



DISCLOSURE INSIGHT ACTION

Ameren Corporation - Water 2018

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

Ameren Corporation, headquartered in St. Louis, MO, is a public utility holding company with annual revenue of more than \$6 billion and the parent company of Ameren Illinois, Ameren Missouri and Ameren Transmission Company of Illinois (ATXI). Ameren serves approximately 2.4 million electric and more than 900,000 natural gas customers across 64,000 square miles in Illinois and Missouri. Ameren's net generating capacity, all of which, is owned by Ameren Missouri, is approximately 10,300 MWs. In 2017, Ameren Missouri's energy supply was as follows: 71% from coal, 19% from nuclear, 3% from hydro, 1% from purchased wind, 1% from gas and 5% from purchased power. Ameren Missouri operates rate-regulated electric generation, transmission and distribution and natural gas distribution businesses in Missouri. Ameren Illinois Company operates rate-regulated electric transmission, electric distribution, and natural gas distribution businesses in Illinois. ATXI develops, owns and operates regional electric transmission projects. The Ameren companies share a proven record for reducing emissions from our energy centers, while controlling costs for customers. Ameren released its most recent annual Corporate Social Responsibility (CSR) report, available at AmerenCSR.com, on May 3, 2018. It discusses the challenges Ameren faces and actions being taken to achieve balance between the areas of customer and community development, workforce, environment and shareholders. The report details how Ameren Missouri is transitioning to a cleaner and more diverse generation portfolio and how overall emissions have declined since 2005. Ameren is also participating in a voluntary industry initiative, coordinated by the Edison Electric Institute (EEI), to provide electric industry investors with more uniform and consistent environmental, social, governance and sustainability-related (ESG/sustainability) metrics. The result of the initiative, EEI's pilot ESG/sustainability reporting template, is available under the Environmental, Social and Governance section at AmerenInvestors.com. Ameren's 2017 year end rate base consists of 70% from electric and natural gas distribution investments, 14% coal generation, 13% non-carbon emitting nuclear and renewable generation, and 3% gas generation. These percentages reflect strategic allocation of increasing amounts of capital to distribution and transmission businesses and Ameren's view that the energy grid will be increasingly important and valuable to its customers, the communities it serves and its shareholders. This increasing value of the grid is expected to be driven by the need for a smarter, more hardened energy delivery system to incorporate increasingly more distributed and renewable generation sources. Ameren expects the percent of its rate base represented by fossil fuel-fired generation investments to decline in the years ahead as it focuses on increased grid and renewable generation investment. Ameren is advancing its commitment to environmental stewardship through Ameren Missouri's 20-year Integrated Resource Plan (IRP), issued in



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September 2017. The IRP outlines plans to significantly increase our renewable energy portfolio, including the addition of at least 700 MWs of wind generation by 2020. It also includes the planned retirement of more than half of Ameren Missouri's coal-fired generation capacity over the next 20 years, with the retirement of the Meramec Energy Center by the end of 2022 and others between 2033 and 2036. Further, Ameren Missouri has a goal to reduce carbon dioxide (CO2) emissions 35% by 2030, 50% by 2040 and 80% by 2050, as compared to 2005 levels. More information is available at AmerenMissouri.com/IRP. FORWARD-LOOKING STATEMENTS. Statements in this report not based on historical facts are considered “forward-looking” and, accordingly, involve risks and uncertainties that could cause actual results to differ materially from those discussed. Although such forward-looking statements have been made in good faith and are based on reasonable assumptions, there is no assurance that the expected results will be achieved. These statements include (without limitation) statements as to future expectations, beliefs, plans, strategies, objectives, events, conditions, and financial performance. We are providing this cautionary statement to identify important factors that could cause actual results to differ materially from those anticipated. We refer you to our Annual Report on Form 10-K for the year ended December 31, 2017, and our other reports filed with the Securities and Exchange Commission, which contain a list of factors and a discussion of risks that could cause actual results to differ materially from management expectations suggested in such forward-looking statements. Except to the extent required by the federal securities laws, we undertake no obligation to update or revise publicly any forward-looking statements to reflect new information or future events.

W-EU0.1a

(W-EU0.1a) Which activities in the electric utilities sector does your organization engage in?

