

CADMUS

2014 CDP UTILITIES SECTOR REPORT

Covering S&P 500 Public Reporting Utilities



ABOUT CADMUS

A multiyear CDP Accredited Provider and Silver Consultancy Partner, Cadmus has more than 14 years of combined experience working directly with companies to:

- Ensure companies receive the CDP Scores they deserve
- Measure Scope 1, 2, and 3 greenhouse gas (GHG) emissions
- Report company sustainability efforts

Cadmus' GHG and Sustainability Reporting services employ a proprietary custom tool – the Climate Strategy Assessment Tool – to predict respondents' CDP disclosure and performance scores and help companies improve scores for future years. Our hands-on experience and thorough understanding of the CDP scoring process ensure our clients identify and receive full recognition for implementing meaningful GHG management processes.

Cadmus is a nationally recognized energy and environmental consulting firm, providing expertise in:

- GHG and sustainability reporting
- Energy-policy planning and forecasting
- Energy-efficiency, demand-response, and renewable-energy assessments
- Large-scale energy conservation efforts and education
- Environmental assessments
- Testimony at regulatory hearings

To learn how Cadmus can help your company improve its CDP scores, contact us at climateservices@cadmusgroup.com or (303) 389-2530 or learn more at cadmusgroup.com/cdp.

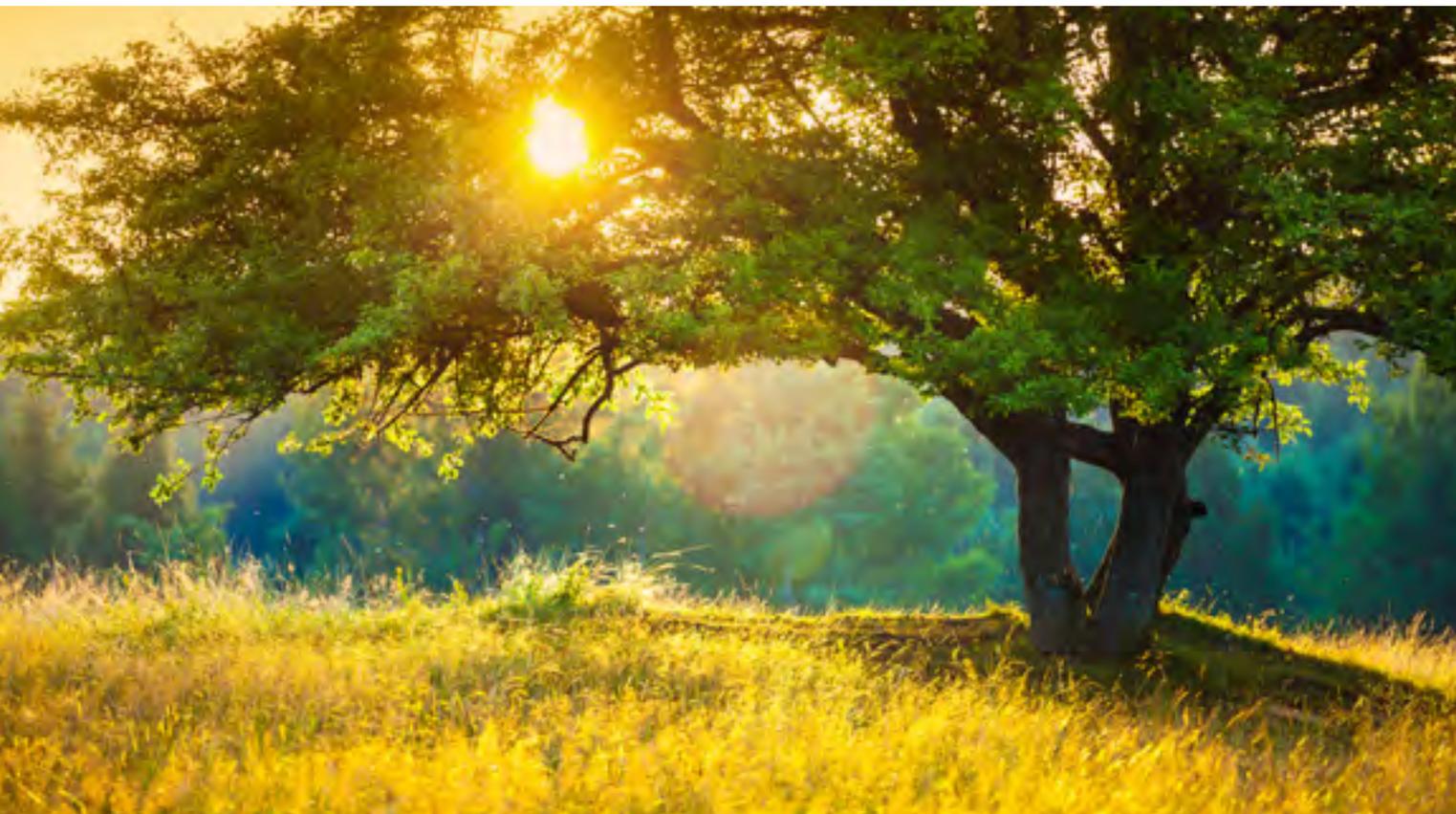
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INTRODUCTION

This report identifies and summarizes trends for the utilities sector based on responses from 19 utilities to the 2014 CDP S&P 500 Climate Change Information Request.¹ The questionnaire asked respondents about their climate change business strategies, risks and opportunities, emissions targets, and the projects planned and underway to meet the targets, among other questions. Cadmus, an independent consultant, analyzed the reporting data to spot trends tied to common risks and opportunities, emissions reduction initiatives, costs and reductions achieved, and emissions performance overall for the sector. Cadmus also identified leading practices based on the sector data and industry expertise. Additionally, this report highlights other key factors influencing the industry such as EPA 111(d). (The U.S. EPA proposed this rule, also known as the Clean Power Plan, under Section 111(d) of the Clean Air Act in June 2014 to reduce carbon pollution from power plants.)

¹ View individual company responses online at: <https://www.cdp.net/en-US/Pages/HomePage.aspx>



CDP is an international, not-for-profit organization providing the only global system for companies and cities to measure, disclose, manage, and share vital environmental information. CDP works with market forces in administering annual questionnaires to corporations. Investors become signatories to CDP's questionnaires to secure disclosure of environmental data across three separate programs: climate change, water, and forests. CDP signatories—767 institutional investors with assets of US \$92 million—are banks, investors, wealth advisors, pension funds, and other entities in the financial services sector with the goal to motivate companies to disclose their impacts on the environment and natural resources and take action to reduce them. Over 2,500 companies reported through CDP's climate change program in 2014, including 348 companies in the S&P 500. Globally, 54 percent of world market capital now discloses through CDP. The resulting data provide the financial community with information to help drive investment toward a low carbon and more sustainable economy.

