ranging from a high of 44 hours for Latinos to a low of 36 hours for African Americans, with Anglos in between at 41 hours.

Figure 8. Average Number of Hours that Those with Running Water had Only Non-Potable Water



The Impact of the Winter Storm on Texans

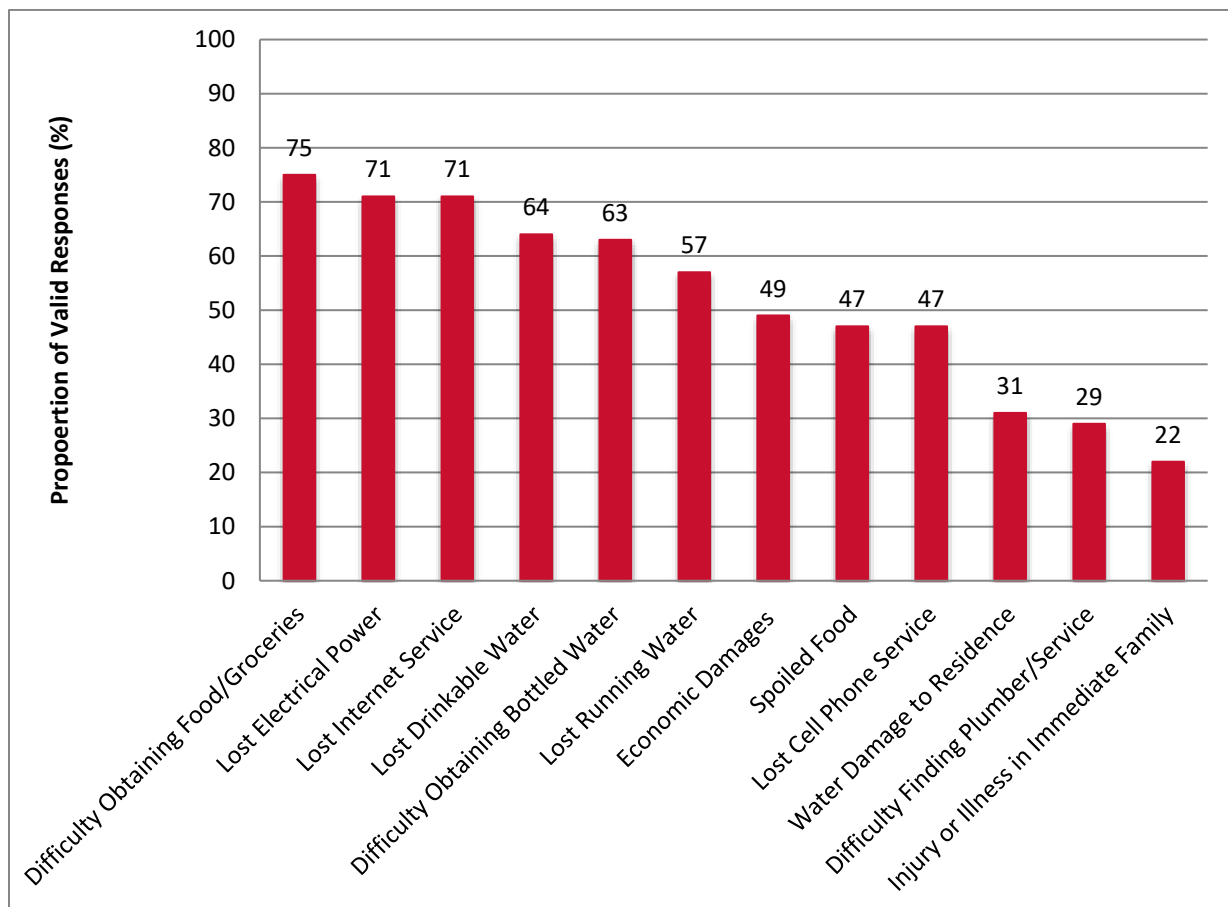
Texans were asked the extent to which they experienced a dozen possible negative winter storm experiences between February 14-20 (see Table 2). Figure 9 details the percentage of Texans who suffered each negative experience, ranging from the most to the least common. More than two-thirds of Texans had difficulty obtaining food or groceries (75%), lost electrical power (71%), and lost Internet service (71%). More than half of Texans lost access to drinkable water (64%), had difficulty obtaining bottled water (63%) or lost access to running water (57%) during this same one-week period (due to the phrasing and structure of the questions, we consider the data in Figure 3, which provides outage values slightly lower than those in Figure 9, to be the most accurate reflection of the reality of Texans during the storm). Slightly less than one-half of Texans suffered economic damages (49%) or spoiled food (47%) during this time frame, with a similar proportion losing cell phone service (47%). The least common adverse experiences were residential water damage (31%), difficulty finding a plumber or other service professional (29%), or a winter storm related injury or illness within the immediate family (22%).

Table 2. The Prevalence and Severity of Events and Experiences During the Winter Storm

Percentage Distribution (%)

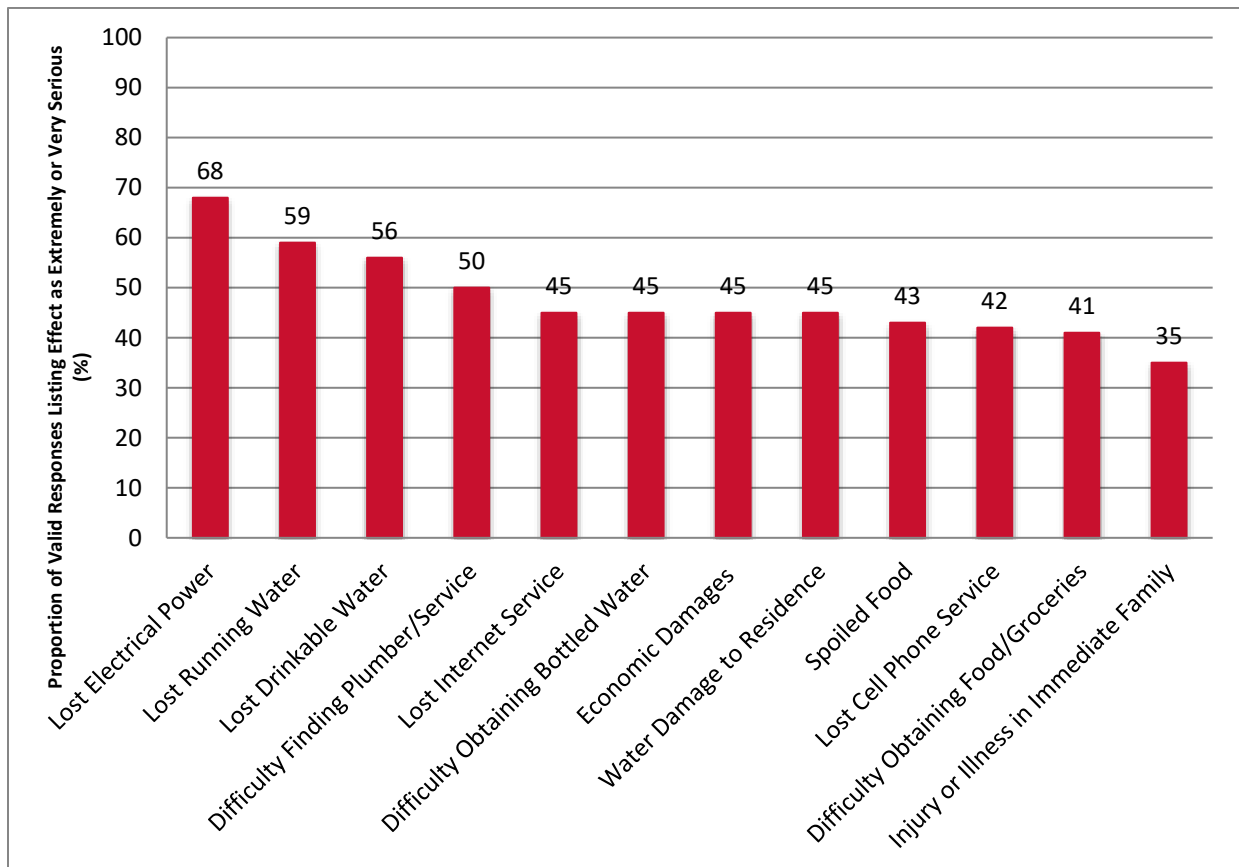
Event/Experience	Not Applicable	Extremely Serious	Very Serious	Somewhat Serious	Not Serious
Difficulty Obtaining Food/Groceries	25	15	16	27	17
Lost Electrical Power	29	29	19	14	9
Lost Internet Service	29	17	15	20	19
Lost Drinkable Water	36	20	16	16	12
Difficulty Obtaining Bottled Water	37	14	13	19	17
Lost Running Water	43	19	14	15	9
Economic Damages	51	11	11	17	10
Spoiled Food	53	11	9	14	13
Lost Cell Phone Service	53	10	10	14	13
Water Damage to Residence	69	8	6	8	9
Difficulty Finding Plumber/Service	71	7	7	8	7
Injury or Illness in Immediate Family	78	4	4	5	9

Figure 9. Negative Winter Storm Experiences Among Texans from Most to Least Common



Respondents who had the negative experience were queried on the extent to which it was extremely serious, very serious, somewhat serious, or not serious at all. Figure 10 contains the proportion of those who suffered the negative experience who considered that experience to be either extremely serious or very serious.

