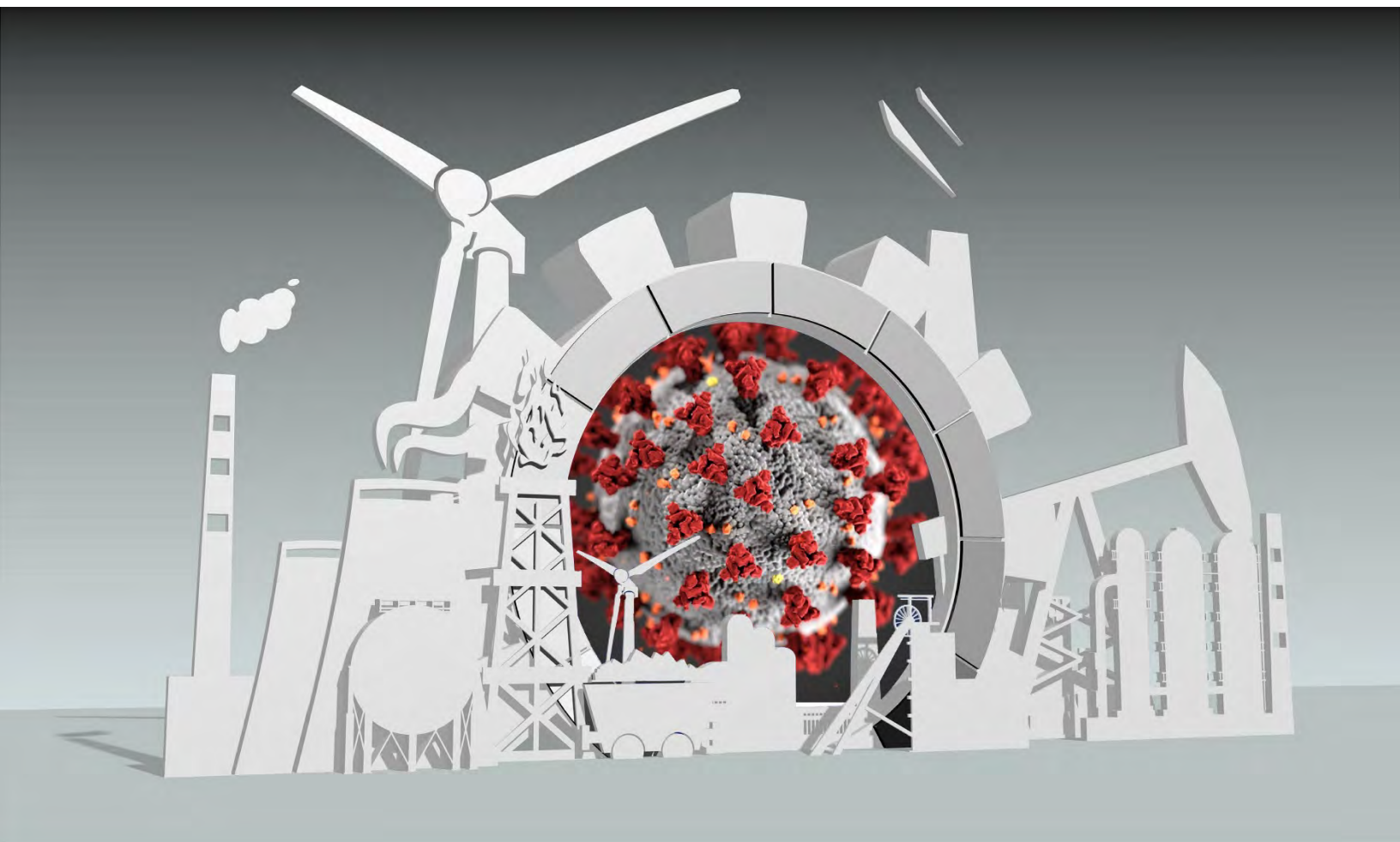




# **CORONAVIRUS U.S. GAS & ELECTRIC MARKET IMPACT STUDY**



**April 9, 2020**

Publisher Information

# CORONAVIRUS U.S. GAS & ELECTRIC MARKET IMPACT STUDY

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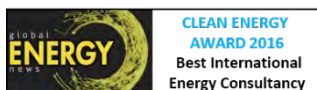
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- Inc. 500 Fastest Growing – 3 Times
- 8 Boards of Directors

- >300 Energy Technology Implementations
- Two-time winner Energy Risk Magazine "1st in Project Delivery"
- Founded and Sold Energy Trading & Risk Management Software Business



## Introduction & Methodology

This study is concentrated on U.S. natural gas and electricity markets. While the coronavirus impacts are wide and deep, this study focuses on two particular aspects, the anticipated impact on business operations and demand destruction and economic loss in the electricity sector. Demand destruction and economic loss in the natural gas sector were studied, however not included in this report as it was determined too many factors skew the results and may lead to erroneous conclusions.

