

**Module: Introduction****Page: Introduction**

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**CC0.1****Introduction**

Please give a general description and introduction to your organization.

Pinnacle West is a holding company that conducts business primarily through our wholly owned subsidiary, Arizona Public Service Company (APS), with approximately \$3.5 billion in annual revenues. APS' corporate vision is to create a sustainable energy future for Arizona. APS achieves this vision by operating as a vertically integrated electric utility that provides retail and wholesale electric service to most of the state of Arizona. APS generates safe, affordable and reliable electricity for nearly 1.2 million retail and residential customers in 11 of Arizona's 15 counties.

**FORWARD-LOOKING STATEMENTS**

This report contains forward-looking statements based on current expectations. These forward-looking statements are often identified by words such as "estimate," "predict," "may," "believe," "plan," "expect," "require," "intend," "assume" and similar words. Because actual results may differ materially from expectations, we caution you not to place undue reliance on these statements. A number of factors could cause future results to differ materially from historical results, or from outcomes currently expected or sought by us. A discussion of some of these risks and uncertainties is contained in our annual report on Form 10-K and is available on our website at [pinnaclewest.com](http://pinnaclewest.com), which you should review carefully before placing any reliance on our forward-looking statements, financial statements or disclosures. We assume no obligation to update any forward-looking statements, even if our internal estimates change, except as may be required by applicable law.

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**CC0.2****Reporting Year**

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year. Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed
Thu 01 Jan 2015 - Thu 31 Dec 2015

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### CC0.3

#### Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country
United States of America

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### CC0.4

#### Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD(\$)

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### CC0.6

## Modules

As part of the request for information on behalf of investors, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sub-industries, companies in the oil and gas sub-industries, companies in the information technology and telecommunications sectors and companies in the food, beverage and tobacco industry group should complete supplementary questions in addition to the main questionnaire.

If you are in these sector groupings (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will not appear below but will automatically appear in the navigation bar when you save this page. If you want to query your classification, please email [respond@cdp.net](mailto:respond@cdp.net).

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below. If you wish to view the questions first, please see <https://www.cdp.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

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### Further Information

#### Module: Management

#### Page: CC1. Governance

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### CC1.1

#### Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

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### CC1.1a

#### Please identify the position of the individual or name of the committee with this responsibility

(i) Chairman of the Board, President and Chief Executive Officer of Pinnacle West and Arizona Public Service Company - Donald Brandt: Mr. Brandt provides the vision and leadership to execute the Company's strategy and create shareholder value. Additionally, Mr. Brandt has overarching responsibility for managing risk including climate change and greenhouse gas risk that directly or indirectly affects our company's mission and vision.

(ii) The Chairman of the Board, President and CEO is the highest ranking executive in charge of the company. He chairs the Board of Directors and as an experienced leader with extensive knowledge of the Company and our industry, serves as a highly effective conduit between the board and management.

(iii) The board's oversight of the company's risk management function is designed to provide assurance that the company's risk management processes are well adapted to, and consistent with, the company's business and strategy, and are functioning as intended. The board focuses on fostering a culture of risk awareness

and risk-adjusted decision-making and ensuring that an appropriate, “tone at the top” is established. The board regularly discusses and updates a listing of areas of risk and a suggested allocation of responsibilities for such risks among the board and the board committees.

(iv) The Executive Risk Committee is comprised of senior level officers of the company and is chaired by the Chief Financial Officer. Among other responsibilities, this committee is responsible for ensuring that the Board receives timely information concerning the Company’s material risks and risk management processes. The Executive Risk Committee provides the board with a list of the company’s top risks on an annual basis.

**CC1.2**

**Do you provide incentives for the management of climate change issues, including the attainment of targets?**

Yes

**CC1.2a**

**Please provide further details on the incentives provided for the management of climate change issues**

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Corporate executive team	Monetary reward	Emissions reduction target Behaviour change related indicator	Our executive compensation programs focus on transparency with an emphasis on incentivizing performance. APS's compensation philosophy incorporates multiple business performance metrics including nuclear capacity factor to assess executive performance. For example, the Palo Verde Nuclear Generation Station's (Palo Verde) capacity factor. Palo Verde is the country's largest source of carbon-free energy. In 2015, Palo Verde's capacity factor target was set at 91.5% and we exceeded this target with a capacity factor of 94.3%. As a result, Palo Verde generated 32.5 million megawatt-hours, and it remains the only U.S. generating station to produce more than 30 million megawatt-hours in a year. This corresponds to avoiding almost 18 million metric tons of carbon emissions had this energy been generated from our fossil fleet. This also demonstrates improved nuclear capacity factors which increases our non-emitting electric generation. In addition, executive compensation is tied to consumer choices that impact climate change such as paperless billing adoption. Paperless billing adoption helps the environment by

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
			reducing paper waste. Executive annual cash incentive plans are 100% tied directly to business unit performance which are based on value-driving business metrics.
Business unit managers	Monetary reward	Emissions reduction target Behaviour change related indicator	Business Unit Managers receive annual cash incentive bonuses based on the achievement of performance of metrics that are related to climate change issues, for example, nuclear capacity factor and paperless billing adoption, which were designated as incentivized metrics in the Business Unit/Corporate Resource business plans.
All employees	Monetary reward	Emissions reduction target Behaviour change related indicator	Employees receive annual cash incentive bonuses based on achievement of performance of metrics that are related to climate change issues, for example, nuclear capacity factor and paperless billing adoption, which were designated as incentivized metrics in the Business Unit/Corporate Resource business plans.

#### Further Information

#### Attachments

[https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC1.Governance/Corporate Governance Guidelines.pdf](https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC1.Governance/Corporate%20Governance%20Guidelines.pdf)

[https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/ClimateChange2016/CC1.Governance/Pinnacle West Proxy Statement 2016.pdf](https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/ClimateChange2016/CC1.Governance/Pinnacle%20West%20Proxy%20Statement%202016.pdf)

#### Page: CC2. Strategy

#### CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

**CC2.1a**

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	All geographic locations of the corporation	> 6 years	Company risks are reviewed on a quarterly basis by executive management and the Audit Committee of the Board of Directors on a quarterly basis via the SEC reporting process. In addition, select board committees are updated on climate change risks by a Vice President of a given business area on an annual basis. The Executive Risk Committee also provides the Board of Directors with a list of the company's top risks on an annual basis. For APS, climate change risks include drought, frequency and intensity of monsoon storms, and forest fires. APS evaluates risks on a longer term horizon (>10 yrs.) with relation to regulatory drivers such as carbon regulation.

**CC2.1b**

Please describe how your risk and opportunity identification processes are applied at both company and asset level

(i) Company level - The Enterprise Risk Management (ERM) Department facilitates the establishment and implementation of committee(s) and process (es) for the identification and reporting of material risks inherent to the company's business to executive management. Risks are identified, defined, assessed, and prioritized based on the likelihood and impact of their occurrence. An Enterprise Risk is a risk event which, if it occurs, will have financial, operational, or reputational impacts of significance at the company level and will threaten meeting the company's risk management objectives and obligations.

(ii) Asset Level - Due to the complexity of its operating, financial, and regulatory environment, the company has numerous risk objectives and obligations, which are addressed by policies and controls, processes, and programs at both the company and the asset level. Risks are identified, defined, assessed, and minimized at an asset level. Business areas maintain an inventory of their most significant risks and associated Risk Response plans, in support of the ERM Process. Annually, business areas record this information in a prescribed format, which allows analysis, categorization, and prioritization of risks to support development of an enterprise risk management profile.

(iii) APS uses a Planning Committee to identify and evaluation opportunities, including possible opportunities associated with climate change, both at the company and asset level. The Planning Committee is comprised of senior company executives that identify, evaluate and plan strategic direction recommendations that are presented to the Chief Executive Office and Board of Directors. The Planning Committee uses input from informed stakeholders and subject matter experts to formulate strategic business planning and management methods. In addition, the Planning Committee directs corporate strategic initiatives to help ferret out opportunities consistent with strategic business direction.

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**CC2.1c**

**How do you prioritize the risks and opportunities identified?**

Risk prioritization begins with ranking risks according to the outcome of the likelihood and impact assessment. Each risk is then assessed against further criteria to develop a true prioritization. Risk prioritization can include an assessment of likelihood, risk direction, velocity, external evidence, and feasibility and cost of new mitigation. For business risks, quantitative correlation analysis is used for company projects and business scenarios to provide probability distributions of cost contingencies and schedule uncertainties for multiple risk drivers. This type of sensitivity analysis is used to illuminate factors affecting the budget and timing of Company projects, leading to more effective and efficient mitigation strategies. The company is in the early stages of developing a process to quantitatively determine risk correlation of key high-level risks at an enterprise level, as well as a qualitative complexity assessment tool for project risk management.

The Planning Committee reviews company metrics, financial performance and business plans on a quarterly basis to ensure corporate targets are being met. Any identified opportunities are prioritized based on the opportunity's ability to assist in meeting or exceeding corporate targets.

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**CC2.1d**

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment
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**CC2.2**

## Is climate change integrated into your business strategy?

Yes

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### CC2.2a

#### Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

Climate change has been integrated into our business strategy through our Integrated Resource Plans (IRP). The IRP serves as a roadmap for which types of power generation resources our company will need over the next 15 years. The plan also serves as an official forecast of how APS will meet customers' energy needs through the company's 15-year planning period and fulfil regulatory targets, such as compliance with Arizona's energy efficiency and renewable energy standards. The company submits an IRP every two years to comply with the Arizona Corporate Commission's (ACC) integrated resource planning rules.

- i.) APS's executive team recognizes the importance of having a carbon strategy because it is a key factor in mitigating financial, physical, and operational risks. Climate change issues, particularly carbon costs and water resources, are a critical parameter in our long-range resource planning process which is developed in conjunction with the ACC. Following a look at the broad trends affecting the energy industry, the resource planning process begins with the evaluation of two core resource planning questions: What quantity of resources does APS need? What is the timing of those needs? Using those questions as a backdrop, both existing and future resources (utility-side and customer-side) were considered, major risks inherent in long-term energy planning efforts were identified, and analytical models were developed and implemented to produce a series of resource portfolios for further evaluation. Stakeholder meetings were an integral component of developing this plan and provided valued perspectives that were considered throughout the report development process.
- ii.) In the formulation of the IRP, uncertainties regarding environmental regulation and the evolving nature of the electric industry significantly influenced the plan. As a result, understanding current and potential future environmental regulations is an important part of the planning process. Environmental regulations are promulgated on the federal (Environmental Protection Agency), state (Arizona Department of Environmental Quality), and county (Maricopa, Pinal, and Pima) levels. EPA, specifically, is considering multiple regulations that may have an impact on APS' operations. In response to the uncertainty around environmental regulations, APS will focus on the following: utilizing a combination of market-based solutions, updating conventional generation resources, continuing expansion of renewable generation, adding transmission resources, evaluating and deciding on our remaining coal fleet, continuing implementation of customer resources, and investing in advanced grid technologies.
- iii.) Renewable generation is a growing piece of our energy mix. Consumer demand for "green" electricity and the growth of renewables are driving the creation of new customer programs and the need to upgrade grid technology to ensure uninterrupted electricity delivery across the system. Through the APS Solar Partner program, APS plans to construct and integrate 10 megawatts of residential solar on about 1,500 customers' roofs. This program will also enable critical research and development to advance industry knowledge related to rooftop solar, while identifying the most responsible ways to integrate residential rooftop solar for customer benefit well into the future. In addition, nuclear power is a critical aspect of our climate change response. Palo Verde Nuclear Generating Station still leads the entire United States in producing safe, reliable, affordable, carbon-free electricity. With all three Palo Verde units operating at 99.7 percent capacity during the summer, Palo Verde exceeded its own record for power generation for the 10th time – producing 32.3 million megawatt-hours (MWh) in 2014, beating its previous best of 31.9 million MWh in 2012. For the second consecutive year, a planned refueling outage at Palo Verde was completed in the record time of 28 days and 22 hours, 20 hours less than the previous record set in 2013.

iv.) The most important component of our IRP is providing the most reasonable combination of overall economic performance, and flexibility in the generation fleet to support grid reliability, integrating renewable energy and managing uncertainties. The IRP process enables APS to develop long-term plans and evaluate which resource options may be appropriate given today's forecasts of future energy needs, resource costs and associated uncertainties. Across the country and throughout the world, the electric utility industry is changing. Technological advancements, regulatory requirements and increasing levels of variable generation are reshaping not only how and where APS generates energy, but also how customers use it. Important for APS is the growth of solar generation, one of the fastest-growing energy sources in the Company's service territory. Solar generation adds environmentally-friendly energy when the sun shines and it also requires a responsive, supportive electric grid and additional flexible resources to balance the system in order to continue meeting customers' energy needs reliably. Conventional resources, such as coal and nuclear, have provided steady, reliable generation to Arizonans for decades, but due to their relatively inflexible operation, traditional base load resources will begin to be challenged. Natural gas, propelled by technological innovation in its exploration and extraction, will play an increasingly important role in transforming the resource portfolio into one that is more flexible and responsive to the needs of customers, as well as the broader electric grid.

v.) Our regulated electric business does not face direct competition from other utility companies. However, it is imperative to ensure that customers in our service territory are provided with safe, reliable and affordable electricity into the foreseeable future. To ensure we continue to provide the same quality of service, a diverse fuel mix is critical to effectively manage overall price volatility for our customers, and to insulate against risks in commodity supply chains such as price spikes or infrastructure issues. As we continue to develop our renewable portfolio, we are providing an even better energy supply diversity for our customers. From 2014 to 2029, APS will significantly diversify its energy mix meeting 52 percent of growth with non-carbon emitting resources.

vi.) Substantial business decisions made during the reporting year that address climate change include 1) an additional 97 megawatts of clean solar energy that was added to our generation mix, 2) investing \$3.5 billion in Arizona's electricity infrastructure through 2017, 3) targeting investments in smart-grid technologies that enhance customer satisfaction, 4) improving power quality and enabling the continued growth of distributed generation and other technical advances.