2014 Utility Sector Statistics:

- 19 public S&P 500 utility respondents
- 8 electric utilities
- 9 multi-utilities
- 2 independent power producer & energy traders

The Top Trends for 2014

Using data from the CDP 2014 Climate Change Information Request, which collected data on activities from 2013, Cadmus identified the following top trends for the 2014 publicly reported utility sector:

- Utilities struggled to control carbon output and meet rising consumer demand—more than half reported an increase in gross global emissions.
- The majority of utilities monitored Scope 1 emissions through Continuous Emissions Monitoring (CEM) but did not conduct third-party verification of Scope 2 emissions. Less than half of the respondents used third-party verification to assure accuracy of climate data.
- Most utilities set performance targets; for those that did not set targets, changing regulations and compliance costs were the biggest concerns.
- Utilities implemented the majority of their carbon reduction initiatives to comply with government regulations.
- The majority of utilities reported risks related to complying with Section 111(d), including concerns over compliance costs.
- Most utilities identified opportunities related to climate change in all three CDP categories (regulatory, physical climate parameters, and other climate-related developments).
- Most utilities had formal processes in place to evaluate risks and opportunities related to climate change at least annually.

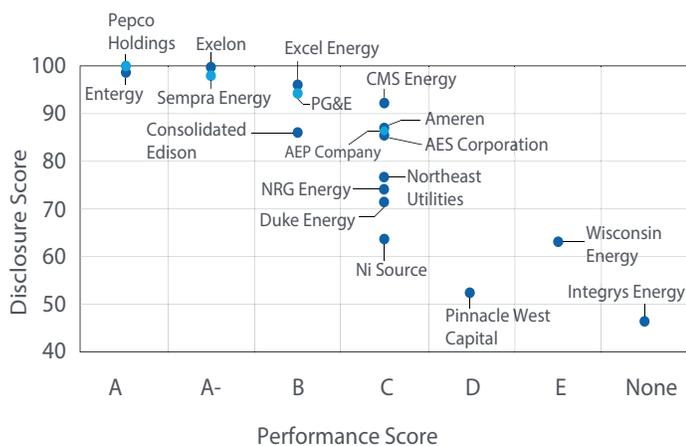
UTILITY SECTOR ANALYSIS

Cadmus analyzed data from 18 of the 19 utilities that publicly responded to the 2014 S&P 500 Climate Change Information Request (Figure 1).² CDP also invited AGL Resources, NextEra Energy, Inc., Public Service Enterprise Groups, Inc., SCANA Corporation, CenterPoint Energy, Inc., Dominion Resources, Inc., Edison International, FirstEnergy Corporation, PPL Corporation, TECO Energy, Inc., and the Southern Company to respond to the questionnaire, but all of these companies declined to participate.

Average Scores for the Utility Sector:

- Disclosure Score: 81%
- Performance Score: C

Figure 1. Utility 2014 S&P 500 Scores



CDP Climate Leaders for the Utility Sector

Since 2008, companies who voluntarily report greenhouse gas (GHG) emissions and climate change data to CDP have been scored according to CDP’s scoring methodology to assess their disclosure and performance.³ The disclosure score (a numeric range of 0 to 100) assesses the completeness and quality of a company’s response. A high disclosure score indicates that a company provided comprehensive information about the measurement and management of its carbon footprint, its climate change strategy, and risk management processes and outcomes. The performance score (also known as a performance band) is represented by a letter from A to E. The performance band assesses the level of action taken by a company, as reported by the company, for climate change mitigation, adaptation, and transparency. A high performance score indicates that a company has measured, verified, and managed its GHG footprint through proactive actions such as setting and meeting emissions reduction targets and implementing programs to reduce emissions in direct operations and their supply chain.

2014 CDP Leaders for the Utility Sector

- Entergy Corporation*+
- Exelon Corporation*
- Pepco Holdings, Inc.*+
- Sempra Energy*

*Climate Disclosure Leadership Index
 +Climate Performance Leadership Index

² DTE Energy Company answered the questionnaire late and was not scored.

³ CDP’s climate change scoring methodology is available online at: <https://www.cdp.net/Documents/Guidance/2014/CDP-2014-Climate-Change-Scoring-Methodology.pdf>

In 2014, four of the responding S&P 500 utilities gained a position in one or both of the Climate Leadership Indices for disclosure and performance. These climate leaders, as well as other top scoring utilities, followed many of the best practices for carbon management listed in Table 1.

Table 1. Best Practices Used By CDP Climate Leaders

Utility	Verify Emissions	Offer Monetary Incentives	Set Absolute Targets	Review Risks*	Integrate Climate Change Into Business Strategy	Board Oversight	Report in Financial Publications	Identify Short-Term Opportunities**	Engage With Value Chain
Leaders									
Entergy	X	X	X		X	X	X	X	X
Exelon	X	X	X	X	X	X	X		X
Pepco	X	X	X		X	X	X		X
Sempra	X	X	X		X	X	X	X	X
Next Top Five Scorers									
Xcel Energy	X	X	X	X	X	X			X
PG&E	X	X	X	X	X	X	X		X
CMS Energy	X		X		X	X	X		X
Consolidated Edison		X	X		X		X		X
Ameren	X	X	X		X		X		X

*Risk review should take place over a period of at least three years for all categories.

**Short-term opportunities should have a high likelihood of success with positive impacts.

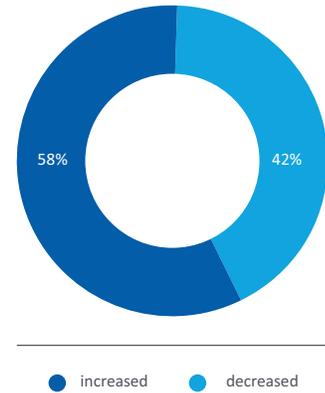
EMISSIONS REPORTING: RESULTS AND TRENDS

Figure 2. 2014 Utility Emissions Performance (Scope 1 and 2 Emissions Combined)

Scope 1, 2, and 3 Emissions

As a part of the 2014 CDP S&P 500 Climate Change Information Request, utilities reported on Scope 1, 2, and 3 emissions.

Data Trend: Utilities struggled to control carbon output and meet rising consumer demand—more than half reported an increase in gross global emissions in 2014.