- Electricity generation
- Transmission
- Distribution
- Other, please specify (Natural gas distribution services)

W-EU0.1b

(W-EU0.1b) For your electricity generation activities, provide details of your nameplate capacity and the generation for each power source.

| | Nameplate capacity (MW) | % of total nameplate capacity | Gross generation (MWh) |
|-------------|-------------------------|-------------------------------|------------------------|
| Coal – hard | 5379 | 46.92 | 32953297 |
| Lignite | 0 | 0 | 0 |
| Oil | 312 | 2.72 | 2535 |



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| | Nameplate capacity (MW) | % of total nameplate capacity | Gross generation (MWh) |
|---------------------|-------------------------|-------------------------------|------------------------|
| Gas | 3776 | 32.94 | 311601 |
| Biomass | 0 | 0 | 0 |
| Waste (non-biomass) | 15 | 0.13 | 47567 |
| Nuclear | 1236 | 10.78 | 8715274 |
| Geothermal | 0 | 0 | 0 |
| Hydroelectric | 333 | 2.9 | 1656409 |
| Wind | 0 | 0 | 322935 |
| Solar | 6 | 0.05 | 5994 |
| Other renewable | 0 | 0 | 0 |
| Other non-renewable | 408 | 3.56 | 377932 |
| Total | 11465 | 100 | 44393544 |

W-OG0.1a

(W-OG0.1a) Which business divisions in the oil & gas sector apply to your organization?

Other, please specify (Not applicable.)
Ameren is not in the oil and gas sector.

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

| | Start date | End date |
|----------------|----------------|------------------|
| Reporting year | January 1 2017 | December 31 2017 |

W0.3

(W0.3) Select the countries/regions for which you will be supplying data.

United States of America

W0.4



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(W0.4) Select the currency used for all financial information disclosed throughout your response.

USD

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Other, please specify (Ameren, an investor owned energy company)

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

Yes

W0.6a

(W0.6a) Please report the exclusions.

| Exclusion | Please explain |
|---|--|
| <p>Ameren is reporting significant water usage associated with our major electricity generation facilities. For all questions other than W1.2b (i.e. total withdrawals, discharges, and consumption" across all your operations"), we excluded reporting water use at hydroelectric and pumped-storage generating facilities as water use at these is passed through and not withdrawn and discharged as at other generating facilities. Combustion turbines have also been excluded due to very low water use.</p> | <p>In regards to information included in this filing, we report significant surface water use at our five largest facilities based on availability of data. The primary use of water at these facilities is for cooling, as all utilize a thermal cycle to generate electricity from coal, natural gas, or nuclear fuel. Of the five facilities for which data is provided, two are located on the Missouri River and three are located on the Mississippi River. Our Corporate Sustainability Report provides considerable detail regarding these facilities including our efforts to reduce water usage consistent with corporate sustainability initiatives. We also report groundwater usage at our major energy centers, which is relatively small by comparison. Water use at Ameren owned buildings and non-generating facilities is relatively minor in comparison to its generating facilities. However, Ameren does exercise water management practices at those facilities to minimize its water use there.</p> |

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.



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| | Direct use importance rating | Indirect use importance rating | Please explain |
|--|------------------------------|--------------------------------|--|
| Sufficient amounts of good quality freshwater available for use | Vital | Neutral | Direct Use: Water is used for hydroelectric energy production and cooling at the major nuclear and fossil energy centers. Indirect Use/Value Chain: Powder River Basin (PRB) coal is the primary fuel source for four major energy centers and represents the largest key input within the supply chain. |
| Sufficient amounts of recycled, brackish and/or produced water available for use | Important | Have not evaluated | Direct Use: Recycled water reduces the amount of water withdrawn and discharged. Indirect Use/Value Chain: Powder River Basin (PRB) coal is the primary fuel source for four major energy centers and represents the largest key input within the supply chain. |

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

| | % of sites/facilities/operations | Please explain |
|---|----------------------------------|--|
| Water withdrawals – total volumes | Less than 1% | Note that the percentage is based on the recognition that only a small number of our facilities withdraw water (a total of 8 Energy Centers), whereas our operations include hundreds of facilities (i.e. over 800). The primary use of water withdrawals is for thermal cooling at energy centers. Average daily temperature rise (comparing the temperatures of discharges to ambient or intake temperatures) is very modest, ranging from negligible to 2.2 degrees F, at our largest energy centers (as documented in our Corporate Sustainability Report at https://www.amerencsr.com/environment/data/default.aspx). Withdrawal flows/volumes are typically estimated based on design pump flow rate and run times for each energy center. It is impractical to attempt to measure volumes. While measured volumes are not needed for plant operations, withdrawal and discharge flows are used to evaluate compliance with NPDES permit limitations. |
| Water withdrawals – volumes from water stressed areas | Not relevant | Ameren's water availability/risk study has not identified areas of water stress within our operational boundaries. |
| Water withdrawals – volumes by source | Less than 1% | Note that the percentage is based on the recognition that only a small number of our facilities withdraw water (a total of 8 Energy Centers), whereas our operations include hundreds of facilities (i.e. over 800). The primary use of water withdrawals is for thermal cooling at energy centers. Average daily temperature rise (comparing the temperatures of discharges to ambient or intake temperatures) is very modest, ranging from negligible to 2.2 degrees F, at our largest energy centers (as documented in our Corporate Sustainability Report at https://www.amerencsr.com/environment/data/default.aspx). Withdrawal flows/volumes are typically estimated based on design pump flow rate and run times for each energy center. It is impractical to attempt to measure volumes. While measured volumes are not needed for plant operations, withdrawal and discharge flows are used to evaluate compliance with NPDES permit limitations. |