The study was purposefully conducted very early in the U.S. awareness of the severity of the coronavirus so that early perceptions and resulting decisions made can be benchmarked against actual results and impacts to hopefully improve planning for future crises.

To assess the anticipated business operations impacts, a nationwide survey of management-level personnel was conducted across a broad mix of energy industry participants. The following Table 1 illustrates the timing of survey responses compared to the spread of the coronavirus and government responses.

Survey Response Date	% of Survey Responses	# of U.S. COVID-19 Cases	# of U.S. COVID-19 Deaths	# States with Stay Home Order
March 19, 2020	50%	12,022	175	1
March 24, 2020	22%	52,690	681	14
March 27, 2020	20%	101,012	1,592	20
March 31, 2020	14%	186,082	3,806	28

Table 1

Source: Skipping Stone & Wikipedia

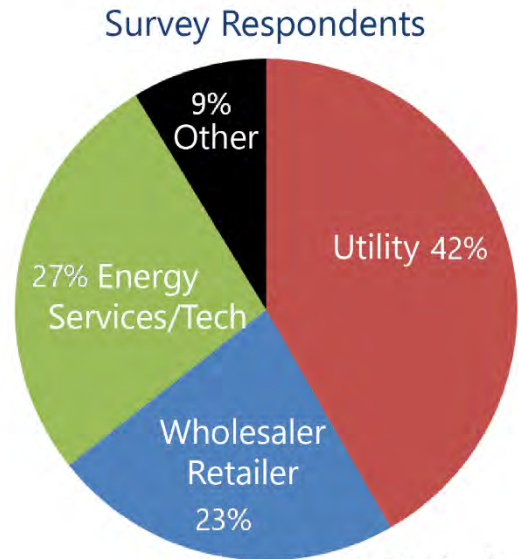
To assess electricity market demand destruction and economic impact, the study focuses on the supply side of the market. The supply side was chosen due to access to data from organized ISO (independent system operator) markets where all generation sources in a region are scheduled and priced within the ISO's market. The demand side is not included in this report due to limited or no access to timely data and a significant variety of customer types (residential, commercial, industrial) and company types supplying customers in different geographies nationally.

To assist with electricity demand destruction assessment, Skipping Stone enlisted Scoville Risk Partners. More specifics on the modeling methodologies are included in the Commodity Demand Description section.

## Business & Operations Impacts

The energy companies surveyed represent a cross-section of the natural gas and electricity industry. To present the results in a readable format, the companies have been categorized into three primary types, plus “others.”

- **Utility**  
Includes gas utilities, electric utilities, and combination gas and electric utilities
- **Wholesaler/Retailer**  
Includes electric generators, gas producers and pipelines, trading companies and retail suppliers. All companies in this category have direct involvement in one or both commodities.
- **Energy Services and Tech**  
Includes energy software and hardware vendors, consultants and service providers
- **Other**  
Includes a scattering of energy regulators, trade associations, and end-users