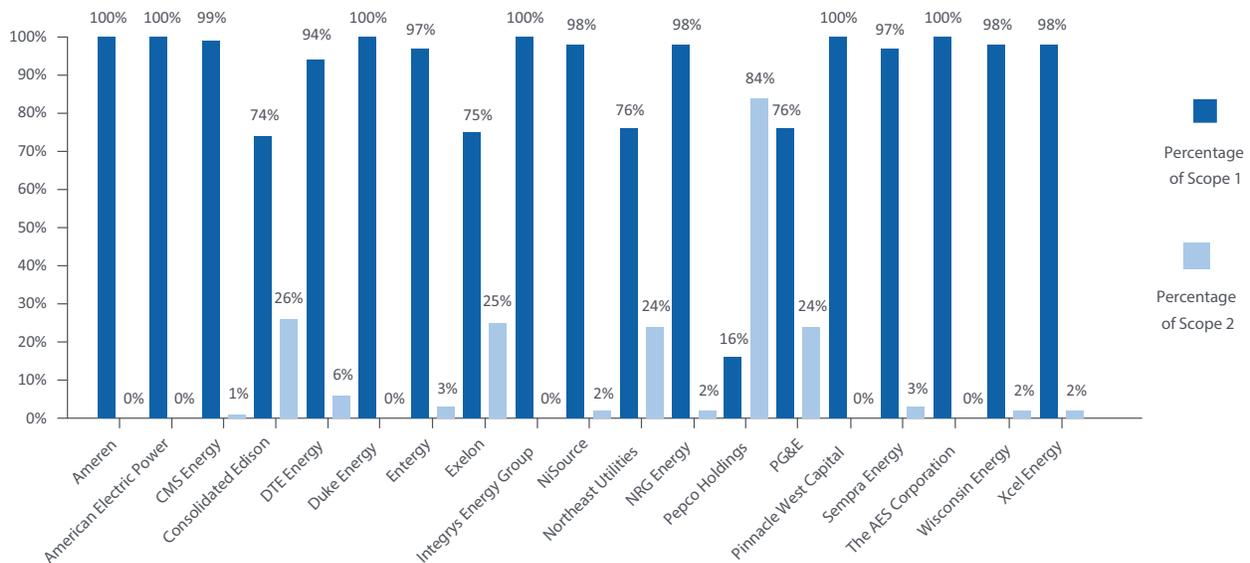


Reporting Results: Scope 1 and 2

Eleven utilities reported an increase in gross global emissions (Scope 1 and 2 combined) in 2014 (Figure 2). Respondents most frequently tied the rise in emissions to increased electricity generation resulting from increased demand. The U.S. Energy Information Administration’s (EIA’s) *Annual Energy Outlook 2014* report supports this data trend and predicts that, though electricity demand will slow between 2012 and 2040, overall demand will continue to increase.⁴

Nearly all of the reported global emissions fell under Scope 1 (Figure 3). Only one utility, Pepco Holdings, reported a higher percentage of Scope 2 emissions than Scope 1 emissions.

Figure 3. Breakout of Global Emissions by Utility

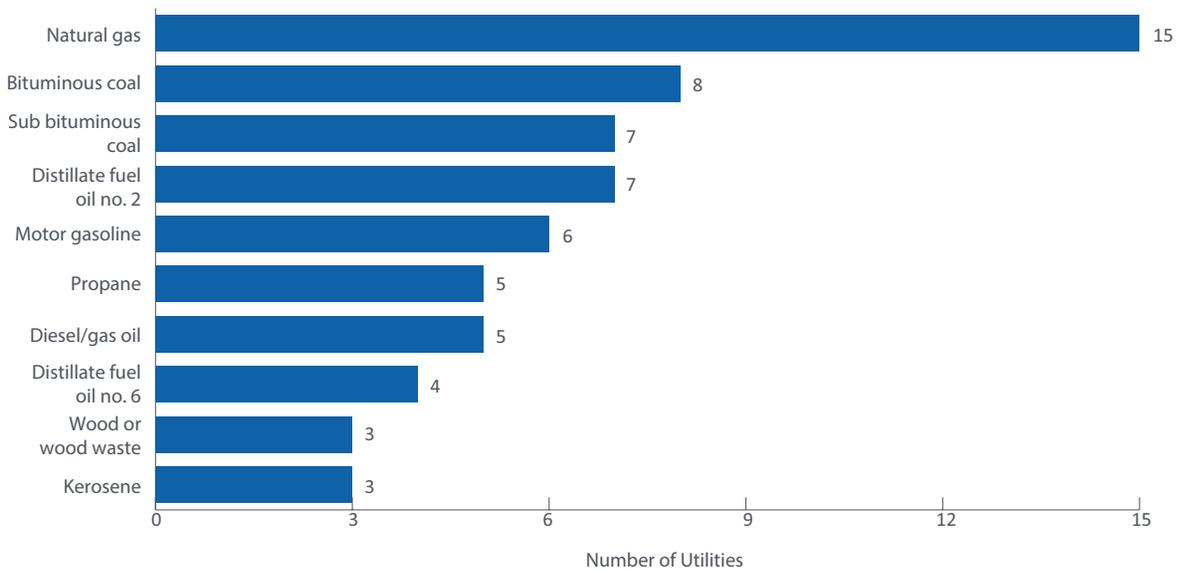


⁴ U.S. EIA. “Annual Energy Outlook 2014.” May 7, 2014. Retrieved from <http://www.eia.gov/forecasts/aeo/>



The questionnaire gathered more information on Scope 1 and Scope 2 emissions by collecting data on the utilities' end uses and fuel mixes. Utilities primarily reported on electricity and fuel use; only Exelon and Consolidated Edison reported heat, steam, or cooling. Figure 4 lists the top 10 fuels reported by the utilities.

Figure 4. Top 10 Fuels Reported by Utilities

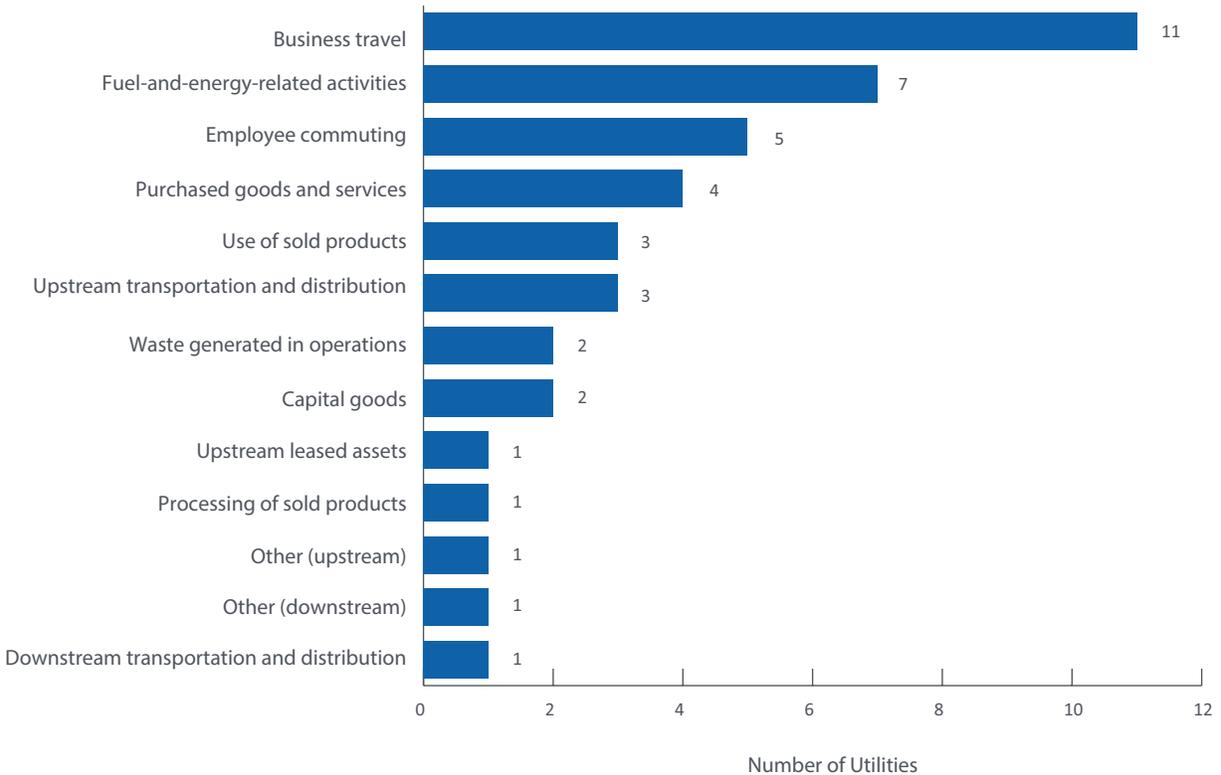


Reporting Results: Scope 3

The questionnaire asks companies to account for Scope 3 emissions by disclosing sources and explaining exclusions.⁵ CDP allows companies to determine which Scope 3 emissions sources, if any, are relevant to the company and its investors. Companies do this by selecting from a menu of options: “relevant, calculated,” “relevant, not yet calculated,” “not relevant, calculated,” “not relevant, explanation provided,” and “not evaluated.” Fourteen utilities reported Scope 3 emissions for at least one source, with “relevant, calculated” and “relevant, not yet calculated” being the most commonly reported source types.