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| | % of sites/facilities/operations | Please explain |
|---|----------------------------------|--|
| Produced water associated with your metals & mining sector activities - total volumes | <Not Applicable> | <Not Applicable> |
| Produced water associated with your oil & gas sector activities - total volumes | Not relevant | Not applicable. Ameren is not in the oil and gas sector. |
| Water withdrawals quality | Less than 1% | Note that the percentage is based on the recognition that only a small number of our facilities routinely monitor withdrawal water quality (a total of 4 Energy Centers), whereas our operations includes hundreds of facilities (i.e. over 800). At the coal fueled energy centers intake water is routinely monitored for temperature and total suspended solids. National Pollution Discharge Elimination System (wastewater) permits also require periodic chemical analysis of a broad range of parameters in intake water. |
| Water discharges – total volumes | 1-25 | Water is discharged from eight energy centers, however volumes are only measured at a few outfall locations. Discharge flow rates are typically estimated. |
| Water discharges – volumes by destination | 1-25 | Water is discharged from eight energy centers, however volumes are only measured at a few outfall locations. Discharge flow rates are typically estimated. |
| Water discharges – volumes by treatment method | 1-25 | Water is discharged from eight energy centers, however volumes are only measured at a few outfall locations. Discharge flow rates are typically estimated. |
| Water discharge quality – by standard effluent parameters | 100% | Discharges (via specified outfalls) are monitored for water quality as required by National Pollution Discharge Elimination System (wastewater) permits at the eight energy centers subject to wastewater quality monitoring conditions in their permits. |
| Water discharge quality – temperature | 100% | Cooling water discharge outfalls are monitored for thermal parameters as required by National Pollution Discharge Elimination System (wastewater) permits at 5 energy centers subject to thermal monitoring conditions in their permits. |
| Water consumption – total volume | Not monitored | Consumption is not monitored, however volumes are estimated based on energy center operations (i.e. generation) and consumption factors published by regulatory agencies. |
| Water recycled/reused | Not monitored | Reuse is not regularly monitored, however volumes have been estimated based on flow balances developed and provided to regulators as part of National Pollution Discharge Elimination System (wastewater) permit applications. Water is recycled/reused at two of five coal and nuclear generation facilities; annual estimates are provided for both. |
| The provision of fully-functioning, safely | 100% | Clean and safe potable water is available at Ameren facilities. The water quality is monitored at our facilities that produce their own potable water. |



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| | % of sites/facilities/operations | Please explain |
|--------------------------------------|----------------------------------|----------------|
| managed WASH services to all workers | | |

W-EU1.2a

(W-EU1.2a) For your hydroelectric operations, what proportion of the following water aspects are regularly measured and monitored?

| | % of sites/facilities/operations measured and monitored | Please explain |
|--|---|--|
| Fulfilment of downstream environmental flows | 100% | Only one of our hydroelectric facilities has downstream flow obligations. At this location releases are monitored and managed to ensure that downstream flows meet regulatory criteria (as contained in our Federal Energy Regulatory Commission license). |
| Sediment loading | Not relevant | We have no environmental requirements for sediment loading at our hydroelectric facilities. |
| Other, please specify | Please select | |

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

| | Volume (megaliters/year) | Comparison with previous reporting year | Please explain |
|-------------------|--------------------------|---|--|
| Total withdrawals | 70222404 | About the same | While the reported withdrawals are "across all [y]our operations", the comparison is based on reported 2016 and 2017 flows which do not include hydroelectric facilities. Excluding these, the 2016 versus 2017 volumes are 4,132,000 versus 4,373,000 megaliters/year. |
| Total discharges | 70191220 | About the same | While the reported discharges are "across all [y]our operations", the comparison is based on reported 2016 and 2017 flows which do not include hydroelectric facilities. Excluding these, the 2016 versus 2017 volumes are 4,099,000 versus 4,341,000 megaliters per year. |



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| | Volume (megaliters/year) | Comparison with previous reporting year | Please explain |
|-------------------|--------------------------|---|--|
| Total consumption | 31184 | About the same | Reported consumption is "across all [y]our operations". Note that hydroelectric facilities are non-consuming, so they do not factor into the reported total. The comparison is based on reported 2016 and 2017 flows volumes which were 33,160 versus 31,180 megaliters per year (respectively). |

W-OG1.2c

(W-OG1.2c) In your oil & gas sector operations, what are the total volumes of water withdrawn, discharged, and consumed – by business division – and what are the trends compared to the previous reporting year?