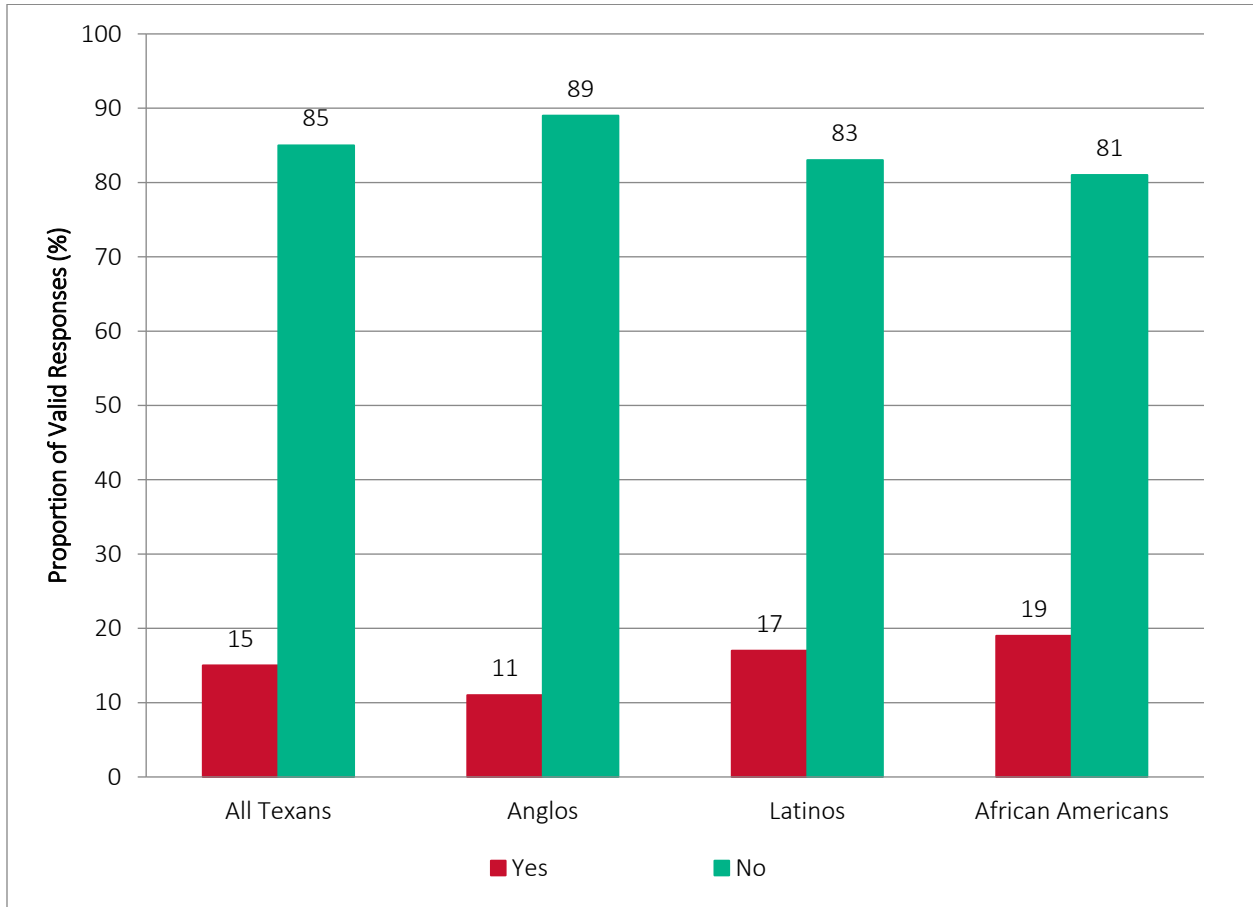
Figure 10. Among the Affected Population, Those Who Consider Effect to Be Extremely Serious or Very Serious



More than two-thirds (68%) of Texans who lost electrical power considered this loss to be extremely or very serious, with 59% of those who lost access to running water in their home and 56% who lost access to drinkable water in their home also considering this lost service experience to be either extremely serious or very serious. With one exception, only 35% of those who suffered an injury or illness within their immediate family considered it to be extremely or very serious, all of the other negative effects were considered by between 41% and 50% of those afflicted to be either extremely serious or very serious.

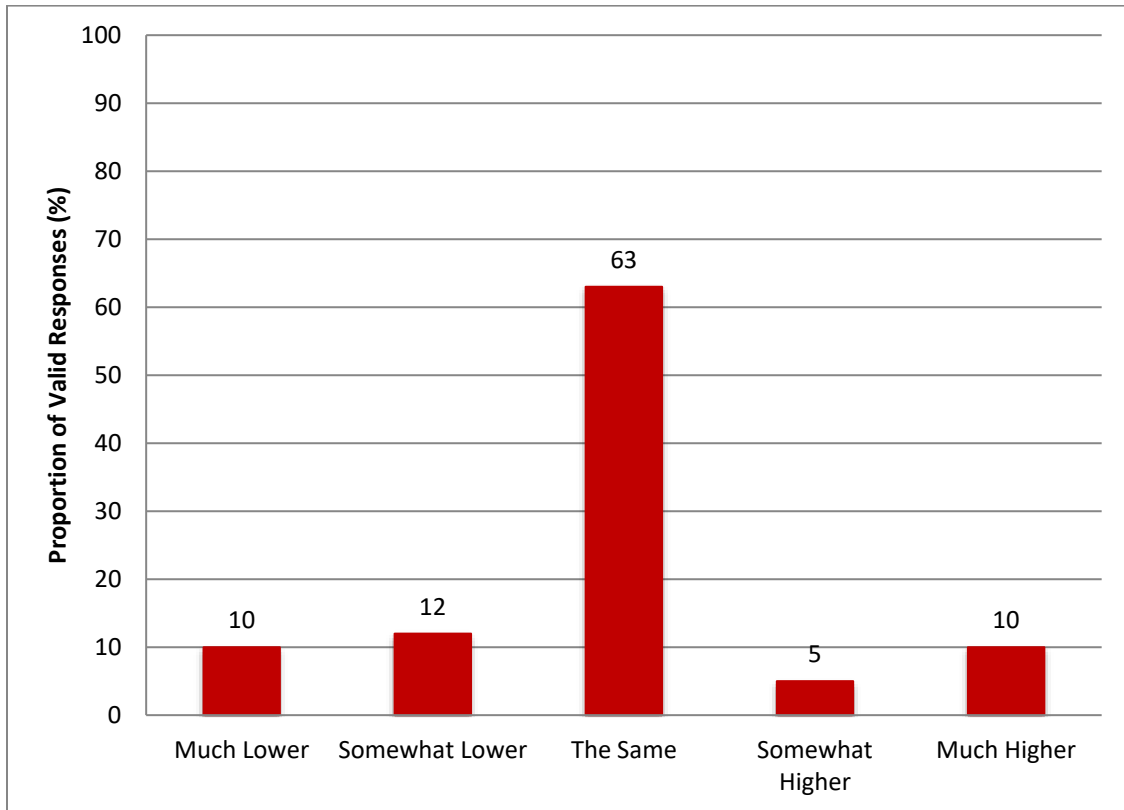
During the winter storm there were many reports of the health of Texans who depend on medical equipment powered by electricity in their home or outside it (such as at a dialysis center) being put at risk. The respondents were asked if the electrical power outages adversely affected a family member whose health depends on medical equipment powered by electricity. Figure 11 reveals that 15% of Texans answered yes, ranging from 11% of Anglos to 19% of African Americans.

Figure 11. Did Power Outages Adversely Affect a Family Member Whose Health Depends on Medical Equipment Powered by Electricity?



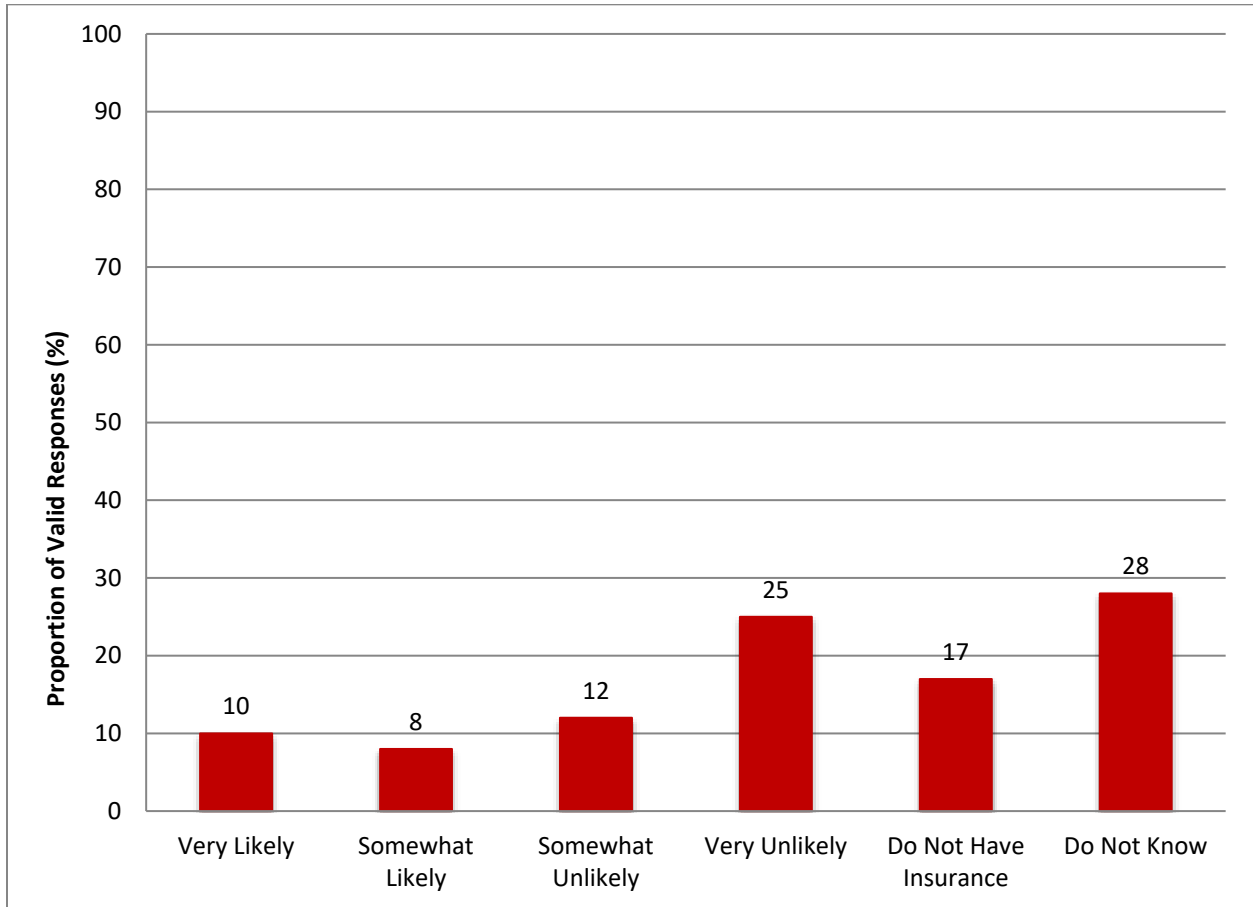
The winter storm and the need for people to seek shelter and warmth in often crowded conditions also raised fears that many Texans were not as observant of social distancing during the week of February 14-20 as they had been in prior weeks. Figure 12 suggests these fears were by and large unfounded, with the social distancing of 63% of Texans unchanged, and 15% reporting higher than normal observance of social distancing that week. In all, only one in five Texans (22%) reported that their level of social distancing observance during the week of the winter storm was lower than normal, with 10% reporting it being much lower and 12% reporting it being somewhat lower.