For calculated emissions sources, business travel topped the list; 11 utilities reported it as a “relevant, calculated” emissions source. Figure 5 shows a complete breakdown of all of the reported “relevant, calculated” emissions sources.

Figure 5. “Relevant, Calculated” Emission Sources Reported by Utilities



In reporting year 2014, business travel topped the list as the number one source of reported Scope 3 emissions.

⁵Two utilities left this section blank.

Utilities were fairly evenly split between the top five “relevant, not yet calculated” emission sources reported (Table 2).

Table 2. Top “Relevant, Not Yet Calculated” Emissions Sources Reported by Utilities

Scope 3 Emissions Source	Number of Utilities
Fuel-and-energy-related activities (not included in Scope 1 or 2)	6
Purchased goods and services	6
Upstream transportation and distribution	6
Capital goods	5
Waste generated in operations	5

Third-Party Verification of Climate Data

Over the past few years, third-party verification of climate data has become increasingly important in CDP reporting, assuring the credibility of reported GHG inventories. Verifying the accuracy and credibility of reported emissions data is essential for improving data quality for investors, who both want and need confidence in these data. CDP considers third-party verification, and CEM if applicable, best practices. Often, companies must complete verification of Scope 1 and Scope 2 reported emissions (or, if CEM is implemented, just Scope 2) in order to score high enough to be in the top 10 percent of the sample and achieve a placement in the CDP Climate Leadership Indices.

Data Trend: The majority of utilities monitored Scope 1 emissions through CEM but did not conduct third-party verification of Scope 2 emissions. Less than half of the respondents used third-party verification to assure the accuracy of climate data.

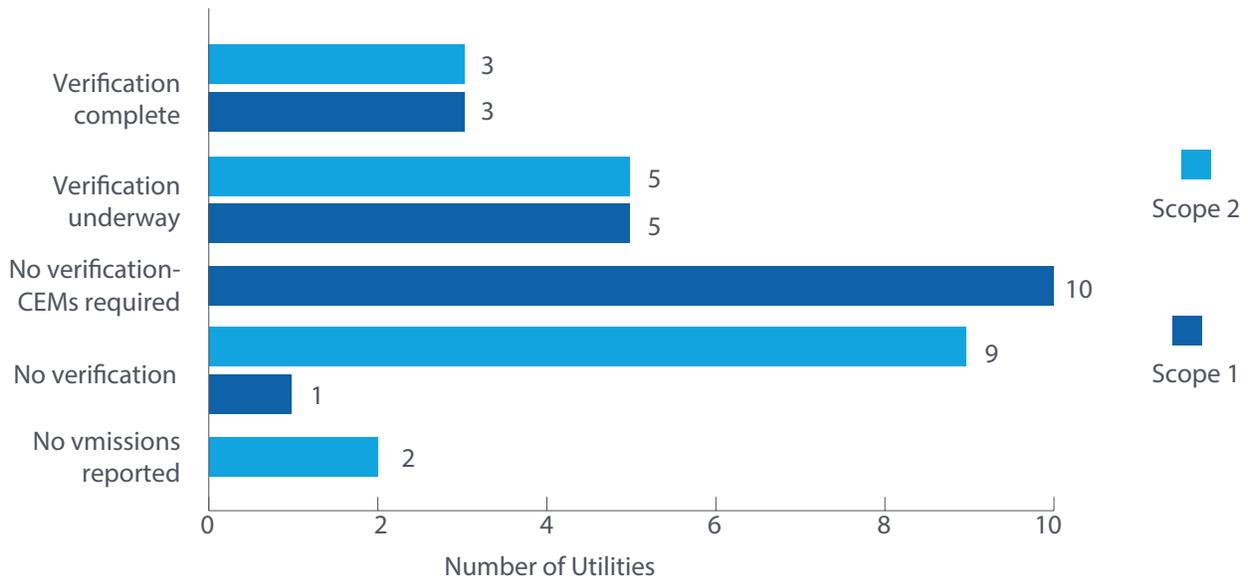


Reporting Results: Verification Status

Scope 1 and Scope 2

Only eight of the utilities reported completing (or being underway with) third-party verification of Scope 1 and Scope 2 emissions. In lieu of third-party verification, 10 utilities reported using CEM for Scope 1 emissions (Figure 6).

Figure 6. Utility Scope 1 and 2 Emissions Verification Status



The questionnaire also asked utilities responding to this section to report what percentage of their emissions were covered by third-party verification or CEM. Not all of these utilities reported a percentage; Table 3 lists the percentages for those that did.

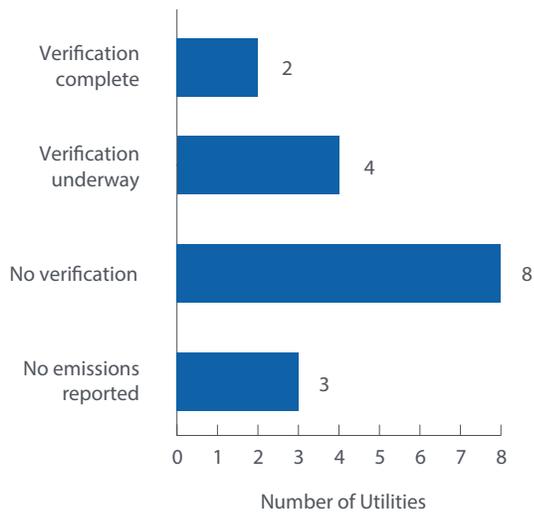
Table 3. Percentage of Emissions Covered by Third-Party Verification or CEM

Emissions Scope and Type of Verification	Percentage of Emissions Covered by Verification of CEM			
	100%	99%-90%	69%-60%	Less than 60%
Scope 1 emissions verified by a third party	4	2	0	1
Scope 1 emissions under CEM	1	6	1	0
Scope 2 emissions verified by a third party	4	2	0	1
Number of utilities reporting	9	10	1	2

Scope 3

Of the 14 utilities that reported emissions for at least one Scope 3 emissions source, six reported they had completed or were underway with third-party verification of the emissions source (Figure 7).