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#### CC2.2b

Please explain why climate change is not integrated into your business strategy

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#### CC2.2c

**Does your company use an internal price of carbon?**

Yes

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#### CC2.2d

**Please provide details and examples of how your company uses an internal price of carbon**

Carbon prices are challenging to forecast because, despite numerous efforts, the federal government has not reached policy consensus on the magnitude, timing, or need for a carbon tax. Public support for less carbon intensive resource options has garnered strength over the years and that momentum is expected to continue. Therefore, in a 15-year forecast, robust planning suggests the potential for some level of carbon pricing or regulation. It is difficult to forecast what final form that regulation may take; nonetheless, APS has included in its analysis the potential for carbon pricing. APS is incorporating assumed carbon costs based on the actual trading price of CO2 allowances in the California market as of September 24, 2013. For this analysis, it is assumed that federal legislation occurs requiring utilities to acquire carbon allowances beginning in 2021. Carbon prices are then escalated at the rate of inflation.

**CC2.3**

**Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)**

- Direct engagement with policy makers
- Trade associations
- Funding research organizations

**CC2.3a**

**On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Other: Energy Policy	Support	In 2013, APS and the ACC stepped to the forefront of an emerging policy issue: how to ensure utility rate design keeps pace with the modernization of the electricity grid and the changing ways customers are using electricity. The most urgent aspect of this issue was to determine how customers with rooftop solar panels on their homes should be compensated for the energy they generate, while ensuring those customers also pay their fair share to maintain the electric grid. This engagement continued through 2015 and has received national recognition.	It is important to understand that this is not just an Arizona issue. Many states are changing retail rate designs to address changes in how customers use electricity. As rooftop solar continues to increase around the U.S., these changes in rate design are necessary to make this emerging technology sustainable. Ultimately, our industry needs to tackle the broader problem of modernizing how electric utilities price their services. By tackling this issue, we can ensure electric rates represent a truer reflection of fixed grid-related costs, while incorporating greater rate flexibility, enabling technological innovations that improve reliability and the customer experience, and maintaining affordability and transparency for all customers.

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	<p>The APS State and Local Affairs team works closely with state legislators to address public policy discussions affecting climate change. Making these connections requires building consensus on complex issues. The Government Affairs team works tirelessly to represent Pinnacle West's best interests, as well as the best long-term interests of our customers, our shareholders and the state while establishing sound public policy.</p>	<p>We will continue to promote energy efficiency programs that reduce the energy needed by our customers. In 2015, we continued to meet the energy efficiency standard (EES) goal required by the Arizona Corporation Commission (ACC). In 2015, APS focused on targeted marketing of programs based on data analytics, adding light emitting diode (LED) lighting options and expanding programs like behavioral conservation and residential new construction</p>
Cap and trade	Neutral	<p>The APS State and Local Affairs team works closely with state legislators to address issues important to our company. Making these connections requires building consensus on complex issues. The Government Affairs team works tirelessly to represent Pinnacle West's best interests, as well as the best long-term interests of our customers, our shareholders and the state.</p>	<p>There have been no recent attempts by Congress to pass legislation that would regulate greenhouse gas ("GHG") emissions, and it is unclear whether the 114th Congress will consider a climate change bill. In the event climate change legislation ultimately passes, the actual economic and operational impact of such legislation on APS depends on a variety of factors, none of which can be fully known until a law is enacted and the specifics of the resulting program are established. These factors include the terms of the legislation with regard to allowed GHG emissions; the cost to reduce emissions; in the event a cap-and-trade program is established, whether any permitted emissions allowances will be allocated to source operators free of cost or auctioned (and, if so, the cost of those allowances in the marketplace) and whether offsets and other measures to moderate the costs of compliance will be available; and, in the event of a carbon tax, the amount of the tax per pound of carbon dioxide ("CO2") equivalent emitted.</p>
Carbon tax	Neutral	<p>The APS State and Local Affairs team works closely with state legislators to address issues important to our company. Making these connections requires building consensus on complex issues. The Government Affairs team works tirelessly to represent Pinnacle West's best interests, as well as the best long-term interests of our customers, our shareholders and the state.</p>	<p>There have been no recent attempts by Congress to pass legislation that would regulate greenhouse gas ("GHG") emissions, and it is unclear whether the 114th Congress will consider a climate change bill. In the event climate change legislation ultimately passes, the actual economic and operational impact of such legislation on APS depends on a variety of factors, none of which can be fully known until a law is enacted and the specifics of the resulting program are established. These factors include the terms of the legislation with regard to allowed GHG emissions; the cost to reduce emissions; in the event a cap-and-trade program is established, whether any permitted emissions allowances will be allocated to source operators free of cost or auctioned (and, if so, the cost of those allowances in the marketplace) and whether offsets and</p>

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
			other measures to moderate the costs of compliance will be available; and, in the event of a carbon tax, the amount of the tax per pound of carbon dioxide ("CO2") equivalent emitted.
Other: Senate Bill 1465	Support	The APS State and Local Affairs team works closely with state legislators to address issues important to our company. Making these connections requires building consensus on complex issues. The Government Affairs team works tirelessly to represent Pinnacle West's best interests, as well as the best long-term interests of our customers, our shareholders and the state.	Senate Bill 1465 requires solar companies to disclose certain information to customers who decide to lease or buy a rooftop solar system.
Other: Senate Bill 1007	Support	The APS State and Local Affairs team works closely with state legislators to address issues important to our company. Making these connections requires building consensus on complex issues. The Government Affairs team works tirelessly to represent Pinnacle West's best interests, as well as the best long-term interests of our customers, our shareholders and the state.	Senate Bill 1007 authorized the Arizona Department of Environmental Quality to develop and implement a state plan for carbon dioxide in response to the new federal CO2 rulings.
Other: Senate Bill 1001	Support	The APS State and Local Affairs team works closely with state legislators to address issues important to our company. Making these connections requires building consensus on complex issues. The Government Affairs team works tirelessly to represent Pinnacle West's best interests, as well as the best long-term interests of our customers, our shareholders and the state.	Senate Bill 1001 appropriated more than \$2 million for the Nuclear Emergency Management Fund to support the state response plan for commercial nuclear emergencies, which was necessary to maintain the operating license for the Palo Verde Nuclear Generating Station.

**CC2.3b**

**Are you on the Board of any trade associations or provide funding beyond membership?**

Yes

**CC2.3c**

**Please enter the details of those trade associations that are likely to take a position on climate change legislation**

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
WEST Associates	Consistent	Recognizes the potential impact of climate change on electric utilities and works to integrate the unique western conditions into viable solutions.	We provide technical support and funding to the organization.
Edison Electric Institute	Consistent	Global climate change presents one of the biggest current energy and environmental policy challenges. EEI member companies are committed to addressing the challenge of climate change and have undertaken a wide range of initiatives over the last 30 years to reduce, avoid or sequester GHG emissions. Policies to address climate change should seek to ensure energy reliability, minimize impacts on consumers and avoid harm to U.S. industry and the economy.	We are members of the Edison Electric Institute which works with climate changes issues on an industry wide aspect.
Nuclear Energy Institute	Consistent	Reducing carbon dioxide emissions, while fostering sustainable development, is a major global challenge of the 21st century. Nuclear energy is a vital source of electricity that can meet the nation's growing energy needs with a secure, domestic energy supply that also protects our air quality. The Nuclear Energy Institute supports federal action or legislation to reduce greenhouse gas (GHG) emissions. Any such federal initiative should: - involve all sectors of the economy and all sources of greenhouse gas; - assure stable, long-term public/private funding to support the development and deployment of needed technology solutions; - assure compliance timelines are consistent with those of expected development and deployment of needed technologies; - employ market mechanisms to secure cost-effective GHG reductions, and provide a reasonable transition and an effective economic safety valve; - establish a long-term price signal for carbon that is moderate, does not harm the economic competitiveness of U.S. industry; and stimulates future investments in zero- or low-carbon technologies and processes; - address regulatory or economic barriers to the use of carbon capture and storage, and increased nuclear, wind or other zero- or low-GHG technologies; - minimize economic disruptions or disproportionate impacts; - recognize early actions/investments made to mitigate GHG emissions; - provide for the robust use of a broad range of domestic and international GHG offsets; - provide certainty and a consistent national policy; and - recognize the international dimensions of the challenge and facilitate technology transfer.	Our Chairman and CEO serves as the chairman of the Nuclear Energy Institute.
Nature Conservancy	Consistent	Climate change is one of the world's most urgent challenges and an immediate risk to our communities, economies, and to our conservation mission. We must act, as individuals, in our communities, as business leaders, and as policymakers. The Nature Conservancy is promoting practical, innovative solutions to create a prosperous, low-carbon future that is cleaner, healthier, and more secure for everyone.	Our Chairman and CEO serves on the board of the Nature Conservancy in Arizona.

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**CC2.3d**

**Do you publicly disclose a list of all the research organizations that you fund?**

Yes

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**CC2.3e**

Please provide details of the other engagement activities that you undertake

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**CC2.3f**

**What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

APS's Vice President of Federal Affairs is responsible for developing positions and policy on issues related to energy, utilities, nuclear power, the environment, natural resources, conservation and taxes. The Public Policy business unit is responsible for developing coordinated internal relationships and business positions in order to pursue positive regulatory and legislative outcomes that support corporate and business unit objectives, and address important evolving regulatory, political, and economic issues that are key to the company's business. Our company public policy representatives are also actively engaged in advocacy on a range of legislation – from climate change to nuclear power to healthcare that would impact our business and our industry. In addition, our Chief Sustainability Officer is involved at the executive level to ensure consistent policy related to environmental matters including climate change.

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**CC2.3g**

Please explain why you do not engage with policy makers

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**Further Information**

**Page: CC3. Targets and Initiatives**

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**CC3.1**

**Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?**

Intensity target  
Renewable energy consumption and/or production target

**CC3.1a**

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment

**CC3.1b**

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1	99%	6.4%	Other: lbs. per megawatt hour (MWh)	2012	1166	2025	No, but we anticipate setting one in the next 2 years	In 2015, the carbon intensity from our fossil generation was 1091 lbs./MWh, which is a 6.4% reduction for our 2012 intensity value of 1,166 lbs./MWh. 2012 has been set as the baseline year for our fossil carbon intensity target because it is the baseline year for carbon emission reductions associated with the Clean

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
									Power Plan. APS saw a 6.4% reduction in the carbon intensity of our fossil generation fleet, which dropped to 1091 lbs. per MWh in 2015 from 1,166 lbs. per MWh in 2012.

**CC3.1c**

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	Decrease	5.6	No change	0	From 2012 - 2015, APS has reduced its CO2 emissions by 5.6%. In 2012, APS's scope 1 emissions were 14,614,070 metric tons. In 2015, APS's scope 1 emissions were reduced to 13,580,663 metric tons.

**CC3.1d**

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity production	2007	324094	1.1%	2025	15%	In 2007, APS purchased or generated 324,094 MWh of renewable energy, or approximately 1.1 percent of total retail sales. This total includes renewable generation APS has under contract, APS-owned solar generation, as well as the energy generated by Solar Partners Incentive Program ("SPIP") participants. By 2025, we are targeting to have at least 15% of our energy from renewable generation. 2007 is used as the baseline year because this was the first year APS implemented actions for the states renewable energy standard.

### CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Int1	28%	6.4%	In 2015, the carbon intensity from our fossil generation was 1091 lbs./MWh, which is a 6.4% reduction for our 2012 intensity value of 1,166 lbs./MWh. Our fossil carbon emission intensity target for the target year 2025 is 668 lbs./MWh.
RE1	47%	66%	By the end of 2015, renewable energy supplied about 10% of our retail customer's electricity needs.

### CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

**CC3.2**

**Do you classify any of your existing goods and/or services as low carbon products or do they enable a third party to avoid GHG emissions?**

Yes

**CC3.2a**

**Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions**

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Product	The cumulative energy savings from APS energy efficiency programs have resulted in avoided carbon emission of approximately 14.5 million metric tons since these programs commenced in 2005.	Avoided emissions	Other: Energy Efficiency Standards	2%	Less than or equal to 10%	APS's Demand Side Management equation for CO2 avoidance is the net lifetime MWh savings multiplied by 899 lbs. per MWh. To determine lifetime MWh savings, the net annual MWh savings for each measure and multiplied by the expected life for each measure. This means that the expected savings over the life of the EE measure installed are accounted.

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**CC3.3**

**Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)**

Yes

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**CC3.3a**

**Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings**

<b>Stage of development</b>	<b>Number of projects</b>	<b>Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)</b>
Under investigation	0	0
To be implemented*	0	0
Implementation commenced*	0	0
Implemented*	3	4228576
Not to be implemented	0	0

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**CC3.3b**

**For those initiatives implemented in the reporting year, please provide details in the table below**

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Energy Efficiency Programs: (i) How emissions are avoided: APS offers a wide variety of demand side management (DSM) and energy efficiency programs to our residential and business customers. These include rebates and other incentives, training and energy information services to help customers improve energy efficiency and reduce demand. Conserving energy means less power needs to be generated to meet customer needs, which results in fewer emissions impacts (Scope 2 emissions) the environment and fewer resources being consumed to produce that energy. Looking to the future, energy efficiency also allows APS to defer the construction of new generation to meet the demand for electricity. (ii)	2227126	Scope 1	Mandatory	2815393	67925293	1-3 years	6-10 years	In 2015, APS continued to meet the energy efficiency standard (EES) goal required by the Arizona Corporation Commission (ACC). APS invested approximately \$67.9 million in DSM and energy efficiency programs. This resulted in 552,424 MWh of annual savings.

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	<p>Estimate of avoided emissions: Emission reductions resulting from 2015 energy savings are estimated to have avoided 2,227,126 metric ton of CO2. (iii) This is a mandatory activity established by the Arizona Corporation Commission that requires APS to achieve savings equivalent to 22% of retail sales by 2020. (iv) Estimate of avoided emissions: Avoided emissions are based on the net energy savings of all program measures installed during the Reporting Period over their expected lifetimes. (v) This activity is expected to continue both near and long term (Estimated 1-10 years).</p>								
Transportation: fleet	APS continues to reduce carbon emissions from our transportation fleet by converting to more fuel efficient vehicles and by	1435	Scope 1	Voluntary	8957	\$335,000	4-10 years	6-10 years	Altogether, the 2015 total fleet carbon emissions were 15,649 metric tons. This represents an 8 percent decrease from

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	increasing the efficient use of our current fleet. In 2015, we replaced 10 sedans with plug-in hybrid electric vehicles (PHEVs), bringing the total of PHEVs within our fleet to 13. Each qualified Class 3 sedan that switches to hybrid electric is estimated to save approximately \$8,957 on fuel over 10 years based on 2013 fuel costs.								our total fleet carbon emissions in 2014 (17,084 metric tons).
Other	Due to the need for significant change in environmental equipment to meet U.S. Environmental Protection Agency regulations, APS permanently retired one coal-fired unit at our Cholla Power Plant in 2015. We have not included estimated costs for Cholla's compliance with MATS or EPA's regional haze rule since we have challenged the regional haze rule judicially and we have	2000000	Scope 1	Voluntary	100000000	0	1-3 years	11-15 years	Using 2012 as a baseline year, the permanent retirement of Cholla unit 2 will result in an annual avoidance of about 2 million metric tons of carbon emissions. APS uses 2012 as a baseline year for the evaluation carbon emission impacts because it is baseline year used in the EPA Clean Power Plan for determining future carbon reductions for the electric utility industry.

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	proposed a compromise strategy to EPA, which, if approved, would allow us to avoid expenditures related to environmental control equipment.								

### CC3.3c

#### What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	Four Corners Power Plant units 1, 2 and 3 shut down in December 2013. The shutdown of Units 1 - 3 was in response to Environmental Protection Agency (EPA)'s increased requirements. The company decided taking the units out of service was more cost effective than installing costly selective catalytic reduction (SCR) equipment. The installation of the equipment, required to meet EPA's requirements, wasn't economically feasible for the aging units.
Dedicated budget for other emissions reduction activities	APS is a key committee member in the development of the Edison Electric Institute (EEI) Electrification Initiative, with the goal of accelerating the adoption of plug-in hybrid electric vehicles (PHEVs) throughout the electric utility industry. Involvement in this program allows APS to exchange valuable ideas, understand emerging technologies and identify potential opportunities within our fleet. In 2014, we launched the fleet electrification initiative to lead by example through reducing our CO2 emissions, fuel costs and fleet maintenance costs. Light-duty trucks will also be evaluated for replacement as emerging technology becomes commercially available.
Internal price of carbon	APS maintains a projection on carbon pricing. The internal cost and projection is used to evaluate business decisions.

Method	Comment
Partnering with governments on technology development	APS has taken an industry lead to find innovative ways to increase customer and system reliability and meet future resource needs by partnering on microgrid projects with customers like the Marine Corps Air Station Yuma. The signing of this deal marks the start of a new collaboration between the Department of the Navy and APS, and will exemplify energy security and resiliency.
Financial optimization calculations	APS conducts Integrated Resource Plans to select the optimal mix of resources to meet future energy needs.
Dedicated budget for energy efficiency	APS implements energy efficiency programs approved by the Arizona Corporation Commission. These programs have a dedicated budget and result in both capacity and energy savings for APS. These programs also result in energy savings and emission reduction for our customers.
Dedicated budget for low carbon product R&D	APS participates in R & D programs through the Electric Power Research Institute (EPRI) dedicated to sustainability, electric transportation, energy storage and distributed generation research.

#### CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

#### Further Information

**Page: CC4. Communication**

#### CC4.1

Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Status	Page/Section reference	Attach the document	Comment
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Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) in accordance with the CDSB Framework	Complete	42, 44, 54	<a href="https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/CC4.1/Annual-Report-on-Form-10-K-Final.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC4.1/Annual-Report-on-Form-10-K-Final.pdf</a>	
In voluntary communications	Complete	38-43	<a href="https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/CC4.1/CRR-2015.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC4.1/CRR-2015.pdf</a>	
In other regulatory filings	Complete	33,58,78,132	<a href="https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/CC4.1/2014_IntegratedResourcePlan.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC4.1/2014_IntegratedResourcePlan.pdf</a>	
In other regulatory filings	Complete	8,13, 16-17, 19, 20	<a href="https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/CC4.1/APS%20Preliminary%202017%20IRP_Resource%20Planning-15-0094_030116.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC4.1/APS Preliminary 2017 IRP_Resource Planning-15-0094_030116.pdf</a>	

#### Further Information

### Module: Risks and Opportunities

#### Page: CC5. Climate Change Risks

##### CC5.1

**Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply**

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

##### CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Air pollution limits	A change in regulation that is driving an inherent risk for the utility sector, and APS in particular, is the Clean Power Plan (CPP). On 8/3/15, EPA signed the final CPP to regulate carbon dioxide emissions from existing power plants. Although the CPP is currently stayed pending review by the Supreme Court, APS continues to assess the impact of the CPP on its operations and APS's potential obligations. Before the stay was issued, APS and the Arizona Utilities Group (which is a	Increased operational cost	1 to 3 years	Direct	Likely	High	Under the CPP approximately 53% of APS generation assets are at risk of compliance obligations. The CPP will not require significant financial investment by APS. However, because of uncertainty related to legal challenges against the CPP and with the upcoming change in administration, it creates financial uncertainty. For example, APS and its partners have allocated over \$600 million dollars to add significant emission control equipment to the 4 Corners Power plant. Significant	APS continually monitors the regulatory landscape for potential environmental regulations that may impact our current and future operational goals. APS maintains a specialized Environmental Policy expert who works with the various operational teams to ascertain, review and track local, state and federal environmental regulations that have the potential to impact our current and future operational goals. For example, APS through its Environmental Policy expert and other management	There is a cost associated with monitoring the regulatory landscape as it relates to the CPP, including the cost of a full time Environmental Policy expert, subscriptions to the various tracking tools, memberships in various industry trade groups that help alert APS to proposed regulations and also help us understand any impacts on the industry as a whole and, finally significant employee time spent assessing and mapping the impacts of CPP on APS. Additionally, is planning to

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>working group comprised of all the major electric utilities in Arizona) had reviewed the obligations imposed by the CPP. The conclusion APS reached after exhaustive study was that the conversion from coal to natural gas and renewables required to meet the CPP (along with energy efficiency), were the very things that APS was already doing based on market forces and strategic long range planning. For years APS has been migrating its power generation assets away from coal and into natural gas</p>						<p>changes in the final CPP could have direct financial implications for this and other APS facilities. A substantial change in the CPP could require a change in APS's generation portfolio which in turn could require additional capital investments and increased operating costs, and thus have a significant financial impact on the Company. However, because APS, for years, has been proactively moving its generation towards a more balanced generation mix, APS remains well positioned.</p>	<p>level environmental experts participates in various local stakeholder meetings, such as the CPP technical working group of Arizona Department of Environmental Quality (ADEQ), the CPP large stakeholder meetings of ADEQ, and meetings with the ADEQ Air Quality Division Director. APS also participates in CPP review and assessment on a national level through its membership with numerous trade and industry groups.</p>	<p>spend upwards of \$500 million to build new gas-fired generating units that will help offset load demand as coal units are shut down.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>and renewables. This is the result of many different factors including, market forces which have pushed the price of natural gas to a level where it competes directly with coal, further diminishing the value of coal as the low cost energy option. Moreover, the way energy is used and the available energy generation mix has changed in recent years creating less need for large base-load plants and a greater focus on smaller, quick-ramping generation such as natural gas peaking and load shaping generating assets. Finally, the growth of the</p>								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>renewables market has directly impacted generation by providing significant renewable energy generation assets that further reduce the need for large base-load units while at the same time putting greater stress on the system as the larger number of small sources cause peaks and valleys spread over a larger operating timeframe. Although APS was well positioned under the CPP as written, because of the Supreme Court stay and the impending administration change in November of</p>								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	2016, APS is uncertain what the CPP will look like after the Supreme Court review or whether a new administration will change the goals and methods set forth in the CPP. Because of the scope and breadth of the CPP and its potential impacts to the electric utility sector, the CPP poses a significant, inherent risk driven by change in regulation.								
Cap and trade schemes	Although there are no current or planned congressional attempts to pass cap and trade legislation that would regulate greenhouse gas ("GHG") emissions, it is	Increased operational cost	Up to 1 year	Direct	Very unlikely	High	With over 50% of APS generation coming from fossil fuel sources, any cap and trade scheme will have a direct financial impact on our operations. For example, the	APS directly manages potential impacts from Carbon Cap and Trade programs. For example, under the California Cap and Trade program, entities selling electricity	There is a cost associated with the management of this risk driver. Primarily, the costs will consist of monitoring the regulatory landscape as it relates to a cap and trade

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>possible that the 2016 election cycle will create fertile ground for such legislation. In the event cap and trade legislation ultimately passes, the actual economic and operational impact of such legislation on APS depends on a variety of factors, none of which can be fully known until a law is enacted. These factors include the terms of the legislation with regard to allowed GHG emissions; the cost to reduce emissions; whether any permitted emissions allowances will be allocated to source operators free of cost or auctioned (and, if</p>						<p>California legislature enacted AB 32 and SB 1368 in 2006 to address GHG emissions. In October 2011, the California Air Resources Board approved final regulations that established a state-wide cap on GHG emissions beginning on January 1, 2013 and established a GHG allowance trading program under that cap. The first phase of the program, which applies to, among other entities, importers of electricity, commenced on January 1, 2013. Under the program, entities selling electricity into California, including APS, must hold carbon allowances to</p>	<p>into California, including APS, must hold carbon allowances to cover GHG emissions associated with electricity sales into California from outside the state. This creates direct financial implications to APS that must be managed. APS is currently authorized to recover the cost of these carbon allowances through the PSA. Additionally, APS uses the following management strategy: obtain information from federal and state agencies and third-party organizations; utilize the APS Regulatory Peer Review committee to ensure that all</p>	<p>program, including various internal full time and external legislative liaisons, networks of governmental relations experts and subscriptions to the various tracking tools, and memberships in various industry trade groups that help alert us to proposed legislation and also help us understand any impacts on the industry as a whole.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>so, the cost of those allowances in the marketplace) and whether offsets and other measures to moderate the costs of compliance will be available.</p>						<p>cover GHG emissions associated with electricity sales into California from outside the state. This creates direct financial implications to APS. If other states pass similar legislative initiatives aimed at CO2, APS may be required to purchase allowances for power sold to those jurisdictions.</p>	<p>aspects of the company understand the new proposed or final rule; update costs of technology needed for compliance as better information becomes available; monitor legislative activities related to CO2 and develop cost sensitivities to evaluate the potential impact; develop additional options, including scenarios containing minimum and maximum technology requirements to evaluate the range of possible outcomes; and incorporate a hypothetical carbon cost into resource planning analytics. APS also provides</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								comments, both through industry groups and independently, on local, state and federal proposed legislation and regulations in order to help influence the final requirements in a way that furthers our corporate vision of creating a sustainable energy future for Arizona.	
Carbon taxes	Although there are no current or planned state or federal efforts to pass a carbon tax that would regulate greenhouse gas ("GHG") emissions, it is possible that the 2016 election cycle will create fertile ground for such legislation at the state and federal levels. APS monitors all	Increased operational cost	Up to 1 year	Direct	Very unlikely	High	Carbon tax costs are challenging to forecast because, despite numerous efforts, the federal government has not reached policy consensus on the magnitude, timing, or need for a carbon tax. It is difficult to forecast what final form that regulation may take;	APS directly manages potential impacts from Carbon Cap and Trade programs. For example, APS has included in its analysis the potential for carbon pricing in the most recent IRP. APS then incorporates assumed carbon costs based on the actual trading price of CO2	There is a cost associated with the management of this risk driver. Primarily, the costs will consist of monitoring the regulatory landscape as it relates to a carbon tax, including various internal full time employees including the Environmental Policy expert and external