Source: Skipping Stone

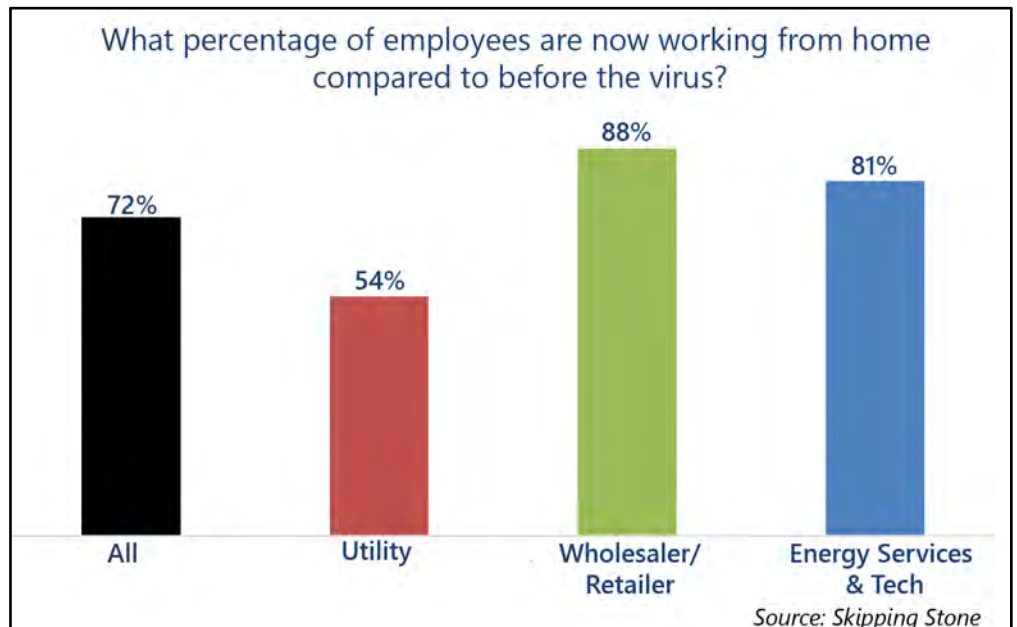
Chart 1

## Work from Home

One of the earliest business impacts of coronavirus is the shift from an office-centric work environment to a home-based work environment. As Chart 2 indicates all types of energy companies have experienced a significant shift to a home-based working environment.

Understandably, utilities are experiencing lower numbers as many utility job functions cannot be performed at home.

One interesting observation, based on the timing of this survey, is that energy companies were more progressive and timelier in shifting to a work from home model than state government mandates for staying at home.



Source: Skipping Stone

Chart 2

The unprecedented and quick transition to having most of the workforce working from home created numerous challenges. To measure the key challenges survey respondents could only select one answer among the choices provided.

Because the survey was conducted in March, which was early in the coronavirus response, the adjustment to this new work at home model had just begun. This period was also before companies executed cost reduction strategies as such as those reviewed in the next section.

Chart 3 reflects the challenges experienced by the different energy market sectors surveyed whose employees are now working from home. Respondents were allowed to select only one answer, so each challenge reflects a more accurate ranking of importance.

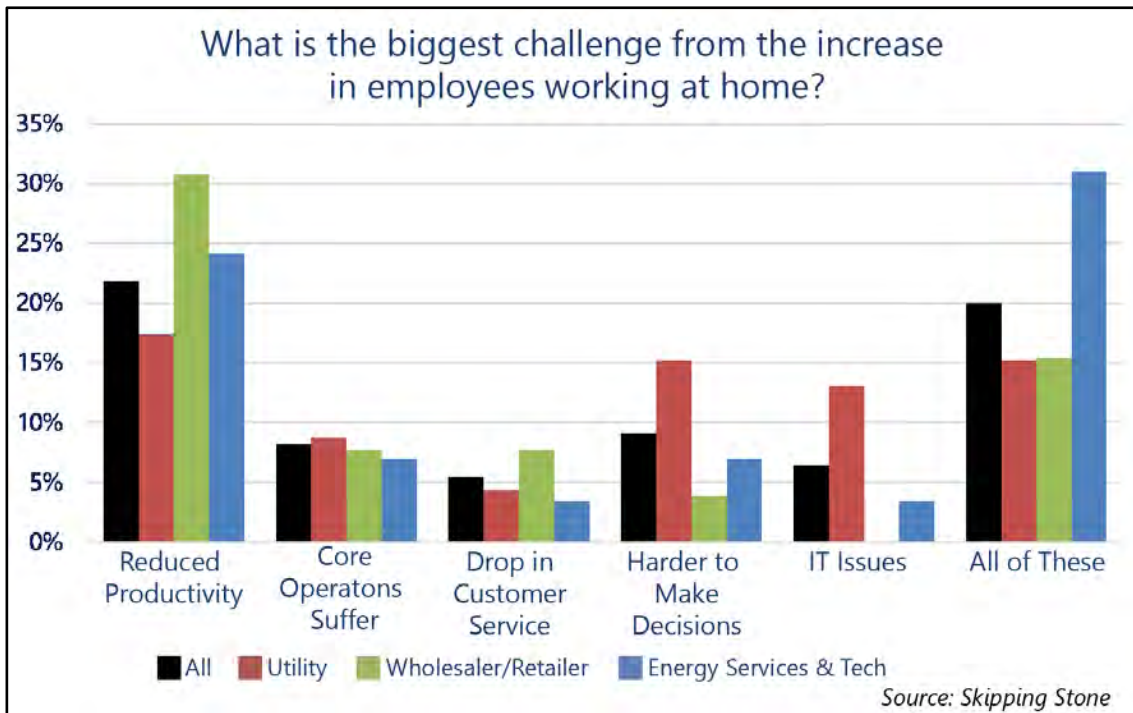


Chart 3

It is interesting that across the board companies were the least concerned about a drop in customer service levels, an indication that continuing customer service levels rank very high. A bit surprising are the utility numbers for IT issues, which we anticipated to be higher because many utilities do not have extensive remote internet access to key systems. Time will tell if the expected results for productivity reductions increase the numbers for core operations suffering.