Figure 7. Utility Scope 3 Emissions Verification Status



Engaging the Value Chain

To better manage GHG emissions and the associated risks, CDP has steadfastly encouraged reporting companies to engage their suppliers, customers, and other partners in the value chain— not only to report on GHG emissions, but to proactively help these partners manage GHG emissions along the value chain. Fifteen utilities reported engaging with at least one member of their value chains in 2014. AEP Company, Exelon Corporation, and NRG Energy excelled in this effort and engaged with all three categories of stakeholders in the value chain—suppliers, customers, and other value chain partners.

While global emissions increased overall in this sector, most utilities actively engaged with suppliers to reduce emissions throughout the value chain.

Several of the responding utilities said the Electric Utility Industry Sustainable Supply Chain Alliance was an effective method for engaging with suppliers. In particular, Duke Energy stated, “Duke Energy is a founding member of the Electric Utility Industry Sustainable Supply Chain Alliance (Alliance). Each year the Alliance surveys member company non-fuel suppliers on a variety of sustainability issues.” For engaging customers, some utilities said their energy efficiency programs were good vehicles to influence consumer behavior. As Consolidated Edison put it, “Our energy efficiency programs are critical in helping our customers reduce their consumption, energy costs, and carbon footprint.”

Only two utilities explicitly stated that they do not engage with members of their value chain: Wisconsin Energy Corporation and the AES Corporation. The AES Corporation reasoned, “[W]e believe that our upstream supply chain results in negligible direct CO₂e emissions when compared to the direct Scope 1 CO₂e emissions from our electric power generating stations. We believe that it is more organizationally effective for AES to continue working on assessing our direct Scope 1 and indirect Scope 2 CO₂e emissions rather than engaging with elements of our supply chain.”

“We have not set an emissions reduction target for greenhouse gas emissions from our power plants because these targets will be set by federal policy.”

- DTE Energy

Setting Performance Targets

The adage, “What gets measured gets managed,” underscores the importance of setting and meeting emissions targets. Setting and meeting emissions reduction targets is a best practice in CDP reporting and contributes greatly to the respondent’s overall performance score.

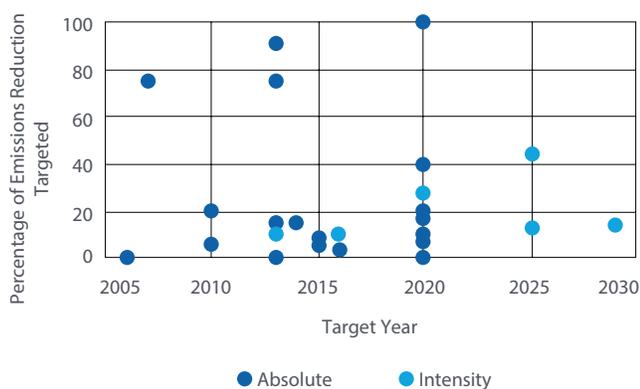
Data Trend: Most utilities set performance targets in 2014— for those that did not set targets, changing regulations and compliance costs were the biggest concerns.

Reporting Results: Performance Targets

Sixteen utilities reported having at least one absolute emissions reduction target, and five utilities reported having both absolute and intensity targets. While most utilities set targets, a few claimed changing regulations and associated costs kept them from implementing this best practice. Three responding utilities did not have targets as of 2014; one of these utilities, Wisconsin Energy Corporation, argued that uncertainty around costs, regulations, and new projects made it infeasible to set an achievable target that would not impact reliability and customer costs. Another utility without 2014 targets, NiSource, Inc., said that after achieving its target in 2012, it was analyzing data to project emissions and set a new target.

Eight utilities reported setting a target date of 2020 for emissions reductions, and seven utilities had a target date of 2013, the reporting year. The questionnaire asked utilities to provide details on the progress of achieving these targets. Figure 8 illustrates the range of target dates utilities reported for emissions reduction.

Figure 8. Target Dates for Emissions Reduction



Ten utilities reported that they met 14 reduction targets by their target date. According to Exelon Corporation, *“Our final 2013 performance which has achieved our overall Exelon 2020 goal, seven years ahead of schedule... marks the official achievement of our Exelon 2020 goal at 103% of target. Initiatives to achieve this goal included successful completion of our 25% energy reduction challenge, retirements of several older fossil generation plants, significant investment in the expansion of clean energy and the development and executive of our award winning customer energy efficiency programs.”*

Three utilities reported missing five of their target deadlines. NRG Energy explained, *“Green Mountain reduced absolute emissions... However, per CDP guidelines, emission reductions from offset purchases should be excluded,”* and *“Despite an absolute CO₂e reduction, operational changes over 2013 impeded attainment of Green Mountains’ emissions intensity goal.”*

Of the remaining utilities reporting on performance to targets, the majority were on track to meet reduction targets by the target date.

Carbon Reduction Initiatives

Carbon reduction initiatives can serve dual purposes by helping a company achieve its internal reduction targets, while complying with state and federal regulations at the same time. For example, increasing renewable energy sources meets state-required renewable portfolio standards, but also acts as an emissions reduction initiative for the company portfolio. In 2014, utilities reported a variety of initiatives implemented to reduce carbon emissions, which included third-party emissions reductions through use of their products and services and internal emissions reductions through improvement of operations, a best practice for CDP reporting.

Data Trend: Utilities implemented the majority of their carbon reduction initiatives to comply with government regulations.

Reporting Results: Emissions Reductions for Third Parties

All but one of the utilities reported that the use of their goods and services directly enabled GHG emissions to be avoided by a third party. Fourteen utilities credited their energy efficiency programs for helping customers to avoid emissions, and nine utilities credited renewable energy.

Reporting Results: Internal Emissions Reductions

Seventeen utilities reported they collectively implemented 223 projects to reduce emissions and initiated an additional 143 projects during the reporting year. Table 4 provides more detail on the types of emissions reductions projects. Of those 223 projects, utilities most commonly implemented low-carbon energy installations, followed by fugitive emissions reductions (primarily through replacing piping and repairing leaks), and energy efficiency building services. Other projects included carbon offsets, coal plant retirement, and carbon capture and sequestration.

Table 4. Utility Emissions Reduction Activities

Project	Number of Projects Implemented	Estimated Emissions Savings (MT CO ₂ e)
Low-carbon energy installation	19	7,780,262
Other	18	14,181,552
Fugitive emissions reductions	14	1,899,658
Energy efficiency: Building services	13	976,769
Transportation: Fleet	9	6,569
Energy efficiency: Processes	8	2,443,044
Low-carbon energy purchase	8	8,066,731
Process emissions reductions	8	1,067,444
Behavioral change	6	412,276
Transportation: Use	3	222
Energy efficiency: Building fabric	1	42

Reporting Results: Responding to Government Regulations

Most utilities had a dedicated budget for energy efficiency initiatives and primarily undertook emissions reduction activities to comply with government regulations. Sixteen utilities referenced regulatory requirements, including state-level renewable energy standards and demand-side management requirements, as the reason for implementing an emission reduction activity. For example, Xcel Energy said, *"In most of the states it serves, Xcel Energy has renewable energy standard mandates and demand-side management requirements. In several of the states we serve, the targets are some of the highest in the nation."* And as Entergy Corporation put it, *"Compliance with permit limits, mandates for energy efficiency programs, preparation of mandatory/voluntary GHG emissions inventories, and participation in voluntary carbon markets has driven investment in emission reduction activities."* Three of these 16 utilities also discussed potential federal regulation of emissions. As Sempra Energy states, *"Most states have a renewable energy requirement or goal and, with more stringent federal restrictions on emissions, renewables will become an increasingly important part of the domestic energy resource mix."*

Fifteen utilities reported having dedicated budgets for energy efficiency, which were primarily used to support energy efficiency programs for customers. In addition, two utilities had specific budgets earmarked for internal energy efficiency improvements.