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>election cycles for potential risks and opportunities that could impact APS business operations and future planning. In the event carbon tax legislation ultimately passes, the actual economic and operational impact of such legislation on APS depends on a variety of factors, none of which can be fully known until a law is enacted and the specifics of the resulting program are established. These factors include the terms of the legislation with regard to carbon taxes; and the amount of the tax per pound of carbon dioxide ("CO2") equivalent</p>						<p>nonetheless, APS has included in its analysis the potential for carbon pricing in the most recent Integrated Resource Plan (IRP). APS is incorporating assumed carbon costs based on the actual trading price of CO2 allowances in the California market as of September 24, 2013. For this analysis, it is assumed that federal legislation is passed requiring utilities to acquire carbon allowances beginning in 2021. Carbon prices are then escalated at the rate of inflation. Carbon prices range from a low of zero, representing scenarios in</p>	<p>allowances in the California market as of September 24, 2013. Additionally, APS uses the following management strategy: obtain information from federal and state agencies and third-party organizations; utilize the APS Regulatory Peer Review committee to ensure that all aspects of the company understand the new proposed or final rule; update costs of technology needed for compliance as better information becomes available; monitor legislative activities related to CO2 and develop cost sensitivities to evaluate the</p>	<p>legislative liaisons, networks of governmental relations experts and subscriptions to the various tracking tools, and memberships in various industry trade groups that help alert us to proposed legislation and also help us understand any impacts to APS and the industry as a whole.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>emitted. Additionally, since the future of the Clean Power Plan (CPP) is not certain, there is a potential risk that if the CPP fails to pass the scrutiny of the courts, that a carbon tax may be proposed as an alternative.</p>						<p>which carbon legislation is not enacted, to a high of \$15/ton starting in 2019 and escalating at 7.5% per year.</p>	<p>potential impact; develop additional options, including scenarios containing minimum and maximum technology requirements to evaluate the range of possible outcomes; and incorporate a hypothetical carbon cost into resource planning analytics. APS also provides comments, both through industry groups and independently, on local, state and federal proposed legislation and regulations in order to help influence the final requirements in a way that furthers our corporate vision of creating a sustainable energy future for Arizona.</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
International agreements	The 21st yearly Conference of the Parties (COP 21) was held in Paris in December of 2015. The goal of the COP was to set a goal limiting global warming to less than 2 degrees Celsius. The Paris Accord will commit 195 nations to lowering GHG emissions to reduce the effects of global warming. This Accord was different from prior accords in that it did not exempt developing countries, but rather requires action in some form from every country. This Accord has a significant impact on the treatment of carbon and	Increased operational cost	1 to 3 years	Direct	Likely	High	The financial implications of the COP 21 Accord include costs to comply with federal mandates regarding climate change, including the Clean Power Plan (CPP), GHG reporting requirements and federal GHG disclosure rules which are discussed elsewhere in this section. Although the international agreement by itself does not place requirements upon APS, its purpose and scope has been to direct the policy of the United States with regards to GHG and global warming. In so doing, the Paris Accord has the	To assess and manage the risks driven by changes and uncertainties with new environmental regulations including the impacts of the COP 21, Paris Accord, APS uses the following strategy: obtain information from numerous sources, including federal and state agencies, industry publications, market research, and third-party consulting organizations, to maintain awareness of proposed changes to existing and expected regulations that will impact technology choices and cost; utilize the APS Regulatory Peer Review	There is a cost associated with monitoring the regulatory landscape as it relates to COP 21 and global warming, including various legislative liaisons, networks of governmental relations experts and subscriptions to the various tracking tools, memberships in various industry trade groups that help alert us to proposed legislation and also help us understand any impacts on the industry as a whole. Additionally, because the COP 21 Accord is linked to the CPP, the costs associated with CPP scoping,

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>greenhouse gases, especially with the unique requirement that every participating country must pledge to take action. Even though the Accord is not federal law, and does not place direct requirements on APS, it is an important driver of potential risk for APS as it relates to climate change and carbon regulation. The centerpiece for the United States' involvement in the Paris Accord is the CPP which was finalized by the Obama Administration prior to the start of COP 21, and designed to be a template for how</p>						<p>potential to result in greater emissions controls or reduction requirements including emissions control and reductions associated with the CPP. APS and its partners have committed to spend upwards of \$600 million dollars to reduce emissions at the Four Corners Power Plant. A significant change in the CPP could put this investment at risk.</p>	<p>committee to ensure that all aspects of the company understand the new proposed or final rule; evaluate commercially viable options for technologies that will enable environmental compliance; negotiate solutions with government agencies that balance cost and environmental impact; update costs of technology needed for compliance as better information becomes available; monitor legislative activities related to COP 21 and GHG and develop cost sensitivities to evaluate the potential impact to APS. Currently, the most</p>	<p>planning and compliance also will play a critical role here. APS and its partners have committed to spend upwards of \$600 million dollars to reduce emissions at the Four Corners Power Plant. A significant change in the CPP could put this investment at risk. Management of this risk is essential to APS.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	the US will address climate change moving forward. This puts added risk and importance on the CPP.							important management tool utilized by APS for managing risks associated with the COP 21 Accord is our comprehensive CPP compliance assessment.	
Other regulatory drivers	Residential rooftop solar is a growth business in the southwest. Rooftop solar provides a number of benefits for the homeowner, but one of the most important from a regulatory perspective is net metering. Under a regulatory structure that mandates net metering, rooftop solar customers receive the benefit of a flat rate for the solar energy produced by their panels.	Wider social disadvantages	Up to 1 year	Direct	Very likely	High	The financial implications of rooftop solar are significant for APS. If the Arizona Corporation Commission (ACC), the Arizona public utility commission, does not grant the APS rate relief related to net metering, it will have even greater financial implications on APS going forward. If APS is required to buy power from rooftop solar at rates higher than	To assess and manage the risks and uncertainties with rooftop solar and net metering regulations, APS uses the following strategy: <ul style="list-style-type: none"> <li>• Obtain information from sources, including federal and state agencies, industry publications, market research, and third-party consulting organizations, to maintain awareness of proposed changes to rooftop solar net metering regulations;</li> <li>• Monitor legislative</li> </ul>	There is a cost associated with monitoring the regulatory landscape as it relates rooftop solar and net metering, including various legislative liaisons, networks of governmental relations experts and subscriptions to the various tracking tools, memberships in various industry trade groups that help alert us to proposed regulatory action and also help us

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Net metering is a great benefit to the homeowner since it enables the homeowner to easily and accurately quantify the relative cost of buying and paying off the rooftop solar system. Although a great tool to help close the sale on rooftop solar systems by showing a repayment method for the large up-front cost, net metering is quickly becoming a burden for the utilities. Utilities under a net metering agreement are required to buy the excess power generated by the homeowner's panels at a time</p>						<p>market rates, then APS is rewarding homeowners with rooftop solar at the expense of the rest of the customers. APS has proposed that future rooftop solar customers pay a fair price for their use of the grid, based on how much power they use. Alternatively, APS has proposed to give customers a credit based on the amount of electricity they generate, at a price set by the ACC and based on the rates that APS pays other generators for power. APS's proposal would allow existing customers to be exempt from the rate increase for</p>	<p>activities and ballot initiatives related to rooftop solar and net metering and develop cost sensitivities to evaluate the potential impact; and, • Develop additional options, including scenarios containing minimum and maximum technology requirements to evaluate the range of possible outcomes.</p>	<p>understand any impacts on the industry as a whole.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>when energy prices are generally low – midday. The result is a benefit for the homeowner, and an unnecessary added cost for the utility. Additionally, rooftop solar customers benefit from a reliable grid that is there whenever they need it – even when their solar panels are not producing any electricity such as at night, in the rain or when it is so hot they need more power to run their air conditioners. As more people install solar on their homes, it becomes more important that everyone who uses the grid helps cover the</p>						20 years.		

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	cost of keeping it reliable. Under current rules, rooftop solar customers benefit from a reliable grid, but pay little to nothing for their use of it.								

**CC5.1b**

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation extremes and droughts	One of the largest inherent risks driven by change in physical climate parameters is water supply. APS owns and/or operates eight power generation plants in Arizona	Increased operational cost	3 to 6 years	Direct	Likely	Medium-high	The financial implication related to drought is significant. Drought, due to climatic change, can limit availability of groundwater and surface water.	Because water supplies are so integral to the operations at APS, APS has an entire Water Resource Management unit comprised of six full-time employees. This management team assesses and	The cost of managing for this risk is substantial, but also something that APS has been doing since it was first conceived over a century ago. Water is such an important