Figure 12. Level of Observance of Social Distancing the Week of February 14-20 Compared to the Previous Week of February 7-13



In Figure 9 (and Table 2) 31% of Texans reported that they suffered water damage to their home from the storm. These individuals were then asked a follow-up question, of how likely is it that insurance will cover the full amount of the damages. The responses to this query are detailed in Figure 13. Only 18% believed that it was either very likely (10%) or somewhat likely (8%) that insurance would cover the cost of all of the damages, with 37% considering it unlikely (12% somewhat unlikely and 25% very unlikely), 17% reporting that they did not have insurance, and another 28% responding that they did not know.

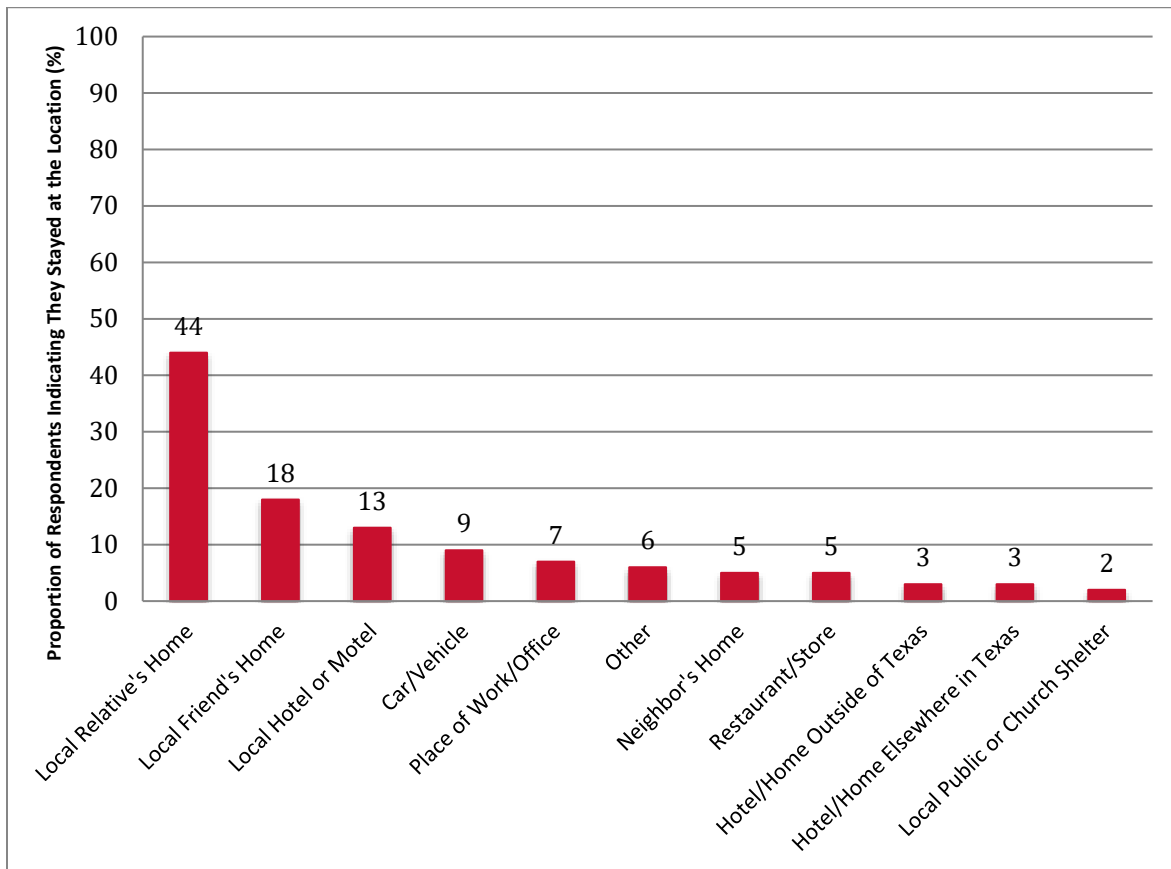
Figure 13. Among Those Who Suffered Damages from Storm, How Likely Is It that Insurance Will Cover the Full Amount of the Damages?



Coping with the Loss of Heat

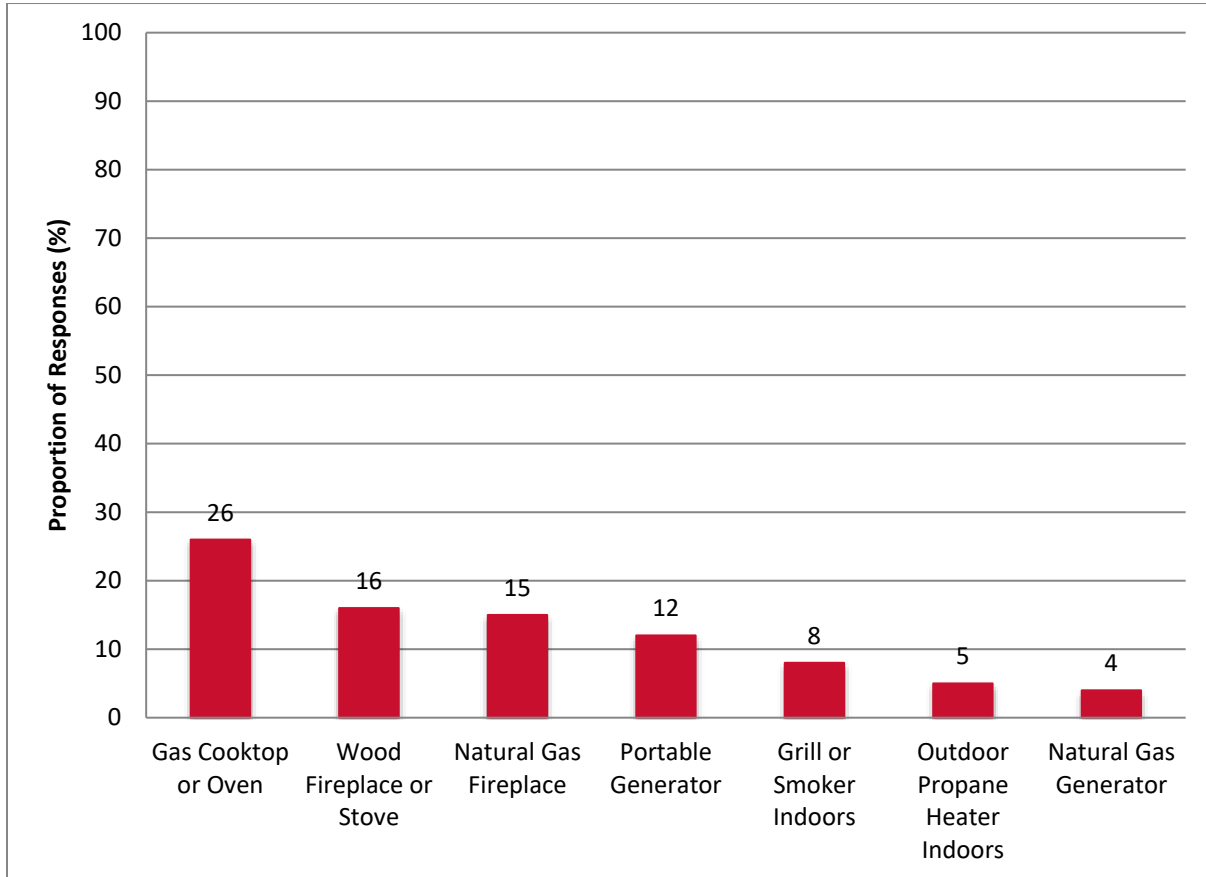
When the power went off in their home and temperatures began to drop near or below freezing indoors, one in five (18%) Texans opted to leave their home. Of these individuals, Figure 14 reveals that the largest proportion (44%) of this one-fifth of Texans went to the home of a relative in their area, with the next largest proportions going to a local friend's house (18%) or to a local hotel or motel (13%). The remaining destinations were all in the single digits, ranging from their vehicle (9%) or place of work (8%), to a restaurant or store (5%), to a local public or church shelter (2%), to a hotel or home elsewhere in Texas (3%), and to a hotel or home outside of the state (3%).

Figure 14. Where the 1/5 of Texans Who Lost Power and Left Home Stayed During the Winter Storm



For the majority of Texans who remained in their home, Figure 15 presents the main strategies they used to try to stay warm during the electrical power outage. More than one in four (26%) used their gas oven or cooktop as a source of heat, with slightly less than one in six using either a wood fireplace or stove (16%) or natural gas fireplace (15%) with the same goal. One in ten Texans (12%) utilized a gasoline or diesel portable generator to stay warm while one in twenty-five (4%) used a natural gas generator. Finally, in spite of the risk of carbon monoxide poisoning, desperate to stay warm, 8% of Texans fired up a grill or smoker indoors while 5% used an outdoor propane heater indoors.