About a third of respondents answered None of the Above on this question. The primary reason for this, as written in by respondents, was "managing remote employees." This is not surprising as the survey was targeted to get responses from management level people.

## Financial Impact & Planning

As the survey was conducted in March 2020, the financial impacts were still unknown by energy companies. The survey results are an indication of what management expected the impacts to be and how they planned to manage those impacts in the near future.

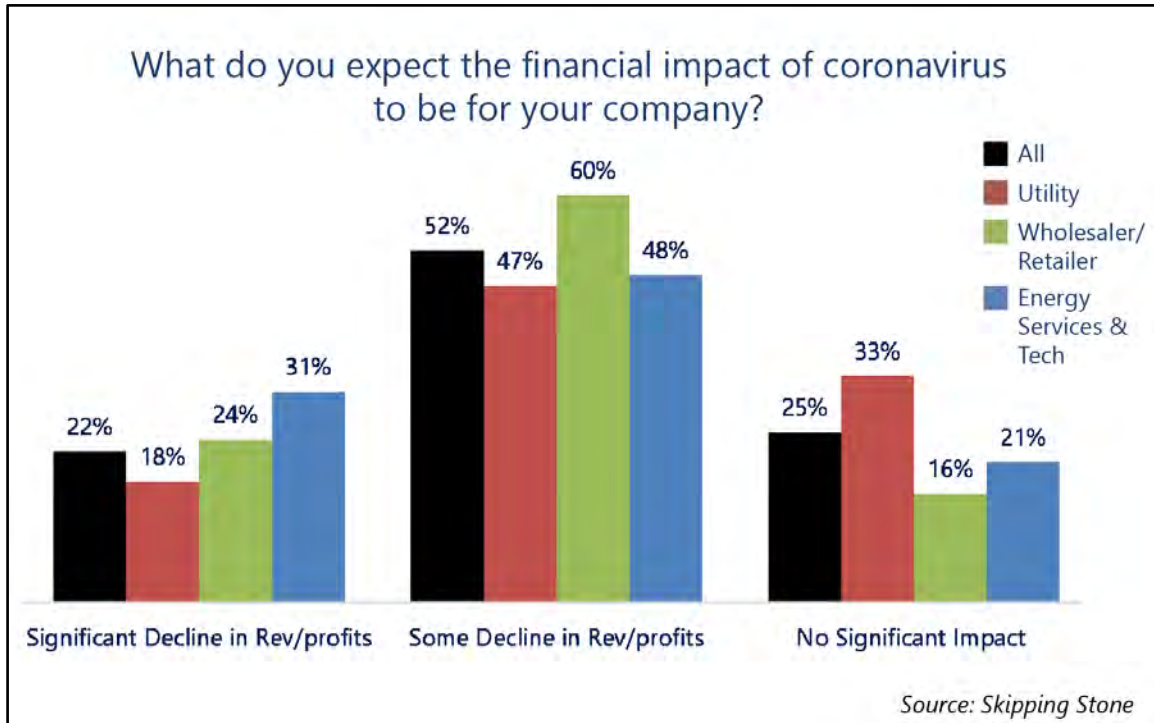


Chart 4

It will be interesting to measure this question after the fact to see how the early anticipation of the potential impact measures against the actual impact. With the majority of respondents anticipating some decline in revenue and profits, this ties closely with the majority opinion that it will be business as usual in 60 to 90 days (see chart #6).

For those companies who believe there won't be a significant financial impact from coronavirus on their business, the results in the balance of this section as well as the Commodity Demand Destruction section indicate otherwise.

The charts contained on the following page indicate how each type of company plans to respond to lower revenue and profits. It should be noted that this survey was taken before the Federal Government passed the \$2 trillion coronavirus stimulus bill.

## Observations

- Across the board, the number one planned cost reduction action is to reduce or eliminate new projects and budgets. The number two response by all three company types is to reduce or eliminate existing projects and budgets.
  - On average 45% of all energy companies surveyed plan to reduce or eliminate current and future projects.
  - Based on this result, a significant negative impact on revenue and profit for the Energy Services and Tech sector may be much higher than the 31% that sector projects as shown in chart 4.
- By and large, utilities don't anticipate significant layoffs with only 5% indicating any plans for this strategy. Conversely, 14% of retailers and wholesalers and 17% of energy services and tech companies anticipate layoffs.
  - How many retailers, wholesalers and energy services tech companies qualify for the recent (post-survey) SBA Paycheck Protection Program and the impact on these planned results remains to be seen.
  - The new SBA program dovetails well with the 21% of energy service and tech companies who plan to borrow money.