| | Volume (megaliters /year) | Comparison with previous reporting year % | Please explain |
|---|---------------------------|---|--|
| Total withdrawals - Upstream | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total discharges – Upstream | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total consumption – Upstream | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total withdrawals - Downstream | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total discharges – Downstream | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total consumption – Downstream | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total withdrawals – Chemicals | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total discharges – Chemicals | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total consumption – Chemicals | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Total withdrawals – Other business division | 0 | Please select | Not applicable. Ameren is not in the oil and gas sector. |
| Total discharges – Other business division | 0 | Please select | Not applicable. Ameren is not in the oil and gas sector. |
| Total consumption – Other business division | 0 | Please select | Not applicable. Ameren is not in the oil and gas sector. |

W1.2h



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(W1.2h) Provide total water withdrawal data by source.

| | Relevance | Volume (megaliters/year) | Comparison with previous reporting year | Please explain |
|--|-----------------------------|--------------------------|---|--|
| Fresh surface water, including rainwater, water from wetlands, rivers, and lakes | Relevant | 4366213 | About the same | This data is for five coal and nuclear generation facilities. Quantity is dependent on plant generation and weather. |
| Brackish surface water/seawater | Not relevant | <Not Applicable> | <Not Applicable> | Our operations are not located near brackish or seawater sources. |
| Groundwater – renewable | Relevant | 6325 | About the same | Shallow alluvial groundwater is used at three of five generation facilities. It is supplied by on-site wells. |
| Groundwater – non-renewable | Not relevant | <Not Applicable> | <Not Applicable> | Not applicable |
| Produced water | Not relevant | <Not Applicable> | <Not Applicable> | Not applicable |
| Third party sources | Relevant but volume unknown | <Not Applicable> | <Not Applicable> | Third party supply of potable water is typically from municipal, public and/or private water providers. |

W1.2i

(W1.2i) Provide total water discharge data by destination.

| | Relevance | Volume (megaliters/year) | Comparison with previous reporting year | Please explain |
|---------------------------------|--------------|--------------------------|---|--|
| Fresh surface water | Relevant | 4341354 | About the same | This data is for five coal and nuclear generation facilities. Quantity is dependent on plant generation and weather. |
| Brackish surface water/seawater | Not relevant | <Not Applicable> | <Not Applicable> | Not applicable |
| Groundwater | Not relevant | <Not Applicable> | <Not Applicable> | Not applicable |
| Third-party destinations | Relevant | 5.3 | About the same | This data is from one facility (the Meramec Energy Center) that has some discharge to the Metropolitan Sewer District. |

W-EU1.3



(W-EU1.3) Do you calculate water intensity for your electricity generation activities?

Yes

W-EU1.3a

(W-EU1.3a) Provide the following intensity information associated with your electricity generation activities.

| Water intensity value | Numerator: water aspect | Denominator: unit of production | Comparison with previous reporting year | Please explain |
|-----------------------|-------------------------|---------------------------------|---|---|
| 205 | Freshwater consumed | MWh | About the same | The intensity shown is an average, in gallons of fresh (surface) water consumed per MWh of net generation, for the five coal and nuclear generation facilities. |

W-OG1.3

(W-OG1.3) Do you calculate water intensity for your activities associated with the oil & gas sector?

No, and we have no plans to do so in the next two years

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

No, not currently but we intend to within two years

W1.4d

(W1.4d) Why do you not engage with any stages of your value chain on water-related issues and what are your plans?

| | Primary reason | Please explain |
|-------|--|----------------|
| Row 1 | We are planning to do so within the next two years | |

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?



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No

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

No

W3. Procedures

W-EU3.1

(W-EU3.1) How does your organization identify and classify potential water pollutants associated with your business activities in the electric utilities sector that could have a detrimental impact on water ecosystems or human health?

Two potential water pollutant classifications have been identified: thermal discharges and coal combustion residuals (CCR) chemicals.

As a condition of the (final and/or pending National Pollution Discharge Elimination System) operating permits (at four of our five coal and nuclear generating facilities), we are currently re-evaluating the potential risks associated with cooling water withdrawals and resulting thermal discharges. Multiple studies are being performed, culminating in a comprehensive review/report to be submitted to the Missouri Department of Natural Resources with our next permit renewal application for each facility (except for the Meramec Energy Center which will cease operations by year-end 2022). Study completion and submittal deadlines are as follows: Callaway Energy Center – December 2019, Labadie Energy Center – January 2019, Sioux Energy Center – September 2022, and the Rush Island Energy Center (whose permit renewal is currently pending) with an estimated deadline of late 2023.