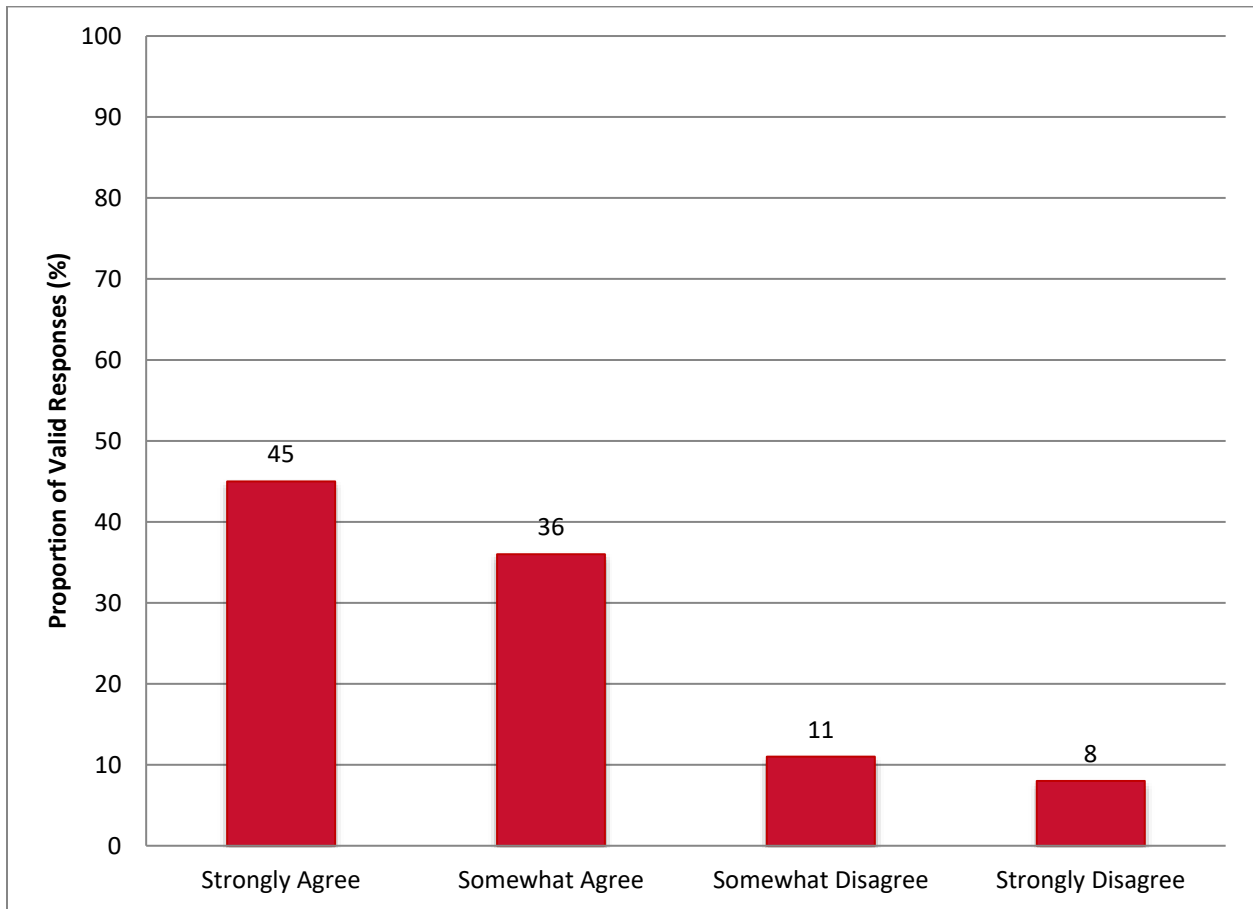
Figure 15. Most Common Sources of Heat While Electricity Was Off



Government, Public Officials, Public Utilities and the Winter Storm

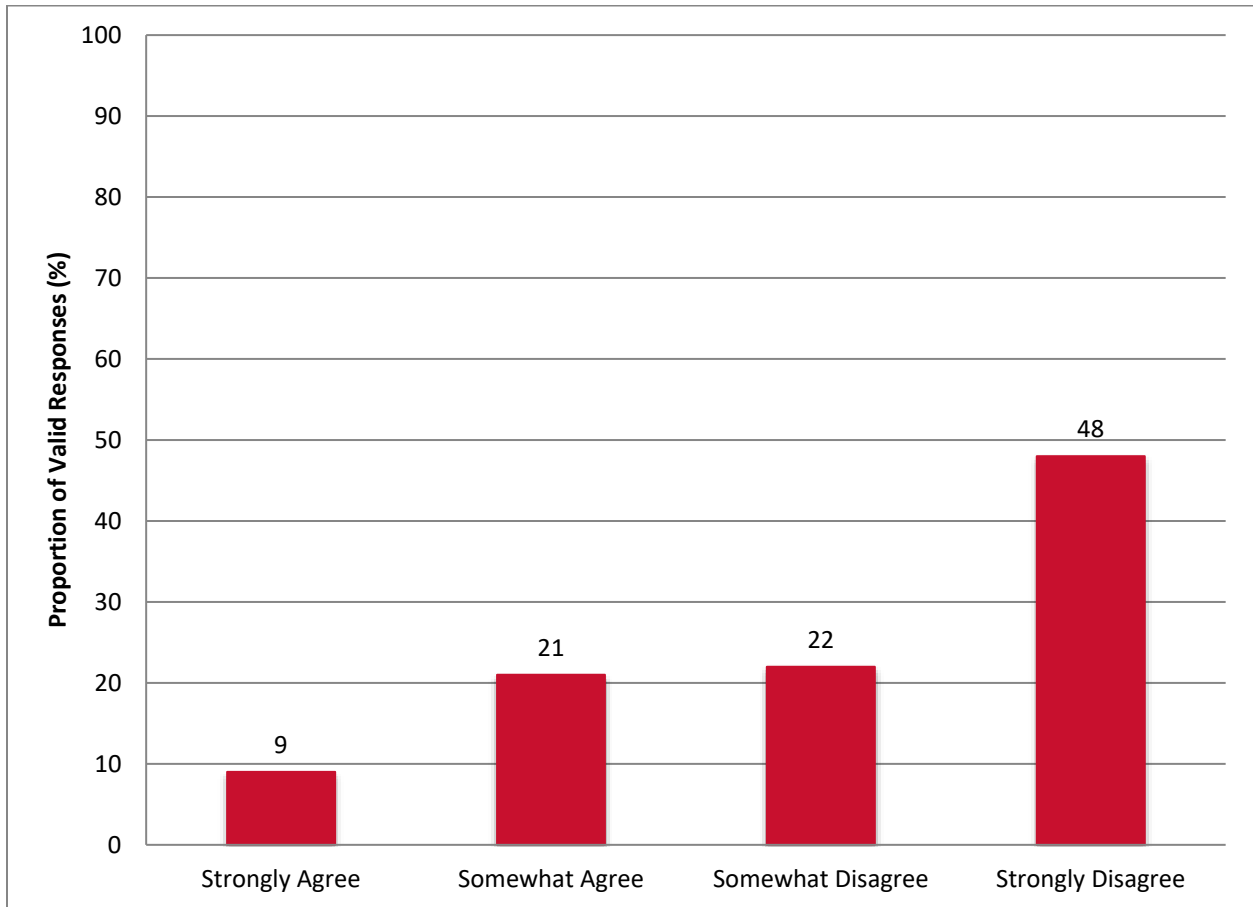
Texans were asked the extent to which they agreed or disagreed with a statement that their ability to prepare for and respond to the winter storm would have benefited from more timely and accurate information before, during, and after the storm during the week of February 14-20. As Figure 16 underscores, an overwhelming majority (81%) agreed that they would have benefited from more timely and accurate information (45% strongly and 36% somewhat), compared to only 19% who disagreed (8% strongly and 11% somewhat).

Figure 16. Ability to Prepare for and Respond to the Winter Storm Would Have Benefited from More Timely and Accurate Information Before and After It Hit



A substantial majority of these Texans also, rightly or wrongly, believe that the cuts in electrical power in their area were not carried out in an equitable manner (see Figure 17). When respondents were queried on the extent to which they agreed or disagreed with a statement that the cuts in electrical power in their area were carried out in an equitable manner, 70% disagreed (48% strongly and 22% somewhat), compared to only 30% who agreed (9% strongly and 21% somewhat).

Figure 17. Agreement/Disagreement that the Cuts in Electrical Power in Your Area Were Carried Out in an Equitable Manner



The respondents were also asked to evaluate the job performance (including communication with the public) of a set of 11 elected officials, governments, and entities during the winter storm that took place between February 14-20. Respondents were given the options of strongly approve, somewhat approve, neither approve nor disapprove, somewhat disapprove, strongly disapprove, or don't know. Table 3 provides the results. The proportion of Texans who approve of the performance of the individuals, governments or entities range from highs of 32% (President Joe Biden) and 28% (the respondent's mayor) to lows of 10% (the Public Utility Commission [PUC] of Texas) and 6% (ERCOT, the Electric Reliability Council of Texas).

The proportion of Texans who disapprove of the performance of the individuals, governments or entities range from highs of 73% for ERCOT and 56% for the PUC to lows of 23% for their county judge and 25% for both their county government and for their mayor.