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>and one on the Navajo Reservation in New Mexico. Each requires water, primarily as cooling water to support generation. As a result, assured supplies of water are important for APS's generating plants. Water in the Southwest is a very limited resource. However, since its inception over a century ago, APS has been diligent and forward-looking in its efforts to find and secure sufficient water for current and future power generation. Since water is a scarce resource in the Southwest, any change in precipitation or extended droughts driven by climate</p>						<p>This can have a direct impact on generation assets that rely upon surface water, but it can also have an impact on generation assets that rely upon groundwater since drought conditions could cause the surface water users to rely more heavily on groundwater. Some direct financial implications for APS could be: the inability to run units at design value, reducing available generation and financial benefits for APS and its ratepayers; needing to transfer load to other more costly, polluting, or water</p>	<p>manages current as well as future risk associated with drought and extreme weather. APS has identified both primary water supplies and contingencies for each power plant in order to ensure reliable long-term operation, even in times of possible shortage, such as extended drought. APS works with various research entities such as Sandia National Laboratories, Electric Power Research Institute (EPRI), U.S. Department of Energy (DOE) and Idaho National Laboratory (INL) to evaluate new technologies, determine the cost of practical implementation, and to reduce water intensity at power generating facilities. Finally, at APS</p>	<p>aspect to the current and future operations of APS that APS has an entire unit within its corporate structure dedicated to water management. This unit which is comprised of six full-time employees is responsible for tracking the current water usage at each well head or withdrawal point for each facility within the APS generation portfolio. APS actively engages in evaluating the possibility of future water stress. The company participates in operations meetings and groups for surface water supplies, which often include detailed risk-based modeling of near-</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>change bring with it inherent risks for APS and could materially impact on our business and operations. Fortunately, APS has an entire unit dedicated to assessing and addressing our current and future water needs. At the opposite end of the spectrum from droughts are higher than normal precipitation events. Climate change forecasts do not anticipate a wetter Southwest, but should that change occur, there is no indication that it would adversely impact APS operations.</p>						<p>intensive units that have access to assured water; having to purchase generation from other more costly, polluting, or water intensive units; requiring APS to drill additional or deeper wells to access available groundwater; finally, it could cause APS to have to pay senior water right holders to acquire additional water rights to meet demand.</p>	<p>2015 water consumption is Tier 1 metric. Additionally, there is an internal metric to reduce water intensity by 20% by 2025. Finally, we support and are involved with the Kyle Center for Water Policy to promote sound water policy and stewardship in Arizona. APS has committed support to the Kyl Center and executive APS Leadership serves on the Center's Board of Advisors. Through participation in the Kyl Center, we are actively engaging in discussion of the water economy, water-energy nexus, water rights, drought, water costs, and policy solutions that are important to our customers, our company and our state.</p>	<p>term operations. APS also has developed custom tools to support the modeling of power plant production in conjunction with groundwater modeling to perform scenario analysis supporting planning objectives around groundwater supplies.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in temperature extremes	For APS, there are significant inherit risks driven by changes in physical climate parameters, especially as related to forest fires. Risks associated with forest fires may not be new, but scientists have indicated that as global temperatures increase, there is a greater risk of drought and a correlated increase in risk and intensity of forest fires. Forest fires threaten not only the communities that APS serves, but also our vast network of electric transmission lines and facilities. With over 35,000 miles of transmission and distribution	Increased operational cost	3 to 6 years	Direct	Likely	High	Preparing for temperature extremes and managing forest fire related risks throughout our 35,000 miles of transmission and distribution wires is a very costly venture. However, failing to manage this risk has even greater financial implications. As the sole source of power for most customers, if we are unable to deliver power, our customers suffer. Additionally, if we are unable to deliver power, we are unable to make money. Forest fires can cause temporary loss of service to areas due to de-energizing of lines to allow fire crews to work safely, and it can also cause long	APS is prepared to meet the challenge of managing the risks from wildfires by training employees to work in close coordination with fire-fighting organizations as well as to make certain that our transmission rights-of-way are as free of vegetation as possible. With regards to the coordination with fire-fighting organizations, the company is often asked to de-energize power lines so fire personnel can work safely within APS rights-of-way. For example, APS crews worked closely with fire personnel during the Slide Fire and Junipine Fire that impacted the Oak Creek Canyon area. APS was embedded in the	APS has a significant financial commitment in servicing over 35,000 miles of transmission and distribution wires across the state, through open deserts, forests, grasslands, mountains and large metropolitan areas. Additionally, APS has an entire forestry business unit dedicated to management of rights-of-way and helping to harden assets against the threat of forest fires related to changes in physical climate parameters including forest fires.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	wires throughout the state, the potential threat to our system from wildfires is very real. APS is focused on wildfires at all times, planning year-round and continually strengthening the system so that customers can feel confident in our ability to serve them power.						term loss of service due to downed transmission or distribution lines. Because of these financial implications, APS has a very robust management plan in place for addressing forest fires. Climate change risks will not change the base-level financial implications, but it will result in the potential for greater frequency and intensity of fires and increased costs associated with the fires.	fire incident command to ensure the safety of crews fighting the fire, while monitoring the system to ensure safe and efficient repairs so that when customers were able to return to their homes, their power was back on and waiting for them. In addition, APS Forestry Unit assists Incident Command (IC) teams to: identify potential power line conflicts and restoration efforts; monitor progress of fire and predict impacts to power lines and facilities; act as a conduit of information between IC and APS management communicating projected impacts to lines; coordinate scheduling of outages on fire line for firefighter safety; Participate in restoration efforts	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								by clearing dead and down trees; prepare maps of fire footprint.	
Other physical climate drivers	An additional significant risk associated with changes in physical climate parameters is the potential for extreme heat and extreme weather. Summers in the Southwest are known for punishing heat and APS has built its generation and distribution systems with the functionality to meet this need. However, extreme heat can dramatically impact generation and distribution efficiencies. Additionally, extreme heat can also take a toll on the generation and distribution	Increased operational cost	3 to 6 years	Direct	Likely	Medium-high	There are two key areas of financial implication. First is the cost to harden the system to make it more efficient and to withstand the added heat load and extreme weather. Extreme heat and monsoon events can take a physical toll on equipment leading to premature failure. Moreover, monsoon events can disrupt the distribution system knocking down power lines and damaging equipment. The second financial implication is the cost to meet the excess demand	Because summers in the Southwest are known for extreme heat, APS has been managing for this climate parameter since APS began over a century ago. However, the risks driven by changes in physical climate parameters have required APS to sharpen its focus. For example, APS prepares high temperature load forecasts that capture the possibility of experiencing more extreme temperatures than our "normal" peak day conditions. These high temperature load forecasts are then provided to our distribution system planners for use in	APS's core business is to power the state's bright future with safe, reliable and affordable electricity. APS will do this through: continuing investments in the neighborhood-level power grid to ensure reliability in communities across Arizona; targeting investments in smart-grid technologies that enhance customer satisfaction, improve power quality and enable the continued growth of distributed generation and other technical advances; and, investing \$3.5 billion in Arizona's

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>system by increasing prolonged demand for electricity. In addition to extreme heat, Arizona traditionally experiences monsoonal storm events which include high winds, blowing dust and heavy rainfall, all of which can wreak havoc on electrical transmission systems. As weather patterns change, APS expects to see more frequent and powerful monsoons. Weather extremes such as drought, high temperature variations and monsoon storms are common occurrences in the Southwest's desert area, and</p>						<p>from extreme heat. As temperatures rise, the peak load on the system grows. Peak load is generally met by purchasing excess power from other generators. Anytime a utility relies upon the market to meet peak load demand, there is an inherent financial risk: the more days of extreme heat, the higher the demand and the greater the potential for higher costs. Extreme weather can result in more and larger power outages from storms. For example, in 2015, monsoon storms knocked down 485 power poles, an 81 percent increase</p>	<p>their planning so that they know what their capacity requirements could be under such conditions. Additionally, with respect to extreme weather, in 1997, APS implemented a pilot program that evaluated alternatives to wood poles and found replacing them with steel poles was the answer. Since then, APS has been replacing damaged and aging wooden poles with steel in most instances. Every year since 1997, the number of steel poles that have been installed has been increasing and during the past few years nearly 5,000 poles a year have been installed. Moreover, APS tracks the weather on a real-time basis so we can prepare our employees to</p>	<p>electricity infrastructure through 2017.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	these are risks that APS considers in the normal course of business in the engineering and construction of its electric system. Large increases in ambient temperatures or prolonged exposure to extreme heat could require evaluation of certain materials used within the system and represent a greater challenge.						from 2014.	mobilize quickly if a storm hits.	

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other	A significant driver	Increased	Up to 1	Indirect	Very likely	High	The financial	To assess and	There is a cost

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
drivers	of climate related developments in Arizona is the growth of Rooftop Solar. One of the primary drivers for rooftop solar is the desire by homeowners to help fight climate related developments by reducing their carbon footprint. Residential rooftop solar is a growth business in the southwest. Rooftop solar provides a number of benefits for the homeowner, but one of the most important from a regulatory perspective is net metering. Under a regulatory structure that mandates net metering, rooftop solar customers receive the benefit of a flat rate for the solar energy produced by their panels. Net metering is a great benefit to the	operational cost	year	(Client)			implications of rooftop solar are significant for APS. If the Arizona Corporation Commission (ACC) does not grant APS rate relief related to net metering, it will continue to have a greater and greater financial impact on the company. If APS is required to buy power from rooftop solar at rates higher than market rates, then APS is rewarding homeowners with rooftop solar at the expense of the rest of the customers. APS has proposed that future rooftop solar customers pay a fair price for their use of the grid, based on how much power they use. Alternatively, APS has proposed to give customers a credit based on the amount of electricity they	manage the risks and uncertainties with rooftop solar and net metering regulations, APS uses the following strategy: • Obtain information from sources, including federal and state agencies, industry publications, market research, and third-party consulting organizations, to maintain awareness of proposed changes to rooftop solar net metering regulations; • Monitor legislative activities and ballot initiatives related to rooftop solar and net metering and develop cost sensitivities to evaluate the potential impact; and, • Develop additional options, including scenarios containing minimum and maximum technology requirements to evaluate the range	associated with monitoring the regulatory landscape as it relates rooftop solar and net metering, including various legislative liaisons, networks of governmental relations experts and subscriptions to the various tracking tools, memberships in various industry trade groups that help alert us to proposed regulatory action and also help us understand any impacts on the industry as a whole. Specifically, we are currently working with the Arizona Deployment Alliance on a pilot program to analyze how rooftop solar can evolve in combination with storage and demand management programs on behalf of customers.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>homeowner since it enables the homeowner to easily and accurately quantify the relative cost of buying and paying off the rooftop solar system. Although a great tool to help close the sale on rooftop solar systems by showing a repayment method for the large up-front cost, net metering is quickly becoming a burden for utilities. Utilities under a net metering agreement are required to buy the excess power generated by the homeowner's panels at a time when energy prices are generally low – midday. The result is a benefit for the homeowner, and an unnecessary added cost for the utility. Additionally, rooftop solar customers benefit from a reliable grid that is</p>						<p>generate, at a price set by the ACC and based on the rates that APS pays other generators for power. APS's proposal would allow existing customers to be exempt from the rate increase for 20 years. Finally, APS's proposal supports an increase in the up-front solar cash incentive for customers who want the choice of rooftop solar.</p>	<p>of possible outcomes.</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	there whenever they need it – even when their solar panels are not producing any electricity such as at night and the rain. As more people install solar on their homes, it becomes more important that everyone who uses the grid helps cover the cost of keeping it reliable. Under current rules, rooftop solar customers benefit from a reliable grid, but pay little for their use of it.								

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CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

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CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

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CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

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**Further Information**

**Page: CC6. Climate Change Opportunities**

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CC6.1

**Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply**

Opportunities driven by changes in regulation

Opportunities driven by changes in physical climate parameters

Opportunities driven by changes in other climate-related developments

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CC6.1a

**Please describe your inherent opportunities that are driven by changes in regulation**

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other regulatory drivers	The Arizona Corporate Commission (ACC) has adopted a Renewable Energy Standard (RES), in which electric utilities under its jurisdiction must supply an increasing percentage of their retail electric energy sales from eligible renewable resources, including solar, wind, biomass, biogas and geothermal technologies. For calendar year 2015, the ACC mandated through its RES rule that 5.0 percent of APS' 2015 retail kilowatt-hour (kWh) sales must come from renewable resources, with	Investment opportunities	1 to 3 years	Direct	Virtually certain	High	Maintaining a diverse generation portfolio is a key component of assuring APS is able to meet the load demand of its customers as well as the financial benefit of electrical sales. APS invested about \$675M in the AZ Sun Program, in which APS built 170 MW of utility scale solar renewable facilities. APS will also continue to expand renewables and has already received approval for a requested budget for the years 2015-2018 of almost \$500M in funding for further development of APS's	APS has a firm management plan in place to address the incorporation of renewable energy. APS documents the management of its renewable energy program in an annual Renewable Energy Report to the Arizona Corporation Commission (ACC) each spring. This report is publicly available on the ACC website. At the end of 2015, APS had a gross total of 803 MW of utility scale renewables (solar, wind, biomass, geothermal, and landfill gas), 241 MW of residential	In 2015, APS budgeted \$159M for renewable energy projects. Total 2015 expenses for renewable projects were about \$123M, which after a correction of an RES offset cost, there remain about \$22M for reallocation. In addition to the project costs, in 2015 APS incurred about \$43M in above market utility scale costs and about \$34M in production based incentives. Total 2015 expenses for the APS renewable energy programs were about \$200M.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>30 percent of the total requirement to be fulfilled with energy produced from Distributed Energy (DE) sources. The renewable energy standard increases annually until reaching 15 percent in 2025. This regulatory driver is having a large impact on APS' generation mix. In 2015, the total renewable energy on the APS system increased to almost 1,300 MW. APS expects the percent of generation from renewable energy to increase from the current level of 11 percent of APS' total generation to</p>						<p>renewable energy portfolio during this four year period.</p>	<p>solar renewable, and 235 MW of non-residential solar renewable. All of these sources total 1,279 MW of renewable energy generation on the APS system. In 2015, 3,082,451 MWh of renewable energy was generated on the APS system, including energy from rooftop solar installations. APS's total eligible RES resources were 2,835,779 MWh, which is 10.1 percent of APS's total 2015 retail sales. Total distributed energy</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	about 18 percent by 2031.							<p>production for the year reached 760,336 MWh. Total residential performance was 137 percent of the requirement for 2015 and non-residential performance was 226 percent of the requirement. The 2015 achievements not only exceeded the ACC requirements, but also demonstrate the commitment and leadership of APS to renewable energy. APS developed two 10 MW solar projects in 2015: the Desert Star Solar Plant and the Luke Air</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								Force Base Solar Plant. These two solar projects conclude our AZ Sun program, which now generates 170 MW from nine solar installations across Arizona.	
International agreements	Numerous countries from around the world, including the United States, attended the U.N. Framework Convention on Climate Change (UNFCCC) in Paris at the end of 2015 and agreed to chart a new course of action on climate change issues. The agreement and a companion decision by the parties, known as COP 21, reaffirms the	Other: Compliance Opportunities	1 to 3 years	Direct	Likely	High	To position the company for a new future, APS will be investing billions of dollars to accommodate the change in the generation mix. For example, APS spent \$1 billion in 2015 to enhance its power grid. APS will also invest another \$3.6 billion over the next three years to continue to enhance our grid to accommodate the changing generation	For APS, the methods to achieve lower carbon emissions and help curb climate change are predominantly driven by our generation portfolio. The APS generation portfolio is driven by the company's Integrated Resource Plan (IRP) and by pursuing the coal-reduction strategy in the recent IRP,	Managing all of the activities to ensure we have the proper generation resource mix and all supporting infrastructure to deliver energy to our customers is a costly endeavor. Over the next several years APS intends to spend almost \$5 billion to modernize and upgrade our grid network. Additionally,