We recently performed ecological and human health risks assessments associated with operations and coal combustion residuals (CCR) management at our four coal generating facilities. These studies considered discharges to both receiving stream surface waters and adjacent ground water resources. All four studies concluded that there were no risks to human health or the environment. These studies, conducted by Haley and Aldrich and their 2018 Reports are available on Ameren's web site at: <https://www.ameren.com/Environment/managing-ccrs>



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In response to the US EPA's CCR Rule, Ameren installed groundwater monitoring wells around each of the impoundments and landfills at our coal-fired energy centers. Annual groundwater monitoring reports are issued and the 2017 reports are available under the Energy Center CCR Information heading, also on Ameren's web site at:

<https://www.ameren.com/Environment/ccr-rule-compliance/ccr-compliance-labadie>

<https://www.ameren.com/Environment/ccr-rule-compliance/ccr-compliance-meramec>

<https://www.ameren.com/Environment/ccr-rule-compliance/ccr-compliance-rush-island>

<https://www.ameren.com/Environment/ccr-rule-compliance/ccr-compliance-sioux>

W-EU3.1a

(W-EU3.1a) Describe how your organization minimizes the adverse impacts of potential water pollutants associated with your activities in the electric utilities sector on water ecosystems or human health.

| Potential water pollutant | Description of water pollutant and potential impacts | Management procedures | Please explain |
|---------------------------|---|--|--|
| Hydrocarbons | For a pollutant to constitute a threat to human health or the environment, concentration levels must exist above a health based screening level and there must be a pathway of actual exposure. | Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness | Hydrocarbons are used and present in equipment at our facilities. As a result, permits contain limits on indicator parameters and each facility has a site-specific spill prevention control and counter measure plan. These plans are approved by registered professional engineers to assure effective preventive measures are in place. |
| Coal combustion residuals | For a pollutant to constitute a threat to human health or the environment, concentration levels must exist above a health based screening level and there must be a pathway of actual exposure. | Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Community/stakeholder engagement Emergency preparedness | Our four coal generating facilities manage Coal Combustion Residual (CCR) in various impoundments and landfills. These facilities are subject to numerous federal and state regulatory programs covering solid waste management and wastewater treatment and discharge. These include the new federal "CCR Regulations" issued in 2015. We recently performed ecological and human health risks assessments associated with operations and CCR management at our four coal generating facilities. These studies considered discharges to both receiving stream surface waters and adjacent ground water resources. We also identified the location and depth of all private wells located within a mile of our facilities. All four studies concluded that the surface impoundments do not present a risk to human health or the environment. Both public and private drinking water supplies all comply with drinking water standards. With respect to groundwater impacts adjacent to the ash ponds, there is a pathway of exposure to such groundwater. These studies, conducted by Haley and Aldrich and their 2018 Reports are available on Ameren's web site at: https://www.ameren.com/Environment/managing-ccrs The |



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| Potential water pollutant | Description of water pollutant and potential impacts | Management procedures | Please explain |
|--|---|--|---|
| | | | groundwater quality data are available in the 2017 annual groundwater monitoring reports on this same website. |
| Radiation | As a water pollutant, elevated levels of radiation may result in ecological or human health toxicity, depending on concentration and exposure. | Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Community/stakeholder engagement Emergency preparedness | Our sole nuclear generating facility, the Callaway Energy Center, is subject to stringent controls per the terms of its federal Nuclear Regulatory Commission license, as well as other state and federal regulations and permit programs. The Callaway Energy Center performs routine monitoring which is reported annually to the state of Missouri and the Nuclear Regulatory Commission. All effluents are sampled, analyzed and treated prior to discharge. Callaway also participates in the Nuclear Energy Institute's Ground Water Protection Initiative. |
| Contaminated cooling water | Not applicable | No formal management procedure in place | Our coal and nuclear generating facilities are located along two of the largest rivers in the United States that are used as the source of cooling water. Water contaminants (pollutants) are not believed to be present in concentrations that would adversely impact use as cooling water supplies. |
| Thermal pollution | Elevated temperatures in cooling water discharges may result in either acute or chronic toxicity to aquatic life in the receiving stream, dependant upon temperatures and exposure. | Compliance with effluent quality standards | Thermal impacts from our five coal and nuclear generating facilities were studied extensively. These included evaluations of entrainment and impingement aquatic organisms in cooling water systems and resulting cooling water effluent. With relatively recent revisions to thermal and water intake provisions in the federal Clean Water Act ("Sections 316 a and b"), updated and expanded studies have been included in the latest round of wastewater (National Pollution Discharge Elimination System) wastewater permits and are currently underway. The purpose of these studies is to determine whether Ameren facilities are having an adverse impact on the aquatic organisms in the adjacent rivers. Several studies have been completed and submitted to the permitting authority while several are ongoing. Interim results from one of these studies for the Labadie Energy Center concludes that the balanced indigenous community of aquatic organisms near the thermal discharge are adequately protected and are not adversely impacted. |
| Other, please specify (Other pollutants per the federal CWA) | As water pollutants, these chemicals (included by US EPA per the Steam Electric Point Source Category, under the Clean Water Act) may result in ecological or human health toxicity, depending on concentration and exposure. | Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness | Recent updates to the Steam Electric Effluent Guidelines per the federal Clean Water Act (2015) included reviews and revisions of water quality impacts and resulted in more stringent effluent limitations for many designated waste streams. We are currently designing and constructing treatment facilities to upgrade and/or replace affected systems. |



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W-OG3.1

(W-OG3.1) How does your organization identify and classify potential water pollutants associated with its activities in the oil & gas sector that may have a detrimental impact on water ecosystems or human health?