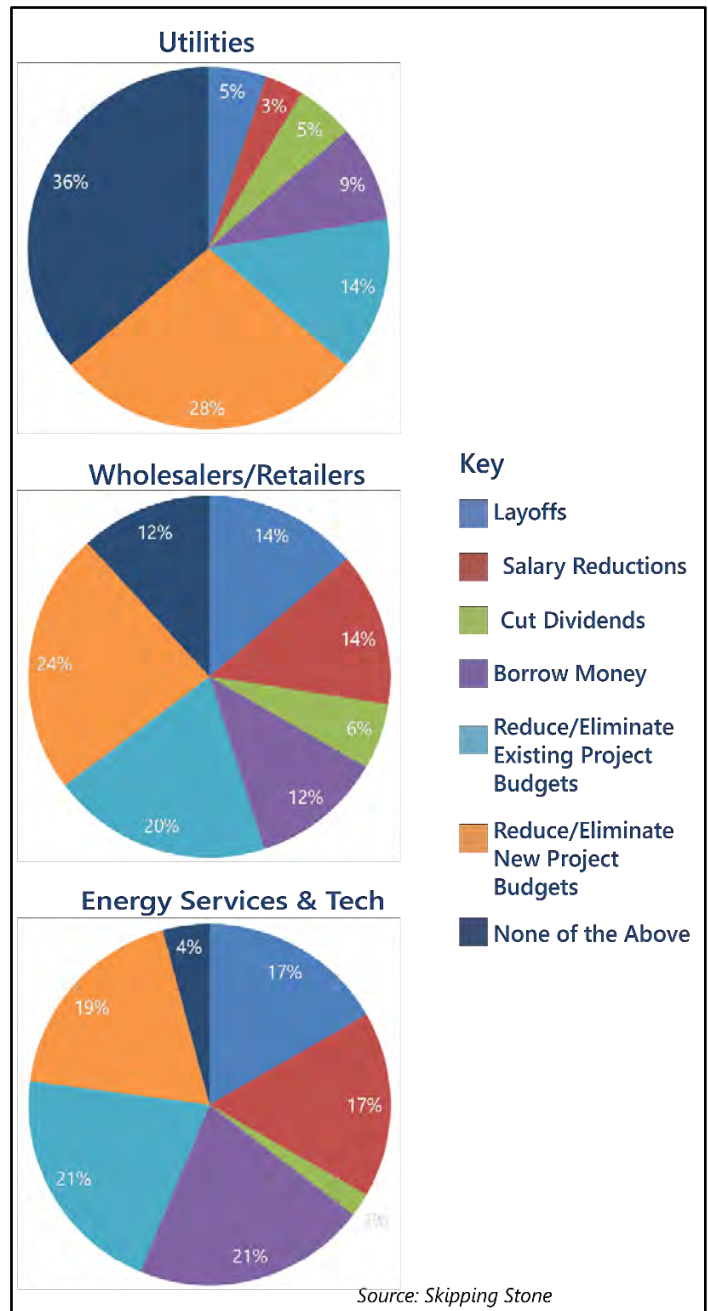


Chart 5

## Return to Normal

During the early time frame of March 2020, the response to this question indicates no consensus on the duration of business impacts due to the coronavirus, other than the expectation of something less than 6 months.

We suspect if given the same question in April the response rate for 30 to 60 days would drop dramatically.