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>goal of limiting global temperature increases well below the 2 degrees Celsius, and urges efforts to limit the increase to no more than 1.5 degrees Celsius. In addition to this temperature increase limit, there were agreements on a number of other issues to address climate change. The issues identified in COP 21 will need to be addressed by the Congress, but in terms of its implications for electric utilities, APS believes the requirements to comply with the COP 21 agreement for electric utilities in the US will be</p>						<p>portfolio. To better respond to the increase in renewable on our system we are also investing in new gas-fired generation. APS will invest over \$500 million in new gas-fired generation that will be on-line by 2019.</p>	<p>APS has been moving towards lower carbon emitting generation for some time. In addition to increasing our renewable energy portfolio and increasing Demand Side Management (DSM), we have also been retiring higher carbon emitting coal units. The combination of these actions is producing a downward trend in the carbon intensity of our generation. We are therefore well positioned to comply with the lower carbon emission standards set by EPA's Clean Power Plan.</p>	<p>during this same period APS will invest over \$500 million to build new, lower-carbon emitting units to partially replace the generation lost to coal plant retirements.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>the implementation of the Clean Power Plan and APS is well positioned to implement this regulation. While the CPP is currently stayed by the Supreme Court, APS believes it is likely the CPP will be upheld and U.S. electric utilities will have to comply. Essentially, much of the focus of the CPP is on retiring high carbon emitting units (e.g., coal-fired) and using more gas-fired units, renewable energy, and energy efficiency. This is having a big impact on many utilities; however, APS is well positioned for this change</p>								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>as we have already begun closing our coal-fired units; having already closed over 800 MW of coal-fired generation. APS plans to continue closing additional coal fired units in the coming years. All of the coal-fired units in Arizona are currently scheduled to be closed by 2025 and the other remaining coal-fired units located on the Navajo Nation are scheduled to be closed in the 2030 to 2039 timeframe. At the same time APS is escalating its gas-fired fleet with new gas-fired units coming on line in 2019 and the expansion of</p>								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	renewables at least through 2025.								
Other regulatory drivers	The Arizona Corporation Commission (ACC) also has an electric Energy Efficiency Standards (EES). Under the EES, Arizona's public utilities under the ACC's jurisdiction are required to achieve annual energy savings of at least 22 percent - measured in kWh - by 2020, with the savings to increase incrementally as a percent of retail energy sales in each prior calendar year to reach that goal. APS has developed a number of Demand Side	Investment opportunities	1 to 3 years	Direct	Virtually certain	High	The APS budget for implementation of DMS programs in 2015 was \$68.9M, of which APS exceeded the required ACC EES while spending \$2.8M less than the budget amount. The breakdown of DMS expenses were: \$1.7M for Demand Responses, \$30M for residential programs, and \$27M for non-residential programs. Other related expenses and incentives increased the total 2015 spend to about \$66M.	APS documents the management of its DSM programs in an annual Demand Side Management Progress Report submitted to the ACC each spring. This report is publically available from the ACC website. The annual report outlines the progress in each DMS program in terms of energy savings, which is independently validated by a third party, and the associated costs. In 2015, APS focused on	During the time period from 2005 through 2015 APS has spent a total of about \$461M in DSM programs. The breakdown is about \$16M for Demand Response, \$202M for residential programs, and \$178.5 M for non-residential programs. Based on this investment, APS has determined a return of \$399M and \$906M in net societal benefits from the residential and non-residential programs, respectively.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Management (DSM) program to achieve the required EES. These programs consist of the residential, non-residential, and demand response programs listed below.</p> <ul style="list-style-type: none"> <li>Residential Energy Efficiency Programs •</li> <li>Consumer Products Program •</li> <li>Appliance Recycling Program •</li> <li>Residential New Home Construction •</li> <li>Residential Existing Homes Heating, Ventilation, and Air Conditioning Program •</li> <li>Home Performance with ENERGY STAR® •</li> <li>Residential Conservation</li> </ul>							<p>targeted marketing of programs based on data analytics, adding light emitting diode (LED) lighting options and expanding programs like behavioral conservation and residential new construction, which doubled the number of subdivisions participating in energy efficiency programs from the previous year. APS also continued to meet the EES goal required by the ACC. APS achieved 548 gigawatt-hours of savings in 2015, resulting in 9.54 percent cumulative savings since</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<ul style="list-style-type: none"> <li>Behavior Program •</li> <li>Prepaid Energy Conservation Program •</li> <li>Multifamily Energy-Efficiency Program •</li> <li>Shade Tree Program •</li> <li>Energy Wise Limited Income Weatherization Non - Residential Programs •</li> <li>Large Existing Facilities •</li> <li>New Construction and Major Renovations •</li> <li>Small Business Program •</li> <li>Schools Program •</li> <li>Energy Information Services ("EIS") Program</li> <li>Demand Response Programs •</li> <li>Home Energy Information Pilot •</li> <li>Peak Time Rebate -</li> </ul>							<p>the EES began. This result slightly exceeded the EES cumulative goal of 9.50 percent through 2015. The breakdown of this energy saving is about 175 gigawatt-hours from residential programs and 320 gigawatt-hours from non-residential programs. The remainder of the 2015 energy savings was from adjustments made in various program. Based on the achievement of this energy saving, APS avoided about 2.5 million tons for carbon emissions.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Residential • Time of Use ("TOU") Rates Including Super Peak Pricing ("SPP") • APS Peak Solutions® Program • Critical Peak Pricing - General Service and Residential								

**CC6.1b**

Please describe the inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in temperature extremes	Changes in the global climate may result in regional changes that might impact the physical or operational environment of an electric utility such as	Increased demand for existing products/services	3 to 6 years	Direct	Likely	Medium-high	Summer electric sales tend to be a large source of revenue for APS. Because the APS service territory is located in the desert southwest, the load demand for	Weather extremes such as drought and high temperature variations are common occurrences in the Southwest's desert area, and these are risk	To assure APS can meet future load demands APS plans to invest \$3.5 billion for improvements in its transmission and distribution network through 2017, and will be

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>APS. Other projections for the southwest United States from climate change models include an increase in the number of extreme hot days in the summer, less precipitation in the form of snow and the earlier runoff of snowmelt, increased wildfire potential, and the potential for increased water shortages. The annual 2015 temperature in Phoenix was the third higher ever.</p>						<p>APS virtually doubles in the summer months compared to the winters. As climate change effects may increase the duration and intensity of summer heat, there could be an opportunity for increased electrical sales for the company. Due to many market and environmental factors throughout the southwest, APS may also see an increase in off-system electric sales as a result of the physical effects of climate change. The total financial impact is unknown at this time as there remains some uncertainty on the factors that will influence the</p>	<p>factors that we consider in the normal course of business in the engineering and construction of our electric system. APS prepares high temperature load forecasts that capture the possibility of experiencing more extreme temperatures than our "normal" peak day conditions. These high temperature load forecasts are then provided to our distribution system planners for use in their planning so that they know what their capacity requirements could be under such conditions. Forecasting load is the foundation of resource planning,</p>	<p>investing over \$500M in new generation resources by 2020. These costs will help ensure APS can take advantage of increased electrical sales due to higher temperatures should these conditions occur.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							financial implications.	fundamental to analyzing not only how many resources the Company needs and when, but to an increasing degree, the type of resources needed. In addition, weather, population growth, economic trends and energy consumption patterns all play a role in developing a forecast.	

**CC6.1c**

Please describe the inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer	Customers are changing how	New products/business	1 to 3 years	Direct	Very likely	Medium-high	The financial impact of all the	Our customers have told us	The large financial results

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
behaviour	<p>they use energy and they want more interaction and control over their choices. Advanced electric grids are making it possible for customers to generate electricity not only for their own use but also for sale back to the grid. Distributed generation, as well as energy efficiency, is transforming customer relationships into that of energy partners. Demand response is also enabling customers more control over when their energy is delivered and at what price points. In virtually every phase of the energy process,</p>	services					<p>programs APS is implementing that deals with changes in our customers behaviors and expectations are enormous. For example, advance metering is estimated to have a cost saving of over \$20M; however, it is still too early to know the total financial impact from some of the new programs, such as Project Cinergy.</p>	<p>they want more control and options in how they use and receive electricity, and we are listening. To meet our customers' expectations, APS is implementing numerous new programs, with each program having a unique method of management. One example is our Customer Insights Team. This team is conducting "Customer of the Future" research to provide a view of the customer, the technology, and the role of the utility five to 10 years forward. This work has already led to improvements in existing</p>	<p>of innovative programs to address the changes in customer behavior and expectations require large investments. APS plans to spend over \$3.5 billion in infrastructure investments over the next three years. In addition to the billions in infrastructure improvements, APS will be spending millions of dollars on programmatic changes, such as the new customer care and billing program (Project Cinergy).</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>APS' interaction with customers has deepened and that trend is projected to continue. APS is transforming its energy generation and delivery to meet changing customer expectations. Our energy innovation and business development programs include automated metering, improved grid control, participation in the energy imbalance market, new rate plans, and Project Cinergy. Project Cinergy is a new customer information system that will transform the way APS conducts business and</p>							<p>programs like the Demand-Side Management Behavioral Report program and the Prepay program, as well as Home Warranty programs. The cross-functional Customer Satisfaction Improvement team also kicked off in 2014 to discuss best practices in customer satisfaction efforts from both within and outside the utility industry.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	interacts with customers.								
Changing consumer behaviour	Our Solar Innovation Study is a state-of-the-art initiative that will examine the integration of distributed energy resources (DER), such as rooftop solar, battery storage, home energy management systems, smart thermostats and multi-stage, variable speed HVAC systems, with demand-based rates. The study will test ways customers can employ DER technologies to manage their energy use while using price signals that encourage customers to shift their energy use to align with system	Investment opportunities	1 to 3 years	Direct	Very likely	Medium-high	In 2015, APS invested about \$960,000 in the Solar Innovation Study. However, because this is an R&D program, the financial impacts of this study are still unknown. The Solar Innovation Study is a step forward in our move toward a future that includes modernized rate structures and realistic pricing signals that drive market innovation and technological development. This initiative will give our customers more control	APS will manage the study using an application programming interface ecosystem that will serve as the nerve center of what will amount to a "virtual" rate laboratory. The study will demonstrate which price signals best encourage customers to shift their energy use to better align with APS system requirements. Participants will be able to control their home energy use from personal smart devices like a smart phone or tablet, giving them a true "customer	APS has incurred approximately \$960,000 in capital costs for this study. In 2016, we plan to invest \$2 million dollars in this study.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	requirements. Data from the study will be used to expand industry-wide knowledge and enable the efficient use of DERs that are either available or are emerging in today's advanced energy market. APS will choose 75 single-family homes in the Phoenix metro area to participate in the study.						over their energy use, while allowing us more flexibility to integrate new energy solutions into the grid.	experience.	
Other drivers	In 2015, APS launched the Solar Partner Program, the nation's first utility-owned rooftop solar research and development program, in which we have direct control of advanced inverters through a central control	Investment opportunities	1 to 3 years	Direct	Very likely	Medium-high	To date, APS has invested about \$17M in the Solar Partners Program. However, because this is an R&D program, it is still too early to know the exact financial impact. The greatest	APS has a well-structured identification and assessment program to determine the most appropriate customers for implementation of the SPP. To date, APS has already installed about 1,200 of the approximate	APS has incurred almost \$17M in initial capital cost for this program. Additionally, there will be on-going operational costs of over \$500,000 per year. Participants of the program will receive an

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>system. The program allows APS to partner with customers and local solar installers to bring more solar energy to communities across the state, all while contributing to the local economy by keeping jobs and money in Arizona. Up to 10 MW of power will be generated through the APS-owned and maintained rooftop solar systems, which will be made available to about 1,500 eligible customers. A unique aspect of the program is that it makes rooftop solar available to customers who may not otherwise be</p>						<p>financial impact will arise from the ability of the advanced inverters to stabilize local grid fluctuations, which could produce a huge financial saving to the company.</p>	<p>1,500 systems on eligible customers' homes. The systems installed as part of this program allow APS to conduct ground-breaking research on how to use advanced inverters to integrate solar and other technologies onto its existing grid. APS is working in conjunction with EPRI and will share the information gained from the study across the industry, as well as with academia and consumer advocacy groups.</p>	<p>annual \$360 savings on their electric bills through the life of the 20-year program.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	able to obtain it. Working with nonprofit partners and community action organizers, APS offers the installation of systems at the homes of limited-income customers whenever possible.								
Other drivers	Battery storage is a growing technology that has the potential to increase the value of intermittent generation resources as well as increase grid reliability and stability. Besides simply storing and dispatching power, batteries have the ability to provide other ancillary services such as voltage regulation.	Investment opportunities	1 to 3 years	Direct	Very likely	Medium-high	The proposed energy storage projects are research and development projects for determining their ability to provide voltage regulations, power factor improvements, and peak shaving. Because the degree to which these systems will be able to provide these services, as well as the	APS is constructing two battery systems, at 2 MW each, in order to advance its knowledge of energy storage. In addition, the Solar Innovation Study is investigating residential-scale batteries. APS is conducting an all-source request for proposal meaning storage providers can	APS has invested about \$4.5M on the evaluation of energy storage on the APS system. This cost is only expected to grow as energy storage moves more towards the implementation phase, and could substantially grow if the benefits of energy storage are scalable on