Not applicable. Ameren is not in the oil and gas sector.

W-OG3.1a

(W-OG3.1a) For each business division of your organization, describe how your organization minimizes the adverse impacts on water ecosystems or human health of potential water pollutants associated with your oil & gas sector activities.

| Potential water pollutant | Business division | Description of water pollutant and potential impacts | Management procedures | Please explain |
|--|-------------------|--|-----------------------|--|
| No potential water pollutants identified | <Not Applicable> | <Not Applicable> | <Not Applicable> | Not applicable. Ameren is not in the oil and gas sector. |

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Direct operations

Coverage

Full

Risk assessment procedure

Water risks are assessed as a standalone issue

Frequency of assessment

Every two years

How far into the future are risks considered?

>10 years



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Type of tools and methods used

Tools on the market

Enterprise Risk Management

Databases

Tools and methods used

WRI Aqueduct

Other, please specify (See comment section below)

Comment

Tools included: USACE Climate Hydrology Assessment Tool; NOAA US Climate Resilience Toolkit; US Drought Monitor; PRISM Data Explorer; NASA Earth Exchange; and USGS Monthly Water Balance Model. In 2017 we contracted with AECOM to compile a Water Resilience Assessment. A final report will be issued in 2018. For two of the three regions studied, they projected that water stress would be near normal through 2030, with some increase in the already arid Powder River (coal-supply) Basin.

Supply chain

Coverage

Partial

Risk assessment procedure

Water risks are assessed as a standalone issue

Frequency of assessment

Every two years

How far into the future are risks considered?

>10 years

Type of tools and methods used

Tools on the market

Enterprise Risk Management

Databases

Tools and methods used

WRI Aqueduct

Other, please specify (See comment section below)

Comment

WRI Aqueduct; USACE Climate Hydrology Assessment Tool; NOAA US Climate Resilience Toolkit; US Drought Monitor; PRISM Data Explorer; NASA Earth Exchange; USGS Monthly Water Balance Model; External consultants



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Other stages of the value chain

Coverage

None

Risk assessment procedure

<Not Applicable>

Frequency of assessment

<Not Applicable>

How far into the future are risks considered?

<Not Applicable>

Type of tools and methods used

<Not Applicable>

Tools and methods used

<Not Applicable>

Comment

Water risks are not assessed in this stage of our value chain

W3.3b

(W3.3b) Which of the following contextual issues are considered in your organization’s water-related risk assessments?

| | Relevance & inclusion | Please explain |
|---|------------------------------------|---|
| Water availability at a basin/catchment level | Relevant, always included | Although our facilities are geographically situated in an area of ample water supply, we strive to minimize the impact of our operations on water quality and use. We monitor water levels in surrounding rivers. This data can alert us to any stressed water level conditions that may affect generation. Historically, water availability in our operating region has not been a cause for concern. As discussed in the answer to W3.3a, we are using publicly available databases and tools to assess water resource availability risks. |
| Water quality at a basin/catchment level | Not relevant, explanation provided | Ameren's primary energy centers are located within the lower Missouri and middle Mississippi river watersheds. Water quality in these large river systems is adequate for our uses and so it is not considered as part of our water-related risk assessments. Nonetheless, Ameren conducts routine monitoring of temperatures and total suspended solids at our facility intakes. In connection with National Pollution Discharge Elimination System (wastewater discharge) permit renewals, we monitor intake and effluent water for a broad range of chemical constituents. |