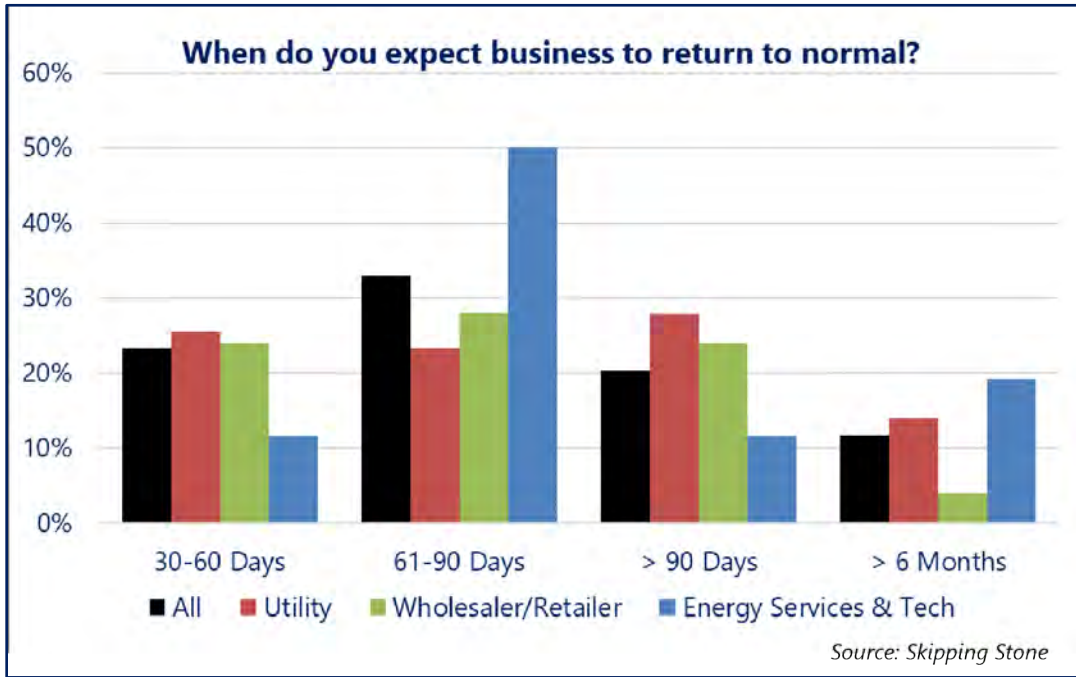


Chart 6

### Customers & Supply Chain

As the survey results for Chart 7 indicate, all energy companies surveyed are strongly focused on customer service. All companies have ramped up their customer communication. Utilities have taken the lead to assure customers they won't be disconnected and may get economic relief if bills are paid late. Retailers and wholesalers in many cases do not control customer shut off or bill payments (especially in Northeast U.S. markets) so the survey results for this sector are understandably lower.

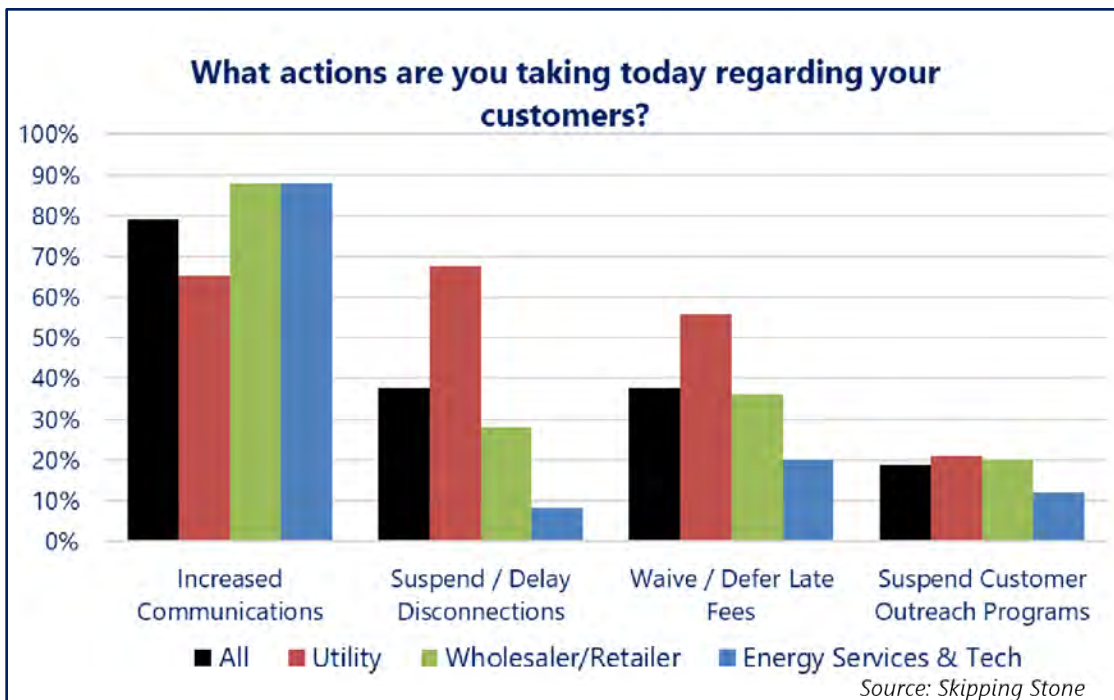


Chart 7



In the supply chain area, it was already clear in March that some companies were experiencing supply chain issues. The difference in anticipated impacts between the company types was expected. Utility supply chains contain many more components than does the retail wholesale sector, whose supply chain is primarily electric generation or gas supplies.