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Energy storage makes renewable resources more useful for APS by better aligning the availability of power with APS's peak energy demand. APS is invested in developing a long-term energy storage strategy that includes the following:</p> <ul style="list-style-type: none"> <li>• Evaluating emerging technologies and applications to determine the potential cost-benefit of using these technologies at various locations on the APS grid;</li> <li>• Evaluating system impacts from customer adoption of stand-alone batteries and combinations of batteries with other technologies as</li> </ul>						<p>scalability of energy storage, it is still too early to know the full financial impact these systems my provide. However, APS has committed about \$4.5M to study and assess the financial impact of energy storage.</p>	<p>bid energy storage solutions in the form of purchase power agreements to meet APS's resource needs in the future. Lastly, APS's Technology Innovation and Integration, Distribution Planning and Engineering, and Resource Management departments continue to look for opportunities to use storage on the grid.</p>	<p>the APS network.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>part of the Solar Innovation Study; • Developing funding approaches and proposing regulatory structures that allow the development of energy storage projects within the regulated utility model; • Developing processes and procedures for incorporating energy storage into APS's day-to-day operations and maintenance; and • Procurement, construction and maintenance of a new storage portfolio.</p>								
Changing consumer behaviour	APS provides the Green Choice Rate program which enables customers to	New products/business services	Up to 1 year	Indirect (Client)	Very likely	Medium-high	In 2015, APS continued its three existing Green Choice rate offerings which were	Each year, APS develops a total renewable energy program budget based on estimated	The revenue associated with the Green Choice rates ultimately supports the

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>determine how much more of their electricity (above the regulated amount) will come from renewable energy sources. Green Choice is Green-e Energy certified, and meets the environmental and consumer-protection standards set forth by the nonprofit Center for Resource Solutions. The Green Choice program, for an additional one cent per kilowatt-hour (kWh), allows customers to elect to purchase renewable energy in specific amounts or as a percentage of their monthly usage. APS will use these funds</p>						<p>approved by the Commission in Decision No. 71276 in September 2009. Participating customers pay a premium on their bills based on actual energy produced at Renewable Generation facilities that are part of the APS Green Choice portfolio. In 2015, 2,145 customers subscribed to these rates for 78,129 MWh of sales and a total of \$764,776 in revenue.</p>	<p>expenses for renewable generation and distributed energy programs and projects. Revenues to offset these expenses are collected through both the RES Adjustor and base rates.</p>	<p>development of additional renewable resources. Green Choice sales are subtracted from total Renewable Generation, and do not count toward compliance with RES targets. All Green Choice renewable energy sold under APS's GPS-1, GPS-2, and GPS-3 rate plans are certified through Green-e, a national certification and verification program for renewable energy. In 2015, 2,145 customers subscribed to these rates for 78,129 MWh of sales and a total of \$764,776 in revenue.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>to pay for energy generated from utility-size renewable projects. This program consist of the following three options: - Green choice 1 is a fixed level of "green" power that a customer can subscribe to each month - Green choice 2 varies month to month and is based on a percentage of a customer's monthly use - Green choice 3 is a single block of "green" power for use at special event. Our Green Choice plans make it easy and affordable to use energy generated from a variety of renewable resources, reduce pollution and improve</p>								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Arizona's quality of life.								
Other drivers	In 2015, APS signed an agreement with the California Independent System Operator (ISO) to begin participation in the Energy Imbalance Market (EIM) starting in October 2016. The EIM is a sub-hourly real-time energy market that will expand the company's ability to efficiently dispatch its generating resources, and will provide additional tools to manage the impact of rooftop solar intermittency on the APS system. APS expects participation in the Energy Imbalance	Reduced operational costs	1 to 3 years	Direct	Very likely	Medium-high	The on-going costs associated with the EIM are \$4 million a year. However, on-going benefits are \$11 million a year which translates to a net benefit of \$7 million a year. Additional benefits include fuel cost savings and lower flexibility reserve costs.	The ISO Board of Governors has delegated authority over the EIM rules to the western Energy Imbalance Market (EIM) Governing Body, as proposed by the EIM Transitional Committee. The five members of this body are financially independent from market participants and are selected by representatives of all EIM stakeholders. The Committee's Board-approved governance structure also established an advisory body comprised of regulators in states that	One-time costs (estimated) associated with the implementation of the EIM are \$13.5 million. These costs consist of new computer systems and meters, personnel, and an EIM fee.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Market will create at least three benefits: - Produce economic savings to APS customers through lower production costs; - Improve visibility and situational awareness for system operations in the Western Interconnection; and - Improve integration of renewable resources</p>							<p>participate in the real-time market and created a periodic stakeholder forum to discuss regional issues. The Energy Imbalance Market (EIM) Transitional Committee is an advisory committee to the ISO Board of Governors comprised of industry experts from a range of sectors and geographic regions around the west. The committee will develop a proposal for a long-term EIM governance structure and will advise the Board on matters related to the final testing and early operational phase of the EIM. APS is a</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								part of Transitional Committee.	
Other drivers	In November 2015, APS announced a partnership with the Department of the Navy to develop a low-emission microgrid network that can generate 25 MW of electricity at the Marine Corps Air Station (MCAS) Yuma, located in Yuma, Arizona. A microgrid is a small-scale power grid that can operate independently or in conjunction with APS's distribution grid. The system will provide 100 percent of the backup power needed for the MCAS Yuma in the event of a grid disruption,	New products/business services	1 to 3 years	Indirect (Client)	Virtually certain	Medium-high	APS is currently pursuing certain activities, such as microgrid investments intended for specific customers. To date, APS has not received regulatory assurance of cost recovery for such investments. As APS engages in these activities, we will have to demonstrate to regulators that these investments are both prudent and useful in providing electric service to customers.	The 30-year lease gives APS access for the development, operation and maintenance of the power generation facility, located adjacent to the base's existing substation. During normal grid operating conditions, the microgrid will provide peak power to APS customers in the Yuma area if and when they need it most. In the event of a grid outage, this facility will provide power to MCAS Yuma through a direct connection to the base's infrastructure, creating a backup	APS invested approximately \$10 million in this project in 2015. From 2015-2016, APS invested approximately \$30 million in microgrids.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	thus enhancing the reliability and security of the base. This is APS's first microgrid project and the first military base to secure 100 percent backup power.							generation facility. The 25-megawatt capacity is projected to meet all future energy requirements at the base.	

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CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

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CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

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CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

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#### Further Information

**Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading**

**Page: CC7. Emissions Methodology**

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#### CC7.1

**Please provide your base year and base year emissions (Scopes 1 and 2)**

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Sun 01 Jan 2012 - Mon 31 Dec 2012	14614070
Scope 2 (location-based)	Sun 01 Jan 2012 - Mon 31 Dec 2012	10081
Scope 2 (market-based)	Sun 01 Jan 2012 - Mon 31 Dec 2012	10081

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#### CC7.2

**Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions**

**Please select the published methodologies that you use**

US EPA Mandatory Greenhouse Gas Reporting Rule
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
Other

**CC7.2a**

**If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions**

California Air Resources Control Board Assembly Bill 32 Transactional Protocol

**CC7.3**

**Please give the source for the global warming potentials you have used**

Gas	Reference
SF6	Other: US EPA Mandatory Greenhouse Gas Reporting Rule (100-year Time Horizon)
CO2	Other: US EPA Mandatory Greenhouse Gas Reporting Rule (100-year Time Horizon)

**CC7.4**

**Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page**

Fuel/Material/Energy	Emission Factor	Unit	Reference
Bituminous coal	1985	lb CO2 per MWh	US EPA Mandatory Greenhouse Gas Reporting Rule
Distillate fuel oil No 2	442	lb CO2e per MWh	US EPA Mandatory Greenhouse Gas Reporting Rule
Sub bituminous coal	2490	lb CO2e per MWh	US EPA Mandatory Greenhouse Gas Reporting Rule
Natural gas	869	lb CO2e per MWh	US EPA Mandatory Greenhouse Gas Reporting Rule
Diesel/Gas oil	22.38	lb CO2e per gallon	The Greenhouse Gas Protocol
Biodiesels	17.90	lb CO2e per gallon	The Greenhouse Gas Protocol
Motor gasoline	19.42	lb CO2e per gallon	The Greenhouse Gas Protocol

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#### Further Information

**Page: CC8. Emissions Data - (1 Jan 2015 - 31 Dec 2015)**

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#### CC8.1

**Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory**

Financial control

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#### CC8.2

**Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e**

13580663

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**CC8.3**

**Does your company have any operations in markets providing product or supplier specific data in the form of contractual instruments?**

No

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**CC8.3a**

**Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e**

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
8289		

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**CC8.4**

**Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

No

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**CC8.4a**

**Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure**

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
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**CC8.5**

**Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations**

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Metering/ Measurement Constraints	There is measurement uncertainty in underlying sensors in continuous monitoring systems.
Scope 2 (location-based)	Less than or equal to 2%	Metering/ Measurement Constraints	There is uncertainty in electrical metering.
Scope 2 (market-based)	Less than or equal to 2%	Metering/ Measurement Constraints	There is uncertainty in electrical metering.

**CC8.6**

**Please indicate the verification/assurance status that applies to your reported Scope 1 emissions**

Third party verification or assurance process in place

---

**CC8.6a**

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Reasonable assurance	<a href="https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/CC8.6a/APS%20CDP%20GHG%20Verification%20Report%206-24-16.final.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC8.6a/APS CDP GHG Verification Report 6-24-16.final.pdf</a>	Page 4, 6, 7, 8, 25, 26, 27, 28, 29, 32, 33, 34, 36, 37, 40, 41, 42, 43, 47, 50	ISO14064-3	99

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**CC8.6b**

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emissions Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
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**CC8.7**

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

---

**CC8.7a**

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Reasonable assurance	<a href="https://www.cdp.net/sites/2016/83/14783/Climate%20Change%202016/Shared%20Documents/Attachments/CC8.7a/APS%20CDP%20GHG%20Verification%20Report%206-24-16.final.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC8.7a/APS CDP GHG Verification Report 6-24-16.final.pdf</a>	Page 4, 6, 7, 16, 17, 25, 26, 27, 28, 32, 33, 34, 35, 47, 48, and 50	ISO14064-3	100

#### CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
No additional data verified	No additional data was verified.

#### CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

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CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

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**Further Information**

**Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)**

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CC9.1

**Do you have Scope 1 emissions sources in more than one country?**

No

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CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e

---

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division

By facility

By GHG type

By activity

---

**CC9.2a**

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Generation	13580663

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**CC9.2b**

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
Four Corners Power Plant	5867349	40.929011	-121.544389
Navajo Generating Station	1445018	36.914722	-111.455833
Cholla Power Plant	3412912	34.940	-110.300
Ocotillo Power Plant	72428	33.4225	-111.9122
West Phoenix Power Plant	853056	33.773441	-84.394931

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
Redhawk Power Plant	1841165	33.335833	-112.840528
Yucca Power Plant	38687	32.715235	-114.710441
Saguaro Power Plant	14896	32.552181	-111.298135
Douglas Power Plant	459	31.363622	-109.552532
Sundance Power Plant	34663	53.5075	-114.557222

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**CC9.2c**

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	13580663
SF6	54698

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**CC9.2d**

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Stationary Combustion	13580663
Mobile Combustion	15649

Activity	Scope 1 emissions (metric tonnes CO2e)
Fugitive Combustion	54698

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**Further Information**

**Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2015 - 31 Dec 2015)**

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**CC10.1**

**Do you have Scope 2 emissions sources in more than one country?**

No

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**CC10.1a**

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
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**CC10.2**

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By facility

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
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CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
502 Office	47	47
505 Office	26	26
Buckeye Customer Service Office	47	47
Casa Grande Customer Service Office	24	24
Casa Grande Service Center	120	120
Corporate Headquarters	1697	1697
Cottonwood Customer Service Office	20	20