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| | Relevance & inclusion | Please explain |
|---|------------------------------------|--|
| Stakeholder conflicts concerning water resources at a basin/catchment level | Relevant, always included | We actively communicate with key stakeholders and participate in stakeholder meetings on water-related issues. The primary opportunity for such communications is in conjunction with our participation on the congressionally authorized Missouri River Recovery Implementation Committee. |
| Implications of water on your key commodities/raw materials | Relevant, always included | Ameren uses significant quantities of Powder River Basin coal (primary fuel source for four major energy centers). These coal mines are located in northeastern Wyoming which could experience increased water stress in the future. However, this is not expected to impact coal supply. |
| Water-related regulatory frameworks | Not relevant, explanation provided | Ameren's primary energy centers are located within the lower Missouri and middle Mississippi river watersheds. Flows on the Missouri, and to a lesser extent the Mississippi, are managed by various agencies, including most significantly the US Army Corps of Engineers. While regulatory decision-making is not routinely considered in our water-related risk assessments, we participate in various stakeholder and regulatory review groups that monitor activities and provide feedback on potential changes that might affect water availability or water quality. |
| Status of ecosystems and habitats | Relevant, always included | Ecosystems and habitats are currently considered at generating facilities when making plant modifications/changes and during regulatory permit actions. In addition, land and water habitat are considered when constructing or modifying transmission lines and natural gas distribution systems. For example the Illinois Rivers transmission project included endangered bat and frog species studies and protection actions as well as habitat restoration activities included planting of pollinator-friendly vegetation. Another opportunity for communications regarding endangered species and habitat protection/restoration is in conjunction with our participation on the congressionally authorized Missouri River Recovery Implementation Committee. |
| Access to fully-functioning, safely managed WASH services for all employees | Not relevant, explanation provided | Potable water is available at each facility. The water quality is monitored at our facilities that provide potable water. |
| Other contextual issues, please specify | Relevant, always included | River basin management - Ameren participates in the Missouri River Recovery Implementation Committee Advisory Group. Membership includes 29 stakeholders: federal agencies, states, tribes, and non-governmental stakeholders. The purpose of the Advisory Group is to study the Missouri River and its tributaries to determine actions required to recover federally listed species under the Endangered Species Act while balancing such actions with the risks and benefits to other designated purposes of the US Army Corps of Engineer's river management system. |

W3.3c

(W3.3c) Which of the following stakeholders are considered in your organization’s water-related risk assessments?



DISCLOSURE INSIGHT ACTION

| | Relevance & inclusion | Please explain |
|--|------------------------------------|---|
| Customers | Not relevant, explanation provided | Ameren provides safe, reliable, affordable, and cleaner energy that is foundational to the well-being and security of millions of people, as well as the economy of our region and country. The water resilience assessment examined water resources across a broad region of the United States including the Midwest and Great Plains regions under a variety of climate change assumptions. These regions include the communities in which our customers live and work. |
| Employees | Not relevant, explanation provided | Our water resiliency studies focused on the potential climate change impacts on water availability, as needed for our largest generating facilities. The water resilience assessment examined water resources across a broad region of the United States including the Midwest and Great Plains regions under a variety of climate change assumptions. These regions include the communities in which our co-workers live and work. |
| Investors | Relevant, always included | Economic risk is always considered with a goal of providing low-cost power to customers, while providing a fair return to our investors. |
| Local communities | Relevant, always included | Ameren participates in various community groups. |
| NGOs | Not considered | |
| Other water users at a basin/catchment level | Relevant, always included | Ameren meets with local water users and monitors water near major generating facilities. |
| Regulators | Relevant, always included | Ameren meets often with state and federal regulatory agencies including the Missouri Department of Natural Resources, the US Environmental Protection Agency, the US Department of Fish and Wildlife, and the US Army Corps of Engineers, among others. |
| River basin management authorities | Relevant, always included | Ameren participates in the Missouri River Recovery Implementation Committee Advisory Group. The purpose of the Advisory Group is to study the Missouri River and its tributaries to determine actions required to recover federally listed species under the Endangered Species Act. |
| Statutory special interest groups at a local level | Not considered | |
| Suppliers | Relevant, always included | Ameren uses significant quantities of Powder River Basin coal (primary fuel source for four major energy centers). These coal mines are located in northeastern Wyoming which could experience increased water stress in the future. However, this is not expected to impact coal supply. |
| Water utilities at a local level | Not considered | |
| Other stakeholder, please specify | Not considered | |

W3.3d



(W3.3d) Describe your organization’s process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

Ameren continually tracks developments and new environmental rulings, then verifies compliance and assesses the need for action including, as may be needed, in the design and deployment of new or modified treatment systems. The Enterprise Risk Management (ERM) Team is responsible for identifying, assessing and monitoring all risks to the achievement of the corporate strategy and objectives. The ERM Team has developed water risks relative to the corporate objectives by partnering with subject matter experts in the Company’s Generation and Environmental departments. The risks and mitigation strategies are recorded in the Company Enterprise Risk database. All enterprise risks, including identified water risks, are evaluated, reviewed and discussed quarterly. Enterprise risks are categorized and presented at varying intervals throughout the calendar year to senior leadership and the Board of Directors. While water risks are monitored on an enterprise level, individual departments monitor water issues within the Company at a grass roots level and provide appropriate information to senior management. Company representatives also engage various outside entities on water related matters such as state and federal regulatory/resource organizations including the Missouri Department of Natural Resources (MDNR), Missouri Department of Conservation (MDC), US Army Corps of Engineers (USACE), Fish and Wildlife Service (FWS), regional watershed groups (Missouri River), along with local and regional non-governmental organizations (NGOs).