Strategy and Governance

Utilities reported on the processes in place to internally address climate change issues such as assigning responsibility for climate change issues; including climate change in risk management and business strategies; and engaging with Policymakers, trade associations, or research organizations about climate change. The CDP designed these questionnaire sections to solicit transparent responses; specifically, to determine at what level the utilities consider climate change in the company structure and decision-making processes.

Data Trend: Most utilities had formal processes in place to evaluate risks and opportunities related to climate change at least annually.

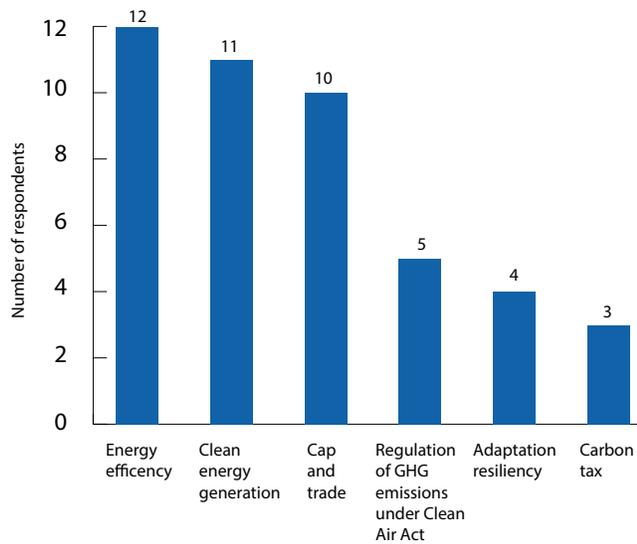
Reporting Results: Evaluating Climate Risk

Seventeen utilities reported having formal processes in place to evaluate risks and opportunities related to climate change at least annually, and two utilities reported they monitor risks and opportunities sporadically. Fifteen utilities reported sharing the results of their evaluations to a Board of Directors or a subset of the board. Thirteen utilities considered risks that may extend more than six years into the future. For many of the utilities, the process to assess risk associated with climate change risk is embedded in the process to assess risk company-wide.

Reporting Results: Engaging Policymakers

For 18 utilities, engaging directly with policymakers was a part of their risk management strategies—most frequently on the topics of energy efficiency, clean energy, and cap and trade programs.

Figure 9. Top Issues Utilities Engage With Policymakers On



Engagement ran a gamut of activities—from meeting with members of Congress and state representatives to participating in trade associations and promoting the adoption of climate change policies. For example, NRG Energy reported, “[We] actively supported EPA GHG rule development by working with other companies, the EPA, and states to develop appropriate frameworks for use under Section 111(d) of the Clean Air Act.”

Utilities also reported the following activities to engage with policymakers:

- Complying with state renewable portfolio standards
- Discussing the Energy Savings and Industrial Competitiveness Act of 2013 (Shaheen/Portman) with federal policymaker
- Becoming members of California Chamber of Commerce, California Council for Environmental and Economic Balance, the International Emissions Trading Association, and the Silicon Valley Leadership Group
- Joining boards of organizations such as the Alliance to Save Energy

“Xcel Energy has been working with environmental and public policy makers regarding EPA GHG regulations, specifically Section 111(d) under the Clean Air Act. The EPA began a series of meetings with state agencies, utilities, and other stakeholders regarding GHG rules for existing power plants, and many of our states engaged their power sector and environmental stakeholders to develop input to the EPA.”

– Xcel Energy

Assessing Risk

The CDP questionnaire asks utilities to assess potential regulatory, physical, and other climate-related risks. Specifically, it asks if utilities have identified inherent risks that climate change may pose to business operations, revenue, or expenditures. If utilities identify risks, the questionnaire asks for details such as timeframe, potential impact, and financial implications. For utilities that do not identify risks, CDP requires an explanation as to why the utility is not exposed to climate change risks.

Data Trend: The majority of utilities reported risk related to complying with Section 111(d), including concerns over compliance costs.

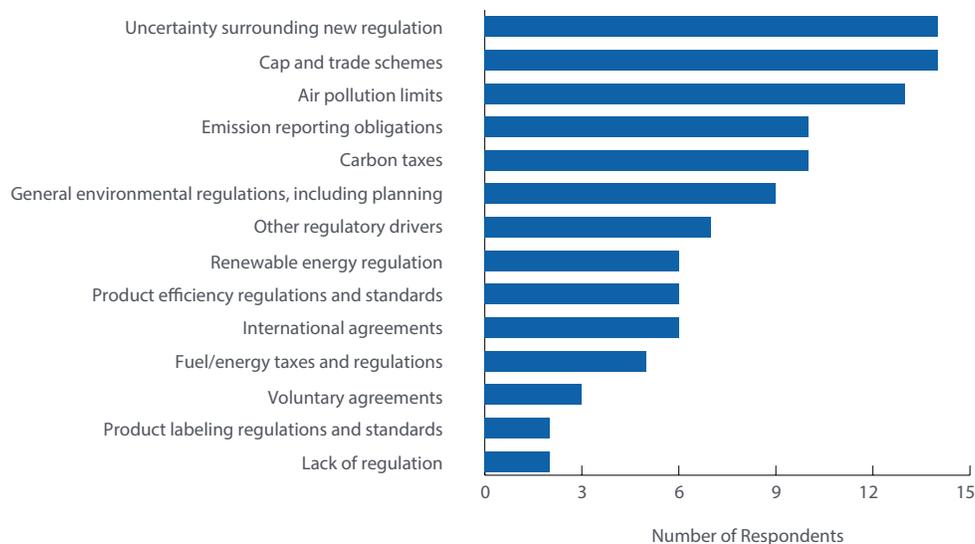
Reporting Results: Uncertainty and Risk

Fourteen utilities reported that uncertainty about cap and trade schemes and new regulations around carbon constitute their biggest risks. Only four utilities—Pinnacle West, Integry, Northeast Utilities, and Sempra—did not mention either as a risk.

More than half of the utilities reported that the most likely impact of the carbon-related regulatory risks would be increased operational costs, which was followed by increased capital costs.

Utilities identified a wide range of government regulations as risk factors, but the speculation around Sections 111(b) (Rules proposed by the EPA under Section 111(b) would limit emissions from new, modified, and reconstructed stationary sources. For more, see Utility Sector and Federal Emissions Regulations, below.) and 111(d) figured most prominently in the responses. Ten utilities reported uncertainty around Sections 111(b) and 111(d) as a potential risk. For example, Xcel Energy noted that 111(b) could effectively prohibit the construction of new power plants, while Consumers Energy and several other utilities speculated that Section 111(b) and 111(d) regulations would add cost and permitting time for new and existing electric generation units.