Facility	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
Cottonwood Service Center	48	48
Deer Valley Complex	29	29
Deer Valley (DVA)	1055	1055
Deer Valley (DVE)	8	8
Deer Valley (DVF)	464	464
Deer Valley (DVK1)	46	46
Deer Valley (DVL)	45	45
Deer Valley (DVM)	22	22
Deer Valley (DVN1)	1320	1320
Deer Valley (DVN2)	1539	1539
Douglas Customer Service Office	18	18
Douglas Service Center	9	9
Flagstaff Administrative Customer Service Office	73	73
Flagstaff Service Center	105	105
Glendale Customer Service Office	23	23
Globe Service Center	138	138
Goodyear Service Center	71	71
Holbrook Customer Service Office	14	14
Ocotillo Service Center	80	80
Paradise Valley Service Center	199	199
Parker Customer Service Office	16	16
Payson Customer Service Office	77	77
Prescott Customer Service Office	43	43
Prescott Service Center	188	188
Prescott Service Center 2	30	30
Snowflake Customer Service Office	104	104
Surprise Service Center	266	266
Wickenburg Service Center	33	33
Williams Customer Service Office	15	15
Williams Service Center	22	22
Winslow Customer Service Office	10	10

Facility	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)
Winslow Service Center	19	19
Yuma Customer Service Office	10	10
Yuma Service Center	169	169

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**CC10.2c**

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2 emissions, location based (metric tonnes CO2e)	Scope 2 emissions, market-based (metric tonnes CO2e)

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**Further Information**

**Page: CC11. Energy**

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**CC11.1**

**What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

---

**CC11.2**

**Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year**

Energy type	Energy purchased and consumed (MWh)
Heat	0
Steam	0
Cooling	0

---

**CC11.3**

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

17485737

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**CC11.3a**

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Bituminous coal	6523324
Sub bituminous coal	4389439
Natural gas	6572532
Distillate fuel oil No 2	442

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**CC11.4**

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Comment
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0	
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0	

#### CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
17485737	7821843	27452232	529095	529095	

#### Further Information

**Page: CC12. Emissions Performance**

#### CC12.1

How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Decreased

**CC12.1a**

Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	5.6	Decrease	From 2012 - 2015, APS has reduced its CO2 emissions by 5.6%. In 2012, APS's scope 1 emissions were 14,614,070 metric tons. In 2015, APS's scope 1 emissions were reduced to 13,580,663 metric tons.
Divestment	0	No change	No divestment during 2015.
Acquisitions	0	No change	No acquisitions in 2015.
Mergers	0	No change	No mergers in 2015.
Change in output	0.7	Increase	Retail electricity sales in kWh, adjusted to exclude the effects of weather variations, increased 0.7% for the year ended December 31, 2015 compared with the prior year, reflecting the effects of improving economic conditions and customer growth, partially offset by customer conservation and energy efficiency and distributed renewable generation initiatives.
Change in methodology	0	Decrease	Emissions from electricity usage decreased by 0.0005%. The emission factor used to calculate scope 2 emissions switched to an APS site specific emission factor of .2877.
Change in boundary	0	No change	No change during 2015.
Change in physical operating conditions	0	No change	Energy Imbalance Market (EIM): In May 2015, APS announced its decision to begin participating in the EIM starting in October 2016. On-going benefits are \$11 million a year which translates to a net benefit of \$7 million a year. Additional benefits include fuel cost savings and lower flexibility reserve costs.
Unidentified	0	No change	No change in 2015.
Other	0	No change	No change in 2015.

**CC12.1b**

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

**CC12.2**

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.01	metric tonnes CO2e	855000000	Location-based	2.84	Increase	No comment.

**CC12.3**

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
2134	metric tonnes CO2e	full time equivalent (FTE) employee	6400	Location-based		Decrease	No comment.

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**Further Information****Page: CC13. Emissions Trading**

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**CC13.1**

**Do you participate in any emissions trading schemes?**

Yes

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**CC13.1a**

**Please complete the following table for each of the emission trading schemes in which you participate**

<b>Scheme name</b>	<b>Period for which data is supplied</b>	<b>Allowances allocated</b>	<b>Allowances purchased</b>	<b>Verified emissions in metric tonnes CO<sub>2</sub>e</b>	<b>Details of ownership</b>
California's Greenhouse Gas Cap and Trade Program	Wed 01 Jan 2014 - Wed 31 Dec 2014	326652	330000	521893	Facilities we own and operate

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**CC13.1b**

**What is your strategy for complying with the schemes in which you participate or anticipate participating?**

For any energy imported into California, we purchase allowances to cover our calculated obligation as part of the California Cap and Trade requirements. Beginning in 2012, APS began purchasing carbon allowances in the secondary market to cover any compliance obligations related to net imports into the state of California. Details of those strategies are proprietary and may result in a competitive advantage.

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**CC13.2**

**Has your organization originated any project-based carbon credits or purchased any within the reporting period?**

No

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**CC13.2a**

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits cancelled	Purpose, e.g. compliance
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**Further Information**

**Page: CC14. Scope 3 Emissions**

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**CC14.1**

**Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions**

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	42222903	EPA.gov was used to convert energy consumption to metric tons CO2E.	100.00%	Data was gathered from the Electric Utility Sustainable Supply Chain Alliance Annual Sustainability Survey. The results were calculated based on the responses of 33 suppliers. Suppliers are asked what their GHG emissions were for their previously reported year.
Capital goods	Not relevant, explanation provided				In 2008, APS joined the Electric Utility Industry Sustainable Supply Chain Alliance (EUISSCA), a group of North American electric utility companies formed to improve the environmental performance in electric utility industry supply chains. The Alliance seeks to do this by developing voluntary consensus standards for the creation of a supply chain that is environmentally responsible, efficient, cost effective and positively impacts communities. In addition, the Alliance provides an opportunity for utilities to share best practices and learn from each other. APS has not yet calculated GHG emissions specifically related to products that we purchase, but we do query our suppliers on their GHG emissions. In the future we may further calculate scope 3 GHG emissions. We do not separate capital goods from overall purchased goods.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	1881892	Purchased Power is electrical energy purchased by APS from merchant power plants or from transmission systems as source of energy for APS's electric utility customers.	100%	CO2 emissions are associated with purchase power agreements from conventional sources such as gas units.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			(ii) Data is provided by firm load source and using appropriate E-Grid database emission factors for the source. (iii) APS calculates this emission category based on estimated power purchase data and an E-Grid sub region emission factor.		
Upstream transportation and distribution	Relevant, not yet calculated				At this time, we have a third party logistics firm that handles the majority of our shipping needs. They are not able to report to us the miles shipped.
Waste generated in operations	Relevant, calculated	474759	The EPA identifies a range of carbon reduction emission factors for the reuse of fly ash. The values range from 0.71 to 0.8 tons of carbon reduction per ton of fly ash reuse. APS currently uses a more conservative factor of 0.6 tons of carbon reduction per ton of fly ash, which is a factor developed internally based on an engineering evaluation.	100.00%	APS is reusing its fly ash to help reduce its environmental footprint while adding to its bottom line. APS sells much of its fly ash for use in concrete production. This allows concrete manufacturers to use the coal ash as a base product in cement production, eliminating the need to produce this material themselves and significantly reducing their energy consumption to produce cement. This estimated emission reduction is 474,759 metric tons of carbon dioxide.
Business travel	Relevant, calculated	1862	i) Business travel encompasses GHG emissions from airline travel by APS employees. (ii.) The source of this data is from BCD Travel's Decision Source database. (iii) BCD Travel emission calculations are based on the Greenhouse Gas Protocol. The total emissions of carbon dioxide equivalent (CO2e per flight uses an emission factor of 0.25 kg CO2e/km and a GWP for CO2 of 1.	100.00%	This is travel data about APS employees as recorded by our business travel agency.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Employee commuting	Relevant, calculated	4900	This information was calculated based on APS's employee responses to the 2014 Maricopa County Regional Travel Reduction Program survey. www.EPA.gov was utilized to translate miles driven to tons CO2e.	100.00%	We encourage employees to take part in the Trip Reduction Program. This program focuses on reducing the number of single-occupancy vehicles commuting to our work sites. Maricopa County is a customer of APS, but the survey is not performed as part of our value chain.
Upstream leased assets	Not relevant, explanation provided				APS does not have upstream leased assets.
Downstream transportation and distribution	Relevant, calculated	44911	i) Transmission losses are an estimate of CO2e emissions resulting from the electrical energy consumed in delivering energy between the power plant and a substation. ii) Source of the data is from the losses and company use in the Pinnacle West 2015 Statistical Report, APS system CO2e emission intensity, and the APS loss factor (2.5%). The estimated energy lost is multiplied by a system GHG emission rate of 1,189 lbs. of CO2e/MWh (converted to metric tons a GWP for CO2 of 1 to calculate emissions from Transmission losses.		APS delivers electrical energy from the power plant to the customer's location through a transmission and distribution system.
Processing of sold products	Not relevant, explanation provided				APS generates and distributes electricity. There is no processing of our product to calculate processing of sold products.
Use of sold products	Not relevant, explanation provided				APS generates and distributes electricity. Emissions are included in our Scope 1 response.
End of life treatment of sold	Not relevant, explanation				APS generates and distributes electricity. All our generation is used when generated, so

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
products	provided				there is no end of life treatment of our product.
Downstream leased assets	Not relevant, explanation provided				APS does have downstream leased assets.
Franchises	Not relevant, explanation provided				APS does have any franchises.
Investments	Not evaluated				APS does not have a method presently of evaluating emissions by any of our investments.
Other (upstream)	Not evaluated				APS does not have any additional upstream sources in 2014.
Other (downstream)	Relevant, calculated	42282	This energy avoided by APS offering discounted pricing on 1,835,053 CFL lightbulbs to our customers. This resulted in 55,784 MWh energy savings. EPA.gov was used to calculate the energy avoided savings. CO2E metric tons saved were 42,282.	0.00%	APS published our demand side management plan and results publicly. This information was used to calculate the avoided CO2e represented here.

**CC14.2**

**Please indicate the verification/assurance status that applies to your reported Scope 3 emissions**

Third party verification or assurance process in place

**CC14.2a**

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	First year it has taken place	Reasonable assurance	<a href="https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC14.2a/APS CDP GHG Verification Report 6-24-16.final.pdf">https://www.cdp.net/sites/2016/83/14783/Climate Change 2016/Shared Documents/Attachments/CC14.2a/APS CDP GHG Verification Report 6-24-16.final.pdf</a>	Pg. 4, 6, 7,16, 26, 27, 29, 32, 33, 38, 39, 50	ISO14064-3	5

#### CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

No, this is our first year of estimation

#### CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment

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**CC14.4**

**Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)**

Yes, our suppliers

Yes, our customers

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**CC14.4a**

**Please give details of methods of engagement, your strategy for prioritizing engagement and measures of success**

1) Methods of engagement

a. Suppliers: Annually, APS engages our top tier suppliers in a sustainability survey, with questions on how they are managing environmental impacts in their operations, including greenhouse gas emissions, energy and water usage, waste, and materials management.

b. Customers: As an integral part of our business, we work with customers to help them achieve energy savings and greenhouse gas emission reductions through programs and incentives for energy efficiency, demand response, and solar installation.

2) Strategy for prioritizing engagements

a. Suppliers: Within APS's supply chain, we prioritize our top tier suppliers, our most critical and strategic suppliers and those with whom we spend significant dollars. APS evaluates these suppliers using key performance indicators such as safety, quality and operations, and supplier diversity.

b. Customers: By taking advantage of new technologies to help customers understand, actively manage, and reduce their energy use, we are enabling them to make more informed decisions and improving the level of service we provide. We are increasingly reaching out to customers through a growing variety of channels, including mobile phones, email, web, and social media channels. APS also helps small and medium business customers find opportunities to save energy which in turn helps to lower operating costs.

3) Measures of success

a. Suppliers: APS defines success in two ways: a year over year increase in supplier response rate to the survey, and a year over year improvement in performance across the key performance indicators.

b. Customers: We measure a composite score of customer satisfaction, which serves as one of the metrics we use for determining performance related compensation. APS's overall Residential Customer Satisfaction Survey (IOU) score jumped from 673 (out of 1,000) in the 2014 study to 692 in the 2015 study. This helps us set our goal each year, as we aim to achieve top quartile performance in customer satisfaction.

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**CC14.4b**

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Number of suppliers	% of total spend (direct and indirect)	Comment
33	31%	APS queries approximately 100 suppliers per year for the EUISSCA Supplier Sustainability Survey. Data represented here is based on the 2015 responses from the survey

#### CC14.4c

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	Please give details
Other	Information gathered during annual EUISSCA survey is shared with Supply Chain Leadership to develop awareness of our supplier's performance. In the future, information will be used to drive Supplier Relationship Management quarterly discussions. With regard to customers: APS has a wide range of energy efficiency programs for both our residential and business customers. These programs include rebates and other incentives, as well as educational resources. These programs and services help customers improve operating efficiency and reduce demand.

#### CC14.4d

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

#### Further Information

**Module: Sign Off**

**Page: CC15. Sign Off**

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CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Ann Becker	Vice President, Environmental & Chief Sustainability Officer	Other: Vice President, Environmental & Chief Sustainability Officer