Table 3. Evaluating the Job Performance of Elected Officials and Governments During the Winter Storm
Percentage Distribution (%)

Elected Official/Government	Strongly Approve	Somewhat Approve	Neither Approve nor Disapprove	Somewhat Disapprove	Strongly Disapprove	Don't Know
Governor Greg Abbott	15	13	15	10	38	9
Texas State Government	10	15	19	11	34	11
Your County Judge	14	11	26	7	16	26
Your County Government	9	15	30	9	16	21
Your Mayor	14	14	27	8	17	20
Your Municipal Government	8	14	30	9	17	22
Your Local Electric Utility	11	15	23	14	27	10
ERCOT	3	3	11	9	65	9
Public Utility Commission of Texas	3	7	17	14	42	17
President Joe Biden	21	11	21	5	32	10
Federal Government	10	14	26	11	26	13

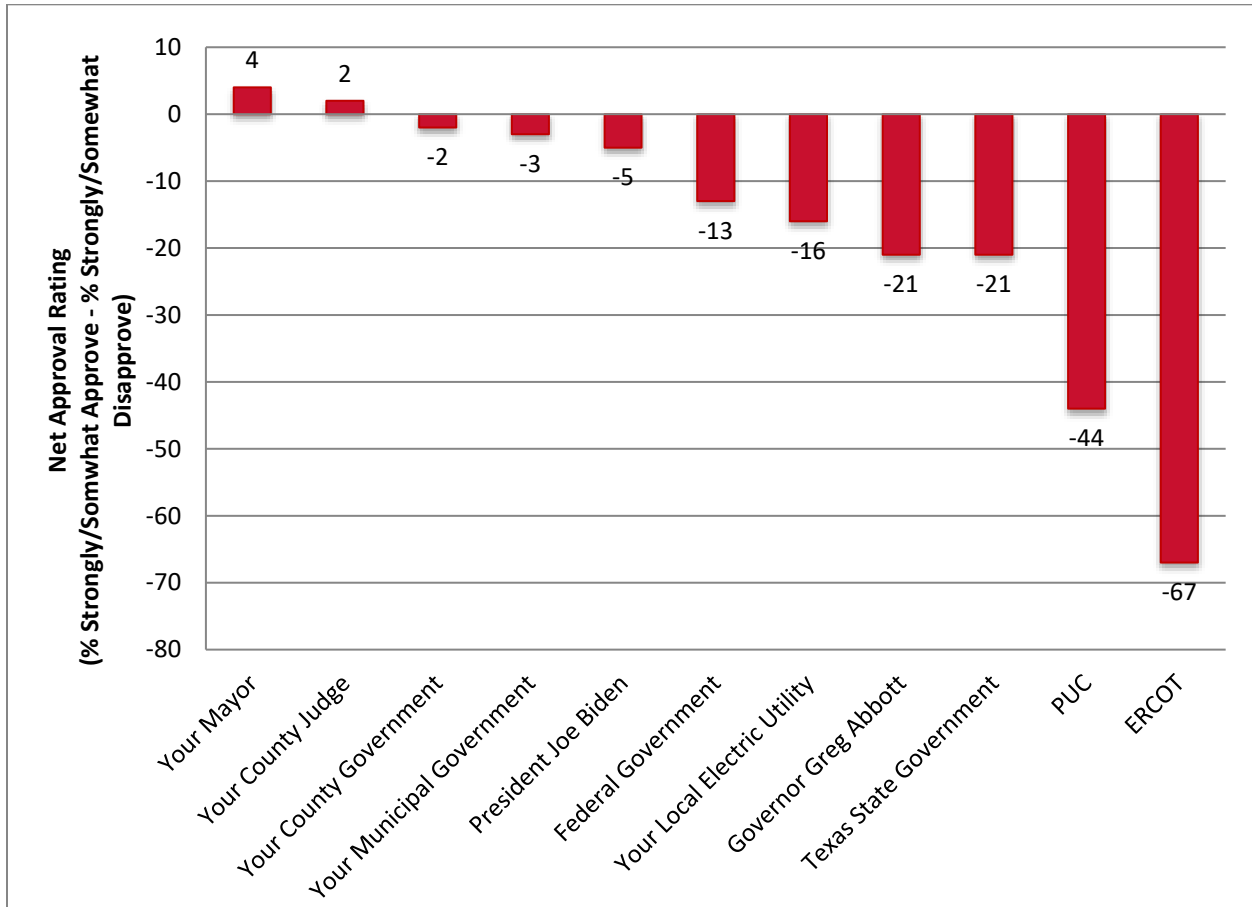
For the two elected officials mentioned statewide by name, Governor Greg Abbott and President Joe Biden, there existed sharp partisan differences in regard to their approval ratings.

More than one-half (57%) of Republicans approved (34% strongly and 23% somewhat) of Abbott's performance during the winter storm compared to one-sixth (17%) who disapproved (11% strongly and 6% somewhat). In sharp contrast, fewer than one in ten (9%) Democrats approved (4% strongly and 5% somewhat) of Abbott's performance while 77% disapproved (63% strongly and 14% somewhat).

More than three-fifths (64%) of Democrats approved (45% strongly and 19% somewhat) of Biden's performance during the winter storm compared to less than one-tenth (7%) who disapproved (3% strongly and 4% somewhat). Conversely, fewer than one in ten (7%) Republicans approved (4% strongly and 3% somewhat) of Biden's performance while 70% disapproved (65% strongly and 5% somewhat).

Figure 18 provides the net approval rating (percentage who strongly approve or somewhat approve minus percentage who strongly disapprove or somewhat disapprove) for each of the 11 elected officials, governments, and entities. Only two of the 11 have a positive net approval rating, with both being local level elected officials, the respondent's mayor (+4%) and their county judge (+2%). The remaining nine all have negative net approval ratings, ranging from -2% (their county government) and -3% (their municipal government) to -44% (PUC) and -67% (ERCOT).

Figure 18. Net Approval Ratings of the Performance of Elected Officials & Governments During the Winter Storm



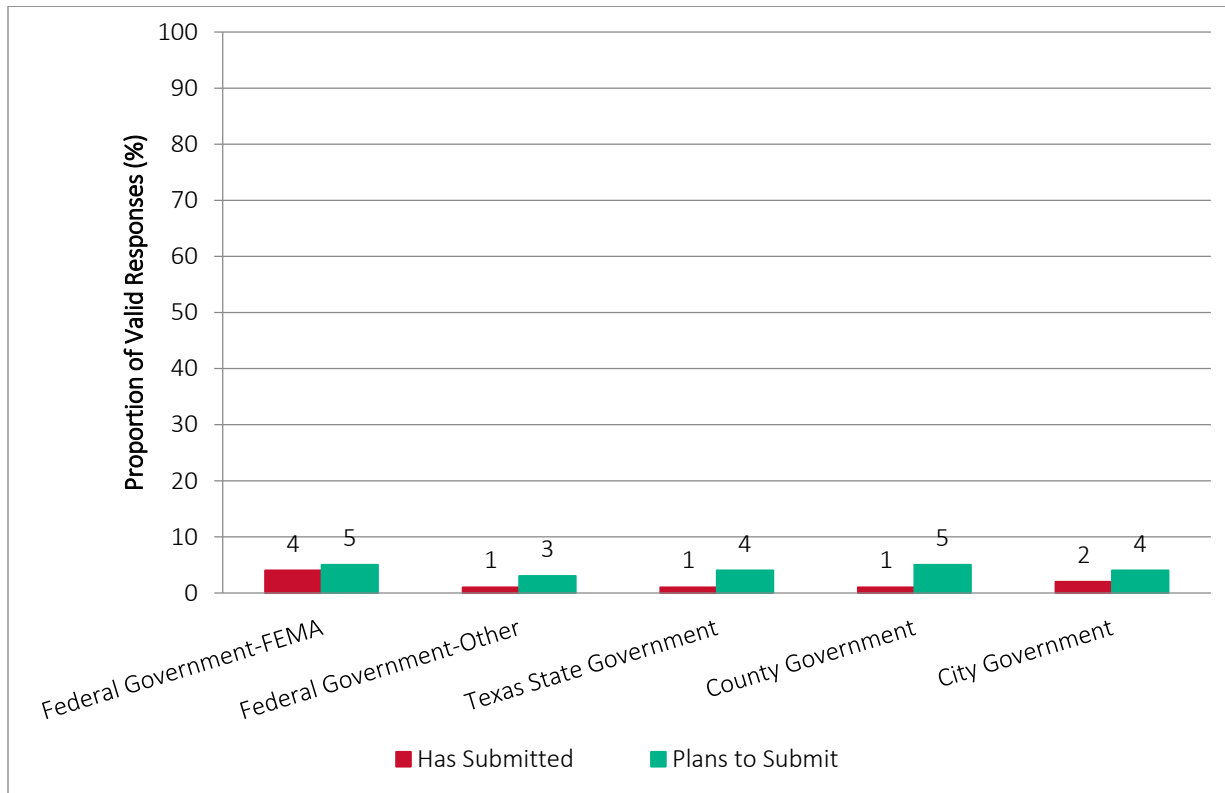
Texans also were asked what type of impact the winter storm would have on their 2022 vote decision. The options were that it would have no impact since they would not be voting in 2022, that it would not be a factor in their vote decision, that it would be one of many factors in their vote decision, and it would be a very important factor in their vote decision. Table 4 highlights the relatively equal distribution of the 86% of Texans who may vote in 2022, with 28% saying the winter storm would be a very important factor in their vote decision, 29% reporting it would be one of many factors, and 29% stating that it would not be a factor in their 2022 vote decision. Slightly more than one-half (51%) of Republicans report that the winter storm will not be in factor in their 2022 vote decision compared to slightly less than a third (31%) of Democrats. Conversely, slightly less than half (47%) of Democrats report that the winter storm will be a very important factor in their 2022 vote decision, compared to slightly less than one-seventh (14%) of Republicans. Independents were more evenly split between these two extremes, with 31% saying the winter storm would not be a factor in their 2022 vote decision and 22% saying that it would be a very important factor.

Table 4. Impact of Winter Storm on 2022 Vote Decision?
 Percentage Distribution of Valid Responses (%)

Impact	All Texans	Democrats	Independents	Republicans
Very Important Factor	28	47	22	14
One of Many Factors	29	33	31	26
Not a Factor	29	13	31	51
Will Not Vote	14	7	16	9

Finally, Figure 19 reveals that to date, very few Texans have either submitted or are presently planning on submitting an application for aid to a range of federal, state, and local government entities. The highest proportion that has already submitted an application is found for those who have submitted to the Federal Emergency Management Agency (FEMA) to which 5% of Texans have submitted an application for aid, with the other entities registering proportions of Texans who have already submitted an application of between 1% and 2%. A slightly larger proportion of Texans plans to submit an application for aid to one or more of these government entities in the future, ranging from a low of 3% who plan to submit the application to a federal government entity other than FEMA to a high of 5% who plan to submit an application for aid to their county government and to FEMA.

Figure 19. Proportion of Texans Who Have Submitted or Are Planning to Submit Applications for Aid to Different Government Entities



Support for & Opposition to Potential Policy Reforms After the Winter Storm

Respondents were presented with 16 randomly rotated policies that have been proposed in Texas to safeguard the state from the effects of severe weather on its energy supply and delivery and asked to what extent they support or oppose each of the policies, with the specific response options including: strongly support, somewhat support, neither support nor oppose, somewhat oppose, strongly oppose, and don't know. Table 5 provides a summary of the support for and opposition to these 16 policies, and Table 6 summarizes the level of support (strongly support plus somewhat support) for these 16 policies.