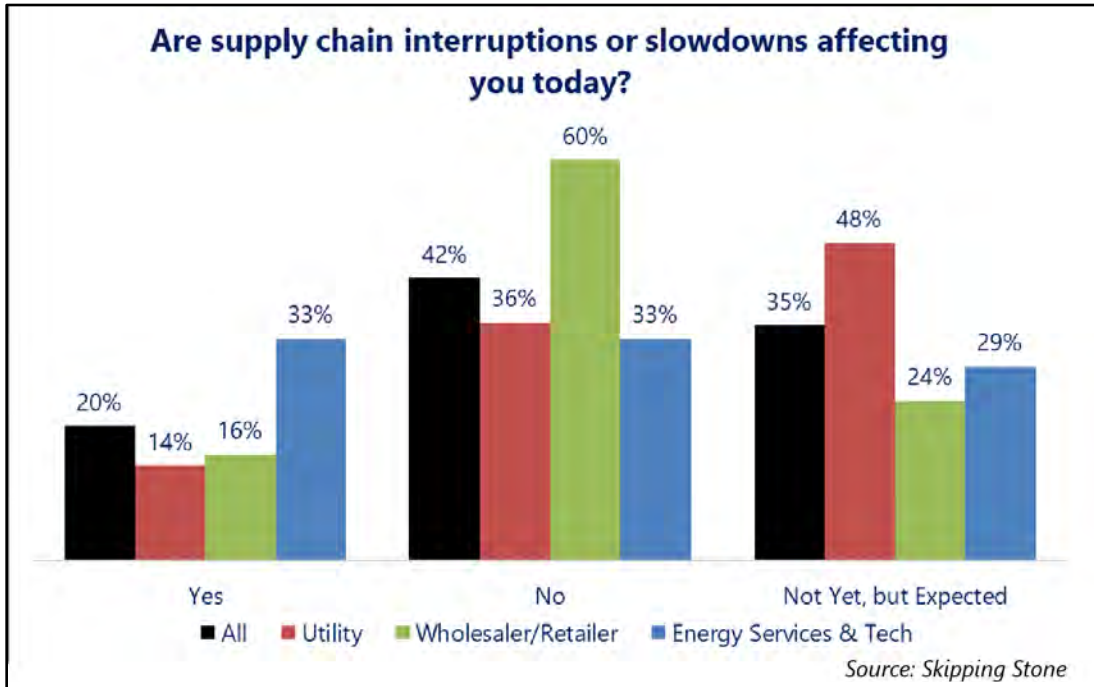


Chart 8

### Coronavirus Lasting Impact on Business

To gauge what companies thought of the longer term and lasting impacts from coronavirus, the last survey question was open-ended to encourage spontaneous responses. Some consistent themes are worth noting.

- 25% of all responses indicated lasting improvement will be made in remote work access
- Longer-term workforce reduction expectations were fairly low by utilities and wholesaler/retailers with 3% and 4% respectively; however, the energy services and tech sectors are far more negative with 25% expecting long term reductions
- A lasting negative impact on financial results was anticipated among 12.5% of utilities, 16% of wholesaler/retailer, and 25% of energy services and tech companies
- Among those who expected minimal or no lasting impact, the most hopeful group was wholesalers/retailers where 24% responded that way. The least hopeful group was energy service and tech companies where 0% expected minimal or no impact. 15% of utilities responded that they anticipate minimal or no lasting impacts
- Interestingly, 25% of utilities anticipate that a lasting impact of coronavirus will be improvements in emergency response.

## Commodity Demand Destruction

We asked the cross-section of energy companies their opinions on commodity pricing impacts. It should be noted that natural gas and electricity wholesale prices had been dropping in the months before this March 2020 survey.

For example, natural gas futures at Henry Hub ended 2019 at about \$2.13 per Dth. Prices continued to drop to \$1.84 by the end of January and again to \$1.68 by the end of February.

Using the PJM 12-month forward strip, market prices for electricity had also shown declines in the months before this survey. In October 2019 the strip was quoted at \$.031 per kWh, which dropped to \$.027 by year-end and dropped again to \$.025 by the end of February.