Figure 10. Regulatory Risks Identified



Along with regulatory risks, 14 utilities also cited reputation associated with climate policies as a risk. Most utilities reported that customer perception of action or inaction on climate issues was a major source of uncertainty in assessing reputational risks, which is illustrated by the following quotes:

- *“PG&E faces reputational risks associated with how our customers perceive our policies, actions, and plans to address climate change.”*
- *“Our [Xcel Energy] customers’ perceptions of our position on climate policy or their desire for even more climate-related activity or products beyond our most cost-effective solutions affects our customer satisfaction scores.”*
- *“NRG believes that there is a societal shift toward customers valuing more sustainable goods and services. While we are transitioning our company to support and thrive in such an economy, we face risks from not meeting customer expectations quickly or well enough, especially in light of our diversified base of long-lived power plant assets.”*

Reporting Results: Risk Management Methods

Utilities reported a variety of methods to manage and minimize the regulatory risks identified. In almost every case, utilities voluntarily made efforts to reduce emissions and, thus, risk. For example, Ameren used risk assessment techniques to minimize the likelihood of stranded investments and developed a corporate process for identifying risks and opportunities related to climate change. Entergy took a similar tactic by using integrated resource planning to examine its entire portfolio from the perspective of climate change risk. Duke Energy and other utilities engaged in the regulatory process by discussing concerns with federal and state regulators and participating in clean energy forums. Other utilities, such as Xcel Energy, implemented renewable energy as a primary risk management strategy.

Exelon is the only company that estimated and reported the potential cost of managing the risk associated with regulatory uncertainty; Exelon estimated that it would cost the company an additional \$60 million, a figure based upon its experience complying with Regional Greenhouse Gas Initiative.



Identifying Climate-Related Opportunities

Similar to assessing climate-related risks, the questionnaire asks utilities to identify regulatory, physical, or other climate-related opportunities or provide an explanation as to why there are no opportunities for the utility. Best practices dictate that utilities identify opportunities they can realize within three years, have a high likelihood of success, and will have a high magnitude of impact on the company.

Data Trend: Most utilities identified opportunities related to climate change in all three CDP categories: regulatory, physical climate parameters, and other climate-related developments.

Reporting Results: Opportunities Driven by Regulatory, Physical, and Other Climate-Related Developments

Fifteen utilities identified opportunities in all three of CDP's categories: regulation, physical climate parameters, and other climate-related developments. Only one utility, Pinnacle West Capital, did not identify opportunities driven by regulation.

Utilities most frequently selected changing consumer behavior, reputation, and cap and trade schemes as drivers of opportunities (Table 5).

Table 5. Common Drivers of Opportunity

Most Commonly Cited Drivers of Opportunity	Number of Utilities
Regulatory	
Cap and trade schemes	10
Product efficiency regulations and standards	9
General environmental regulations, including planning	7
Physical	
Change in mean (average) temperature	7
Change in temperature extremes	6
Other Climate-Related Developments	
Changing consumer behavior	14
Reputation	11

However, only a few the utilities identified opportunities that met with CDP best practices. For regulatory opportunities, just two utilities identified near-term opportunities likely to realize a high magnitude of impact. These two utilities—Entergy Corporation and Sempra Energy—listed these opportunities under “other regulatory drivers.” Entergy explained, “Entergy’s customers are exposed to less risk from higher energy costs because of Entergy’s lower exposure to a price on carbon... Entergy’s generation portfolio is one of the cleanest in the United States among large electric generators... Because of this, Entergy stands to benefit from increased investor interest and market valuation in a carbon constrained economy.”

Entergy said the impact of this driver was increased stock price. Sempra Energy also reported that investment opportunities from increased demand for renewable energy and growth in renewable energy throughout the United States. Additionally, Sempra Energy identified increased efficiency of the power grid as an impact due to smart grid deployment and implementation.

“Compared to the top 100 largest utilities in the US, Entergy ranks in the top quartile for lowest CO2 emission rates for all generating sources, therefore the company may have a competitive advantage under any regulatory scenario that places a price on carbon or results in CO2 emission limits.”

– Entergy Corporation

For physical opportunities, only three utilities—AES Corporation, Sempra Energy, and Entergy Corporation—identified drivers that met CDP’s best practices for this category. The AES Corporation reported new product/service opportunities due to change in precipitation patterns as an opportunity, specifically for the Imperial Valley Solar Project under construction. Entergy reported

adaptation investments as a risk driver with impacts of wider social benefits. Specifically, Entergy said, “Entergy, its customers, and the Gulf Coast economy stand to benefit from investments in needed infrastructure improvements to build more resilient communities, reduce losses from floods, storm surge, and hurricanes and sustain the economic viability of our customer base.” Sempra reported changes in temperature extremes as an opportunity to drive “shareholder reward for successful implementation and investment opportunities.” Sempra reasoned that increased temperatures will increase demand for electricity. Sempra also identified an opportunity for investment in renewable energy development in its primary territory, the U.S. Southwest.

“If temperatures increase due to climate change, demand for electricity will increase. This increases the importance and need for the energy efficiency and demand response programs that our California electric utility, SDG&E, has been providing for years.”

– Sempra Energy

Only Consolidated Edison reported an opportunity that met CDP best practices in the other climate-related opportunity category; it identified an impact of reduced capital costs due to new products or services from using distributed solar generation to offset peak demand.