Table 5. Support For & Opposition to Potential Policy Reforms After the Storm

Percentage Distribution of Valid Responses (%)

Policy Reform	Strongly Support	Somewhat Support	Neither Support nor Oppose	Somewhat Oppose	Strongly Oppose
Require EG to Fully Weatherize	56	22	16	4	2
Require NG Pipelines to Fully Weatherize	55	23	16	3	3
PUC Oversight of EG Weatherization Efforts	55	22	17	3	3
Require EG to Maintain Reserve Capacity	52	26	17	3	2
\$25k to \$100k Increase of Daily Utility Penalty Cap	52	19	20	4	5
Upgrade Building Codes-More Climate-Resistant	43	25	20	6	7
Solar Bill of Rights	40	24	23	4	9
Suspend NG Shipments in Severe Weather	39	22	25	6	8
State Subsidies for Low Income Weatherization	37	24	21	7	11
Merge TX Grid with National Grid(s)	36	14	18	9	23
End All Flaring by 2025 via Taxes/Regs/Incentives	31	17	30	6	16
EG Windfall Profits Tax when Price High	31	25	27	6	11
Allow ERCOT More Load Reduction Contracts	15	25	27	11	22
Consumer Fee for NG Pipeline Weatherization	12	20	24	14	30
Consumer Fee for EG Reserve Capacity	8	16	22	18	36
Consumer Fee for EG Weatherization	6	12	20	20	42

Table 6. Partisanship and Support For & Opposition to Potential Policy Reforms After the Storm
Percentage Distribution of Valid Responses (%)

Policy Reform	All Texan Support	Democrat Support	Independent Support	Republican Support
Require EG to Fully Weatherize	78	84	75	79
Require EG to Maintain Reserve Capacity	78	82	77	78
Require NG Pipelines to Fully Weatherize	78	86	73	78
PUC Oversight of EG Weatherization Efforts	77	84	73	79
\$25k to \$100k Increase of Daily Utility Penalty Cap	71	77	72	68
Upgrade Building Codes - More Climate Resistant	68	82	66	59
Solar Bill of Rights	64	78	61	51
State Subsidies for Low Income Weatherization	61	80	53	51
Suspend NG Shipments in Severe Weather	61	61	59	65
EG Windfall Profits Tax when Price High	56	66	55	48
Merge TX Grid with National Grid(s)	50	75	42	33
End All Flaring by 2025 via Taxes/Regs/Incentives	48	69	45	32
Allow ERCOT More Load Reduction Contracts	40	43	37	43
Consumer Fee for NG Pipeline Weatherization	32	36	28	35
Consumer Fee for EG Reserve Capacity	23	28	20	21
Consumer Fee for EG Weatherization	18	23	14	18

More than two out of every three Texans support the following six policies:

- Require electricity generators (EG) to fully weatherize/winterize their plants to participate in the Texas market: 78% support (56% strongly and 22% somewhat),
- Require electricity generators (EG) to maintain a more substantial minimum electricity reserve capacity to participate in the Texas market: 78% support (52% strongly and 26% somewhat),
- Require natural gas (NG) pipeline companies to fully weatherize/winterize their infrastructure to participate in the Texas market: 78% support (55% strongly and 23% somewhat),
- Require the Public Utility Commission (PUC) of Texas to review, inspect and approve all weatherization/winterization efforts by electricity generation companies: 77% support (55% strongly and 22% somewhat),
- Increase the cap on penalties on utility companies for market manipulation and reliability failures from the current \$25,000 per day to \$100,000 per day: 71% support (52% strongly and 19% somewhat),
- Upgrade Texas building codes to require new construction to be more climate resilient: 68% support (43% strongly and 25% somewhat).

Furthermore, with one partial (though only partial) exception, all six of these policies enjoy robust bipartisan support. More than four-fifths of Texas Democrats support all but one of these policies, and even that exception (increasing the daily penalty cap on utility companies from \$25,000 to \$100,000), enjoys the support of more than three out of four Democrats (78%). And, more than three out of every four Republicans support all but one of these policies, and even that exception (upgrade Texas building codes to require new construction be more climate resilient) is still supported by 59%.

Six policies do not enjoy the support of an absolute majority of Texans:

- Merge the currently separate Texas electrical grid with one of the two national grids (the Eastern or the Western): 50% support (36% strongly and 14% somewhat),
- Tax the flaring of methane gas from Texas oil & natural gas wells and end all flaring by 2025 via economic incentives and regulations: 48% support (31% strongly and 17% somewhat),
- Allow ERCOT to enter into more contracts with industrial and large commercial clients, providing them lower electricity rates in exchange for their agreement to shut down or reduce their electricity use when electricity demand is expected to approach or exceed supply: 40% support (15% strongly and 25% somewhat),
- Allow natural gas (NG) pipeline companies to charge industrial clients and consumers an additional fee to fully weatherize/winterize their infrastructure: 32% support (12% strongly and 20% somewhat),
- Allow electricity generators (EG) to charge consumers an additional fee to support the maintenance of a more substantial minimum electricity reserve capacity by generators: 23% support (8% strongly and 16% somewhat),
- Allow electricity generators (EG) to charge consumers an additional fee to pay for weatherization/winterization: 18% support (6% strongly and 12% somewhat).

Democrats, Independents, and Republicans are all in agreement in their lack of support for policy reforms that would allow electricity generators and pipeline companies to charge consumers an additional fee to pay for either weatherization or the maintenance of reserve capacity. They also are all in sync in their tepid level of support for allowing ERCOT to enter into more load reduction contracts.

In contrast, Democrats (75% and 69%) are significantly more likely than Independents (42% and 45%) and, especially, Republicans (33% and 32%) to support both merging the Texas electrical grid with either the Eastern and/or Western Interconnection electrical grids and the taxing of the flaring of methane gas and ending all flaring by 2025, respectively.

Opposition is strongest to the related proposals that would allow electricity generation companies to charge consumers an additional monthly fee to pay for weatherization efforts (opposed by 62%) and to pay for companies to increase their amount of reserve generation capacity (opposed by 54%).

Finally, there exists strong majority, but not overwhelming majority, support for four policies:

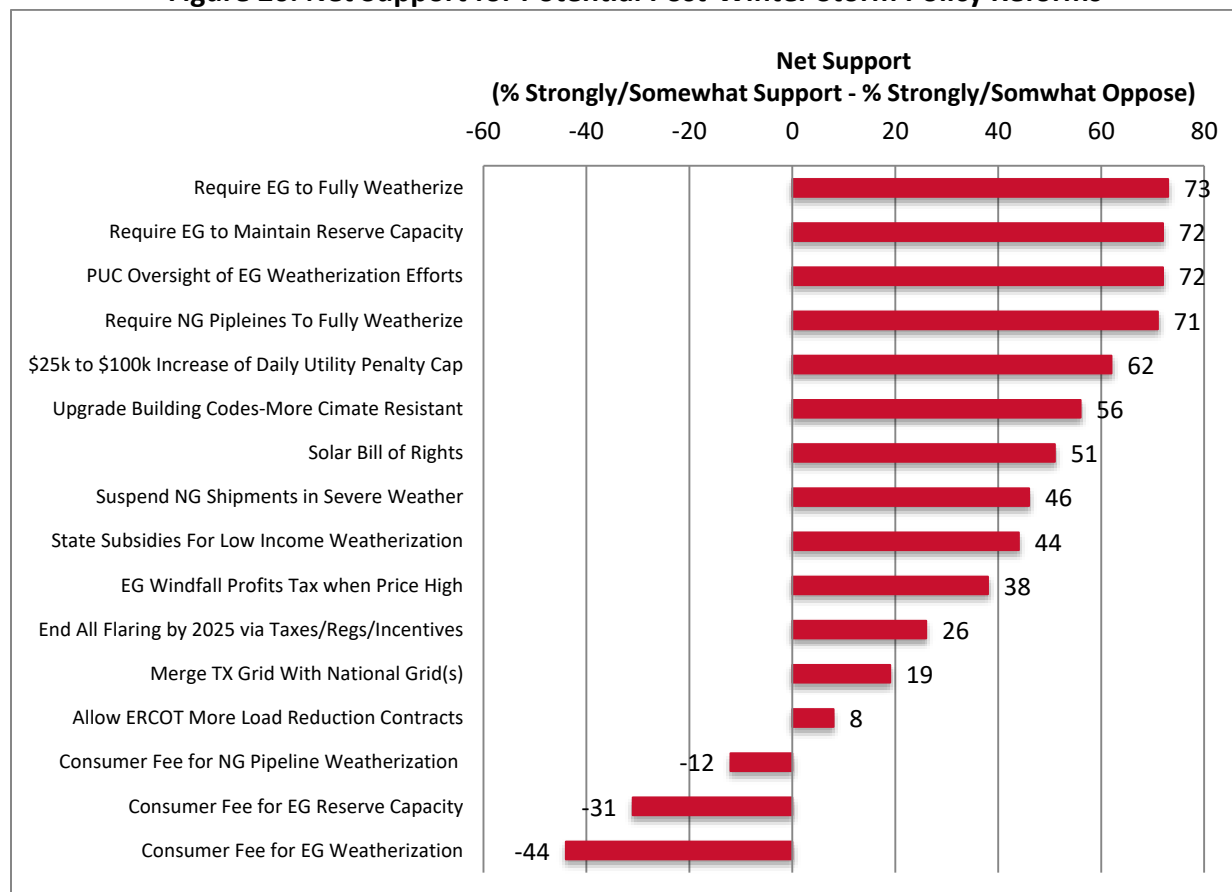
- Adopt a Texas solar bill of rights to insure consumers are provided full information by solar installation companies and to prevent cities from placing restrictions on the installation of solar energy devices that are more restrictive than a homeowner's HOA: 64% support (40% strongly and 24% somewhat),
- Have the state provide subsidies to assist low income Texans with home weatherization to increase energy efficiency: 61% support (37% strongly and 24% somewhat),
- Require the Texas governor to suspend out of state shipments of Texas natural gas (NG) when weather like that February 14-20 is forecast: 61% support (39% strongly and 22% somewhat),
- Adopt a windfall profits tax for electricity generators on any profit when the megawatt hour (MWh) price rises above the high end of the grid's normal range of \$50 per MWh, and use this tax revenue to support energy resiliency efforts: 55% support (31% strongly and 25% somewhat).