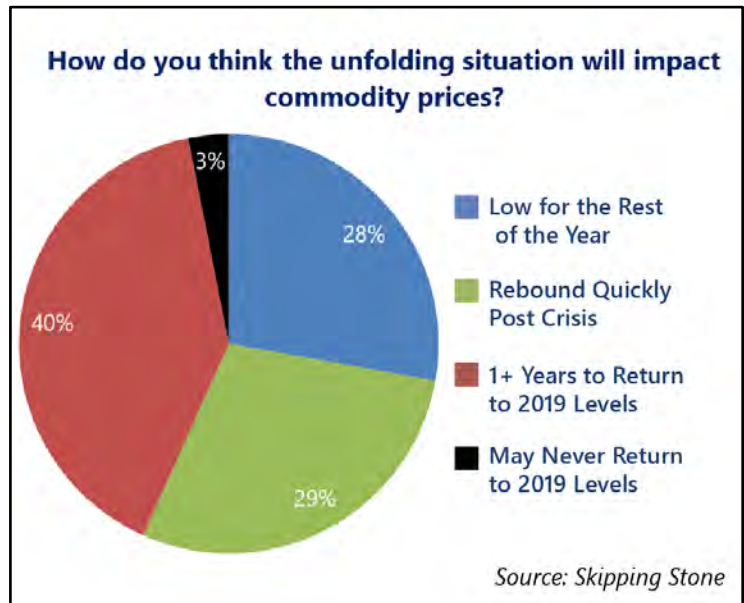


Chart 10

To assess demand destruction for electricity due to the coronavirus, our alliance partners, Scoville Risk Partners ([www.ScovilleRiskPartners.com](http://www.ScovilleRiskPartners.com)) have been publishing interesting data on this topic. We asked Scoville to prepare Chart 10 below using their proprietary analytics software and market pricing database.

Scoville Risk Partners used a methodology based on those detailed in *Valuation and Risk Management in Energy Markets*, Glen Swindle (Cambridge University Press, 2014). Load data as published by the market administrators (NYISO, PJM, and CAISO) is weather normalized and de-trended. Model calibration data spanned 2016 to mid-November 2019. All residuals (departures from normal) after 18 November 2019 are out-of-sample estimates constructed by subtracting loads as estimated using realized weather and seasonal terms from realized loads. The results shown here are based on a 24-hour per day period and are percentage departures from normal.

Area	Mar-01 to Mar-07	Mar-08 to Mar-14	Mar-15 to Mar-21	Mar-22 to Mar-28	Mar-29 to Apr-04
Chicago Area	-0.07	0.47	-1.51	-4.00	-5.24
Eastern PA	-2.62	-3.79	-6.57	-8.65	-8.23
MD	1.78	0.21	-2.61	-2.85	-4.26
New Jersey	-1.98	-1.27	-3.99	-4.33	-2.85
NY ex NYC Area	-1.26	-1.63	-3.70	-6.37	-4.93
NYC	-1.41	-2.36	-7.12	-12.23	-14.87
OH/App	1.52	-2.21	-2.62	-5.88	-8.17
SoCal Edison	-0.85	1.49	-0.26	-8.55	-12.89

Chart 10

Source: Scoville Risk Partners

To benchmark actual demand destruction with anticipated demand destruction, our survey asked the question depicted in chart 11. The anticipated results below as compared to the actual results in chart 10 above indicate the energy market participants aren't too far off target.

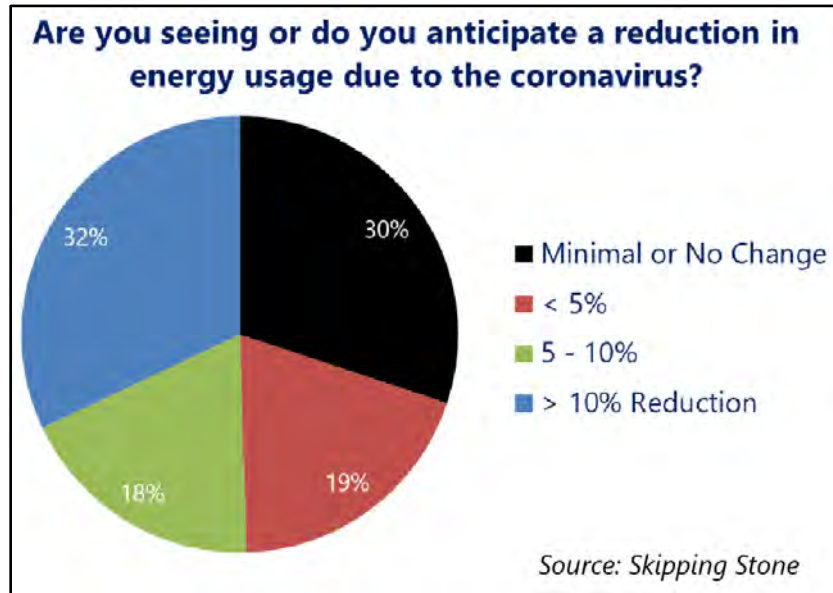


Chart 11

### About Skipping Stone

Skipping Stone is a global energy markets consulting and technology services firm that helps clients navigate market changes, capitalize on opportunities, and manage business risks. Headquartered in Boston with offices in Atlanta, Houston, Los Angeles, London, Singapore, and Tokyo, the firm is focused on a variety of sub-segments of the natural gas and power markets. Services include market assessment, strategy development, and strategy implementation as well as technology and managed services. Skipping Stone's model of deploying energy industry veterans has delivered measurable bottom-line results for over 270 clients globally. For more information, visit [SkippingStone.com](http://SkippingStone.com) or [www.SkippingStone.co.jp](http://www.SkippingStone.co.jp).

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