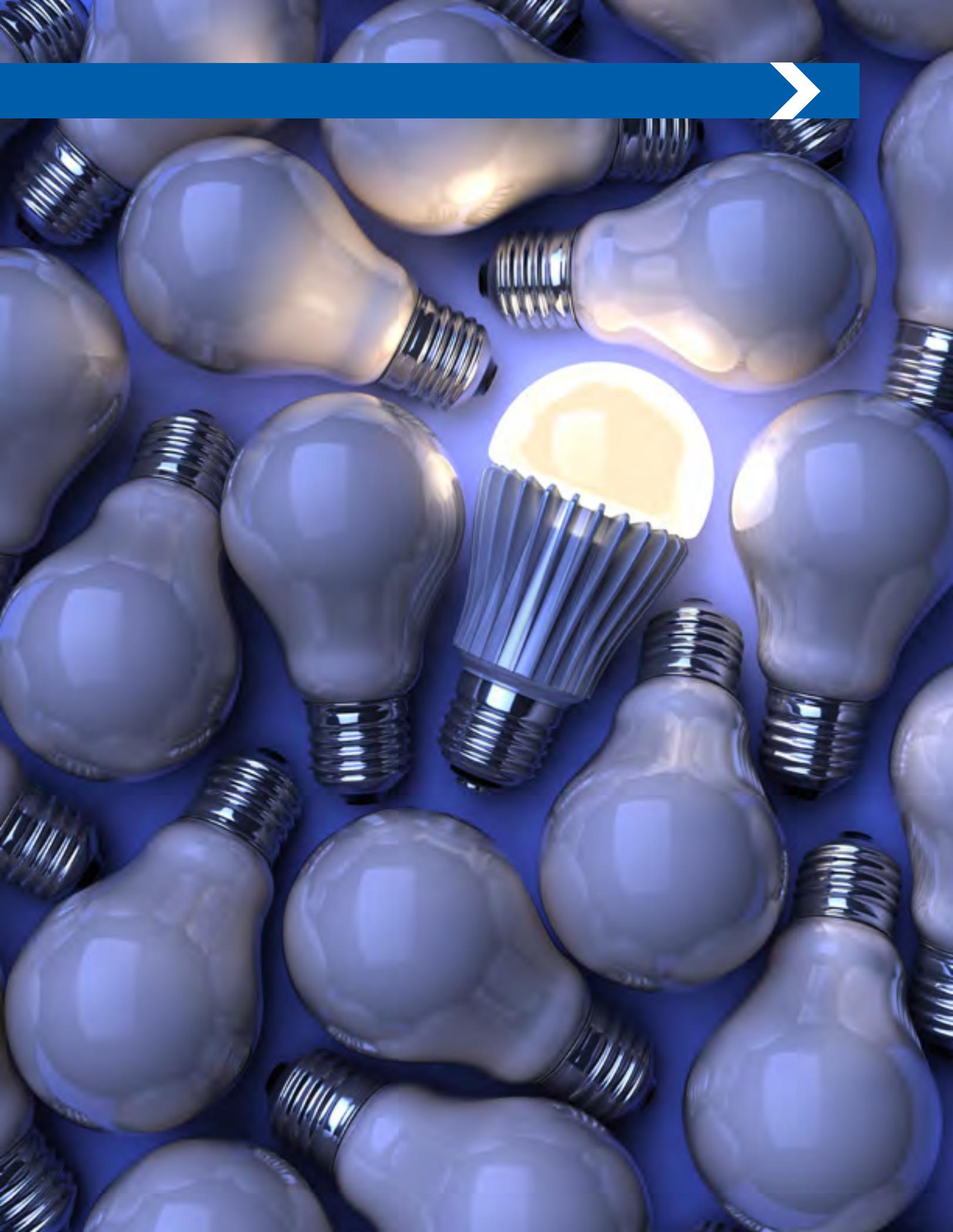
Reporting Results: Regulatory Opportunities Relating to Federal Carbon Emissions Regulation

Four utilities explicitly referenced federal carbon emissions regulations as potential opportunities, primarily through increasing opportunities for natural gas. According to Sempra Energy, *"Policies around air pollution limits create stronger demand for lower-emitting fuels such as natural gas and zero emission renewable energy. U.S. EPA regulations are expected to result in retirement of up to 60 GW of coal-fired generation... Sempra's low carbon approach and focus on natural gas and renewable energy puts the company in an excellent position to take advantage of related investment opportunities."*

"The methods that Entergy uses to manage these opportunities include developing an integrated resource plan, electric generation portfolio management, and voluntary reduction of GHG emissions."

- Entergy Corporation

The impacts these utilities identified included increased demand in products/services, increased stock price, and investment opportunities. To manage the potential demand increase for natural gas, the utilities are implementing management methods, such as Sempra's natural gas pipeline, to help increase fuel switching and CMS Energy's Customer Attachment Program and Gas Asset Management Department. Utilities are also managing the opportunities provided by federal emissions limits through investment in renewable energy and capacity. For example, Ameren noted, *"Ameren is increasing the operating efficiency and capacity of our nuclear and hydroelectric plants, to provide more energy to offset fossil fuel generation. Ameren is evaluating the potential for new low or zero-emitting generation technologies in response to potential climate change legislation."*



UTILITY SECTOR AND FEDERAL EMISSIONS REGULATIONS

Responding utilities addressed federal emissions regulations, specifically emissions limits proposed under Sections 111(b) and 111(d) of the Clean Air Act, throughout their CDP responses. The EPA proposed rules under Section 111(b) to limit emissions from new, modified, and reconstructed stationary sources, and rules proposed under Section 111(d) that set state emissions limits on existing stationary sources. These regulations figured notably in utility risk identification, with utilities identifying increased costs as the largest risk. Utilities also identified these proposed regulations as opportunities, though not as prominently. In particular, utilities reported opportunities for increased demand of their renewable energy offerings. Utilities also reported engagement activities around these regulations.

These regulations proposed under Section 111 of the Clean Air Act will impact utilities, and it is evident from the data that utilities are engaged in rule development and evaluating the impacts from these regulations. Further, despite the reported risks from such regulations, many utilities are a step ahead regarding compliance with 111(d) specifically, as many are already focused on low and zero emissions offerings either through fuel mixes or renewable and energy efficiency programs.

The EPA designed the 111(d) regulations to help states obtain reduction targets and encompass the following four primary building blocks:



1

Reduce the carbon intensity of existing generation.



2

Substitute lower-emitting generation for carbon-intensive methods.



3

Substitute zero and low carbon generation (renewable energy or nuclear) for affected generating units.



4

Reduce the amount of generation (and, thus, emissions) required through demand-side energy efficiency initiatives.⁶

⁶U.S. EPA. EPA Fact Sheet: Clean Power Plan. "National Framework for States: Setting State Goals to Cut Carbon Pollution." Available online at: <http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-setting-goals.pdf>

Since the EPA released the 111(d) rule, states, along with utilities, have been working to determine what the regulations mean for them and which compliance mechanisms are most cost-effective and logical in their jurisdictions. The regulation provides states with the flexibility to design a compliance strategy that fits their circumstances and resources. For 111(d), the Clean Power Plan identifies many potential state plan compliance mechanisms, including these:

- Demand-side energy efficiency programs
- Renewable energy standards
- Efficiency improvements at power plants
- Co-firing or switching to natural gas

- Transmission efficiency improvements
- Energy storage technology
- Power plant retirement
- Expanding renewables or nuclear
- Market-based trading programs
- Energy conservation programs⁷

Utilities must identify the most cost-effective compliance mechanisms and work with states to develop compliance plans that take advantage of systems and programs already in place to achieve emissions reduction goals.



⁷U.S. EPA. EPA Fact Sheet: Clean Power Plan. "The Role of States: States Decide How They Will Cut Carbon Pollution." Available online at: <http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-states-role.pdf>

CONCLUSION

The utility sector has a high disclosure average of 81 percent. Most utilities reported active emissions reduction initiatives and emissions reduction targets, which have the potential to help utilities comply with emissions limits set by federal regulations. Further, utilities have been meeting best practices such as engaging with policymakers and evaluating their risks and opportunities (e.g., climate change in business strategies and communicating climate change in publications).

However, with responding utilities averaging a C performance score, it appears this sector is struggling with overall performance. The majority of utilities saw an increase in emissions, primarily due to increased demand. In light of the federal carbon emissions regulations, this may present a serious risk to many utilities as increased costs may be required to reduce emissions and comply with regulations. Further, though the majority of utilities use CEM for Scope 1 emissions and additional verification is not mandated by CDP, less than half of the utilities conducted third-party verification on their Scope 2 emissions; even fewer utilities verified Scope 3 emissions, which has an impact on the sector's overall performance average.





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