Democrats, Independents, and Republicans possess similar levels of support for the policy reform that would require the governor to suspend out of state shipments of natural gas in the event of severe weather like that in February, with support ranging from a high of 65% among Republicans to a low of 59% among Independents, with Democrats in between at 61%.

In contrast, there exist sharp partisan differences in regard to support for the other three policies. Large majorities of Democrats favor all three policies compared to narrow majorities of Republicans (or slightly less than a majority in one case), with Independents in between, although on average leaning closer to the Republicans than to the Democrats. While 80% of Democrats support the adoption of state subsidies to assist low income Texans with home weatherization to increase energy efficiency, only a bare majority of Independents (53%) and Republicans (51%) support this policy. More than three-fourths (78%) of Democrats support the adoption of a solar bill of rights, compared to 61% of Independents and 51% of Republicans. Finally, while two-thirds (66%) of Democrats support the adoption of a windfall profits tax on electricity generators, Republican support is slightly below the 50% mark (at 48%), while Independent support registers 55%.

Figure 20 summarizes the information contained in Table 5 via a metric that represents the net support among Texans for the 16 policy proposals, with net support calculated by summing the proportion of respondents who strongly support and somewhat support the policy, and then subtracting from this value the sum of the proportion of Texans who strongly oppose and somewhat oppose the policy.

Figure 20. Net Support for Potential Post-Winter Storm Policy Reforms



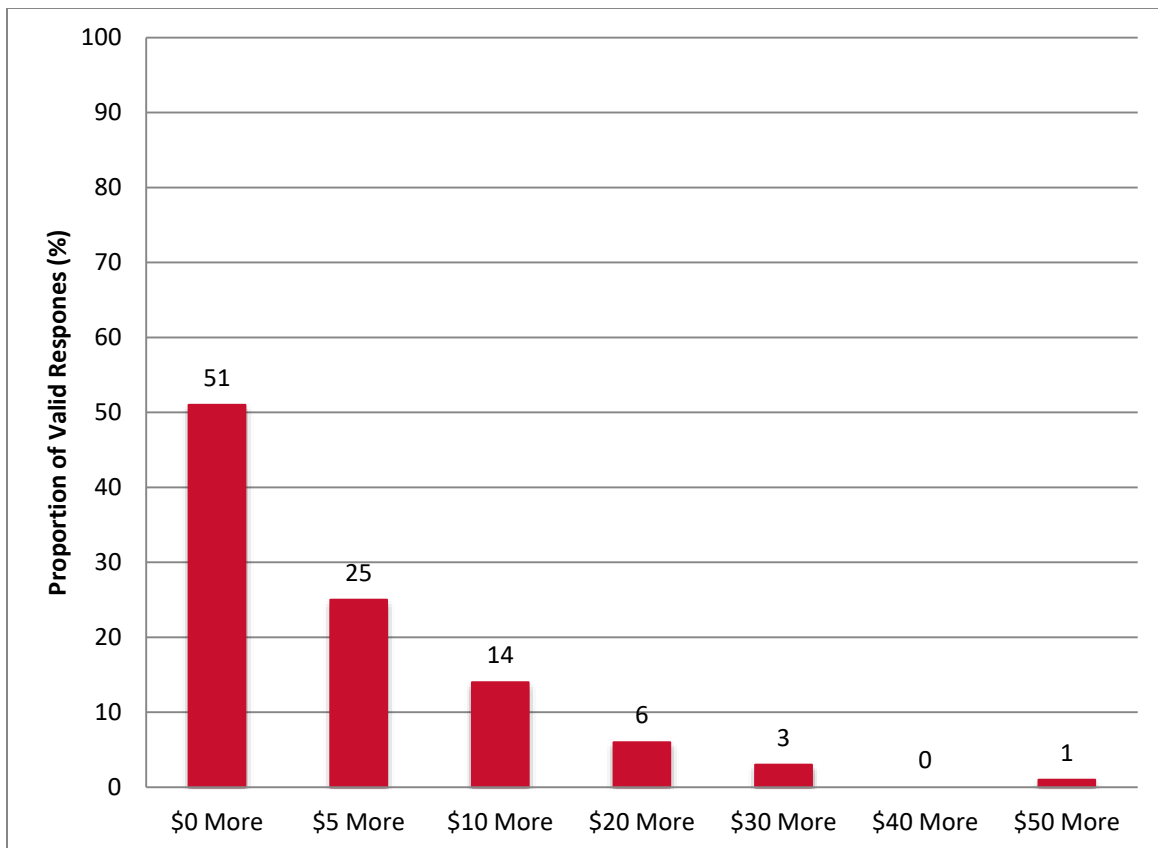
Thirteen of the 16 policies enjoy positive net support scores, while three of the policies possess negative net support scores. The four policies that stand out as having the highest net support scores are those which would require electrical generators (EG) to fully weatherize/winterize to participate in the Texas market (+73%), require electrical generators (EG) to maintain a more substantial reserve capacity to participate in the Texas market (+72%), require the Public Utility Commission (PUC) of Texas to review, approve, and inspect all winterization efforts by electricity generation companies (+72%), and require natural gas (NG) companies to fully weatherize/winterize in order to participate in the Texas market (71%).

The three policies with negative net support ratings all would impose a fee on consumers in order to pay for the weatherization of their facilities by electricity generators (-44%) and natural gas companies (-12%) as well as allow electricity generators to maintain a more substantial minimum reserve capacity (-31%).

As Figure 20 makes crystal clear, there is not a great deal of support among Texas consumers for fees to support efforts such as winterization and the development of greater reserve generation capacity with

the goal of preventing the repeat of the 2021 Valentine’s Day debacle. That said, the survey did ask Texans what additional amount they would be willing to pay on their monthly electricity bill to safeguard the Texas electrical grid from severe weather such as that experienced during the week of February 14-20. A bare absolute majority of Texans (51%) indicated (see Figure 21) that they would not be willing to pay any additional fee to support these efforts. The next most common option selected was the next lowest amount available on the survey of \$5 more, which one-quarter (25%) of Texans said they would be willing to pay each month. These amounts were followed by 14% who indicated they would be willing to pay \$10 more monthly, with the remaining 10% of Texans spread among those who would be willing to pay \$20 more (6%), \$30 more (3%), \$40 more (0%), and \$50 more (1%).

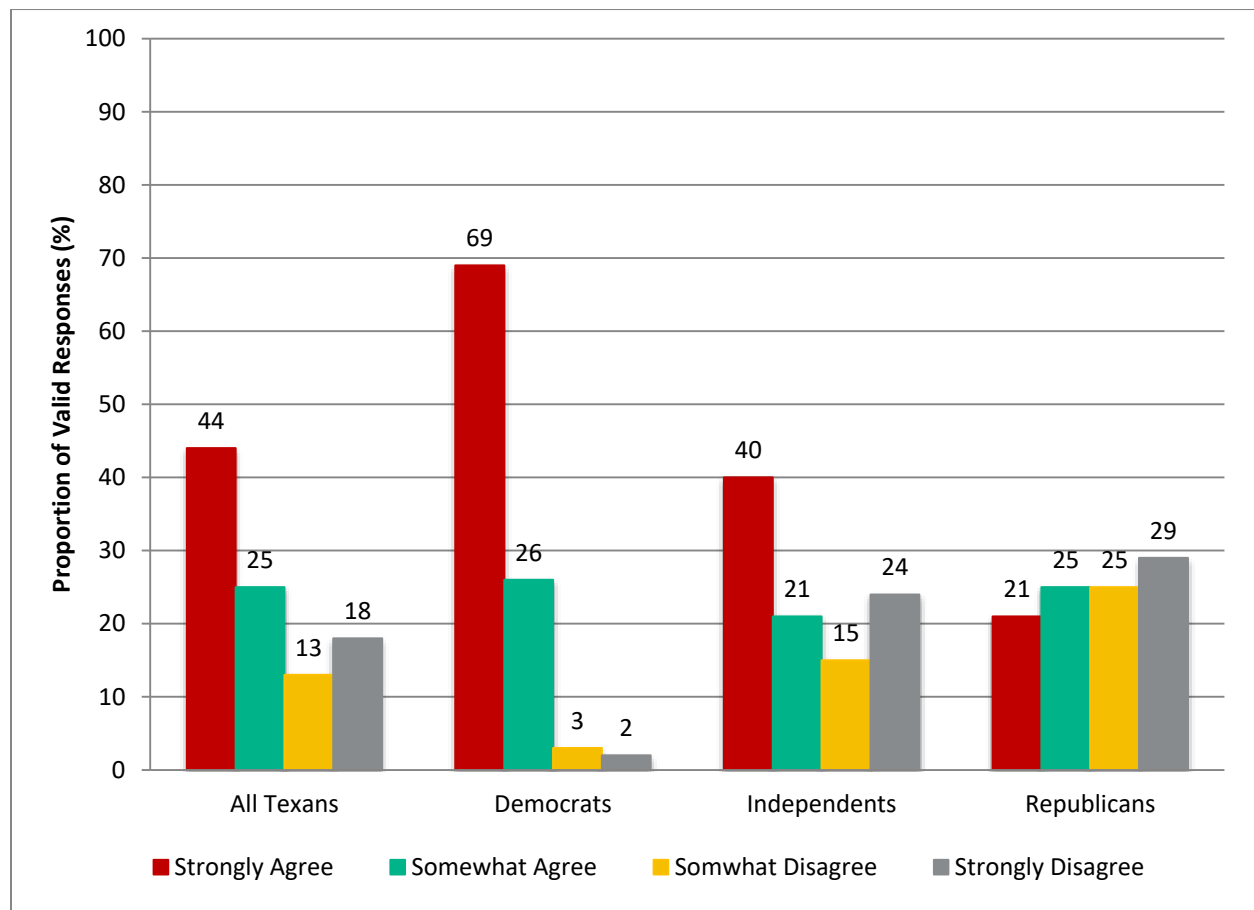
Figure 21. Additional Amount Willing to Pay on Monthly Electricity Bill to Safeguard Texas Electrical Grid from Severe Weather



Climate Change and Severe Weather

The survey respondents were asked the extent to which they agreed (strongly or somewhat) or disagreed (strongly or somewhat) with the following statement: “Due to climate change, Texas is today more likely to be adversely affected by severe weather than was the case thirty years ago.” Figure 22 reveals that more than two-thirds (69%) of Texans either strongly agree (44%) or somewhat agree (25%) with this statement, while less than one-third (31%) of Texans either strongly disagree (18%) or somewhat disagree (13%) with this statement. Virtually all Democrats (95%) agree with the statement (69% strongly), along with three-fifths (61%) of Independents (40% strongly). In contrast, only 46% of Republicans agree with this statement (21% strongly), while 54% disagree with it (29% strongly).

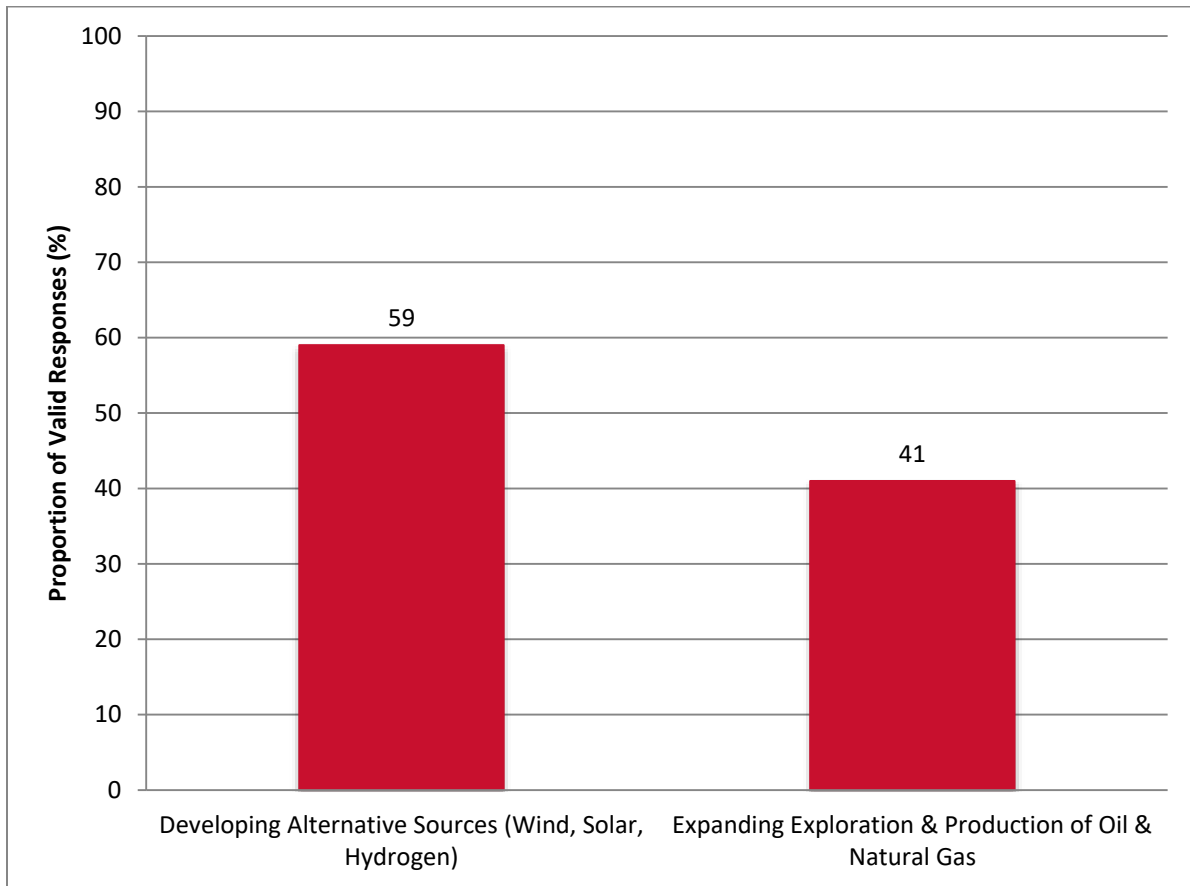
Figure 22. Agreement/Disagreement that Due to Climate Change Texas is More Likely to be Adversely Affected by Severe Weather than 30 Years Ago



Sources of Energy for America

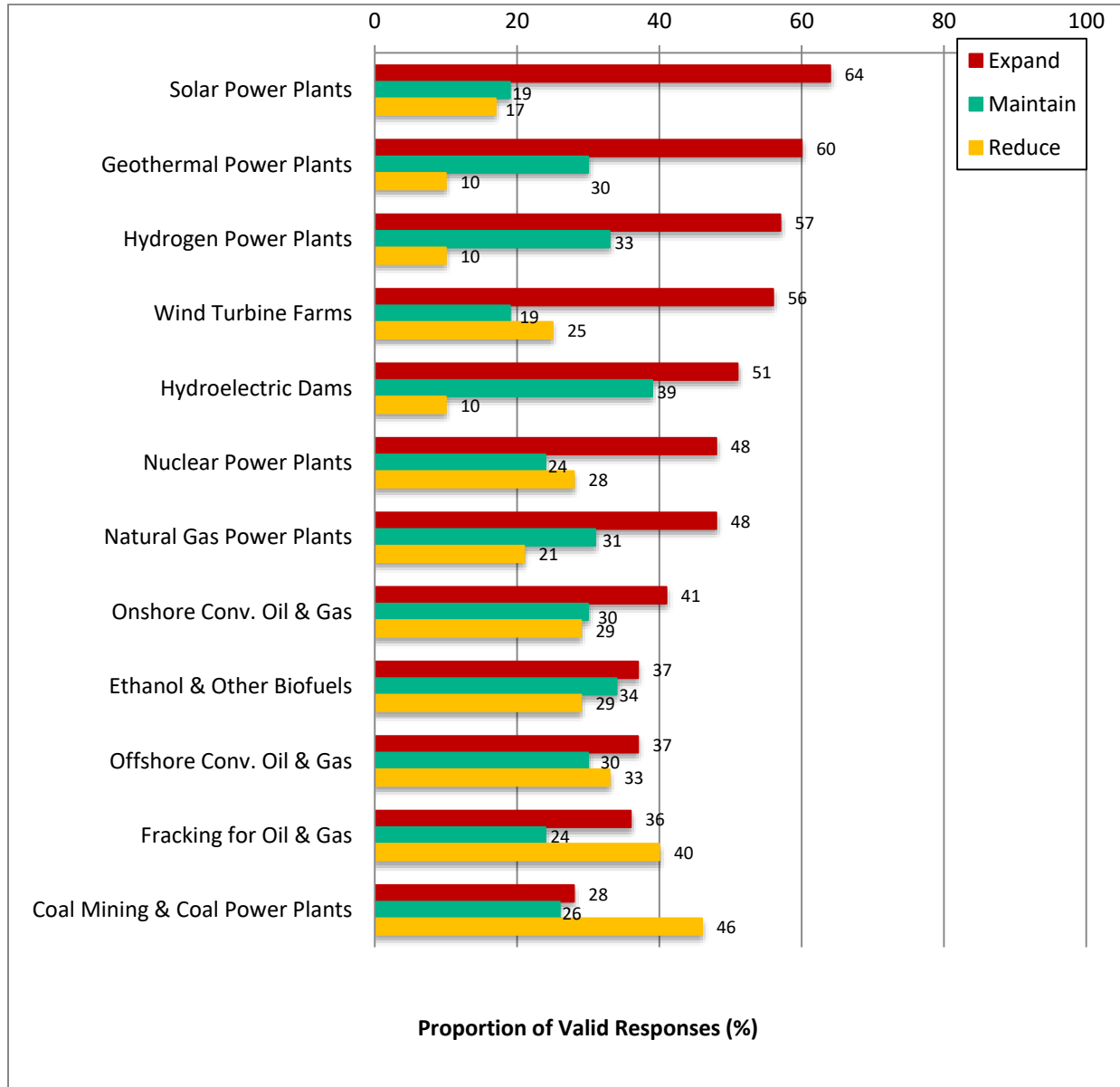
The survey respondents were asked, “Right now, which one of the following do you think should be the more important priority for addressing America’s energy supply? The three response options included developing alternative sources such as wind, solar and hydrogen, expanding exploration and production of oil and natural gas, and don’t know. Figure 23 indicates that 59% of Texans with an opinion believed it was more important to develop alternative sources such as wind, solar and hydrogen, while 41% believed it was more important to expand the exploration and production of oil and natural gas. There exists a strong partisan divide in regard for the direction Texans would like to see America move in order to address its energy supply. Democrats overwhelmingly favor alternative sources such as solar, wind and hydrogen, 85% to 15%, while Republicans overwhelmingly favor oil and natural gas, 77% to 23%. Independents occupy a middle space between these two extremes, with 59% favoring developing alternative sources and 41% expanding oil and natural gas.

Figure 23: Right Now, Which of the Following Do You Think Should Be the More Important Priority for Addressing America's Energy Supply



Finally, the respondents were queried about whether they favor expanding, reducing or maintaining at the present level 12 different sources of energy in the United States. Figure 24 provides the distribution of support for expanding, maintaining, and reducing the 12 different sources of energy.

**Figure 24. Support for Expanding, Reducing or Maintaining at the Present Level
12 Sources of Energy in the United States**



More than half of Texans favor expanding five sources of energy, all of which fall under the renewable or alternative rubric: solar power plants (64%), geothermal power plants (60%), hydrogen power plants (57%), wind turbine farms (56%), and hydroelectric dams (51%). In contrast, a plurality of Texans favor reducing U.S. reliance on two sources of energy: coal mining and coal power plants (46%) and fracking for oil and natural gas (40%). Intermediate between these two extremes are sources such as nuclear power plants (48% favor expanding, 28% favor reducing), natural gas power plants (48%, 21%), onshore conventional oil and natural gas drilling (41%, 29%), ethanol and other biofuels (37%, 29%), and offshore conventional oil and natural gas drilling (37%, 33%).

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