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, only within our direct operations

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

Current risk is related to implementation of water regulations through the National Pollutant Discharge Elimination System (NPDES) permit program for our energy centers, new EPA regulations pertaining to Clean Water Act section 316(b) and Effluent Limitations Guidelines as well as future regulatory actions associated with threatened and endangered species and Clean Water Act section



DISCLOSURE INSIGHT ACTION

316(a). If major capital expenditures or increases in operating costs are required at energy centers based on the final rules, that would constitute a substantive change.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

| | Total number of facilities exposed to water risk | % company-wide facilities this represents | Comment |
|-------|--|---|---|
| Row 1 | 5 | 51-75 | The facilities included in response to this question are Ameren's largest generating stations. The percentage of facilities listed is based on their capacity as a ratio of our total generating capacity (approximately 58%). Note that hydroelectric facilities may also be exposed to water risk due to insufficient flows. However their cumulative generating capacity is relatively low (approximately 3%) and thus they are not included in this response. |

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive impact on your business, and what is the potential business impact associated with those facilities?

Country/Region

United States of America

River basin

Mississippi River

Number of facilities exposed to water risk

3

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Not Applicable>

% company's annual electricity generation that could be affected by these facilities



DISCLOSURE INSIGHT ACTION

26-50

% company's global oil & gas production volume that could be affected by these facilities

Please select

% company's total global revenue that could be affected

Unknown

Comment

Percentage of annual generation that could be affected is based on 2017 generation; these three facilities comprised approximately 36% of 2017 generation. One hydroelectric generation facility is also located in this river basin; however it was not included as it comprised only approximately 2.3% of generation. Ameren does not selectively disclose revenues from Energy Centers.

Country/Region

United States of America

River basin

Other, please specify (Missouri River)

Number of facilities exposed to water risk

2

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Not Applicable>

% company's annual electricity generation that could be affected by these facilities

51-75

% company's global oil & gas production volume that could be affected by these facilities

Please select

% company's total global revenue that could be affected

Unknown

Comment

Percentage of annual generation that could be affected is based on 2017 generation; these two facilities comprised approximately 58% of 2017 generation. One hydroelectric generation facility is also located in this river basin; however it was not included as it comprised only approximately 1.4% of generation. Ameren does not selectively disclose revenues from Energy Centers.



DISCLOSURE INSIGHT ACTION

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Region

United States of America

River basin

Other, please specify (Mississippi and Missouri River basins)

Type of risk

Physical

Primary risk driver

Dependency on water intensive energy sources

Primary potential impact

Closure of operations

Company-specific description

Our largest energy centers withdraw and discharge millions of megaliters of surface water per year from the Mississippi and Missouri river basins. These basins are large, covering broad geographic areas, and flows are highly managed (using numerous dams and locks) and regulated by the US Army Corps of Engineers (USACE). Primary factors that may influence the availability of these water resources include USACE management of flows, climate (temperature and precipitation), and consumption (by upstream users). A substantial uncertainty is how changes in temperature and precipitation, resulting from climate change, may influence water resources and availability. There is uncertain risk that future flows might be insufficient to meet our cooling water demand. If energy centers need to be closed due to a lack of available water, stranded cost issues for shareholders would arise and require regulatory approval for cost recovery.

Timeframe

More than 6 years

Magnitude of potential impact

Medium-high

Likelihood

Very unlikely

Potential financial impact

Explanation of financial impact



DISCLOSURE INSIGHT ACTION

Ameren operations are located in the water abundant Mississippi and Missouri river watersheds. Ameren completed a Water Resilience Assessment that concluded that the risk of greatly reduced water availability is very low for the foreseeable future. The actual amount of financial impact cannot be determined because of uncertainty in the extent and duration of any possible disruptions.

Primary response to risk

Other, please specify (Monitor river basin conditions)

Description of response

Perform periodic water resiliency and risk assessments, including consideration of climate change. We expect to coordinate these updates with the Ameren Missouri Integrated Resource Plan (IRP) triennial filing. River levels are monitored daily at major energy centers.

Cost of response

50000

Explanation of cost of response

Approximate cost is expected to be in the range of \$50,000 per year, including both the embedded cost of river level monitoring and periodic studies.

Country/Region

United States of America

River basin

Other, please specify (Mississippi and Missouri river basins)

Type of risk

Regulatory

Primary risk driver

Regulation of discharge quality/volumes

Primary potential impact

Other, please specify (Higher Capital and O&M costs)

Company-specific description

Section 316(a) of the US Clean Water Act requires limitations on thermal discharges from industrial sources, including power plants. Cooling water discharges at Ameren's energy centers are regulated by the US Environmental Protection Agency and the Missouri Department of Natural Resources, through the NPDES (National Pollutant Discharge Elimination System) permit program. As required by the current Labadie Energy Center permit, extensive thermal studies, monitoring, and modeling are being conducted at that energy center. Based on the results to date, we believe we are in full compliance with Section 316(a). However there remains risk



DISCLOSURE INSIGHT ACTION

over the 20-year planning horizon of our Integrated Resource Plan (IRP) that changes in operating procedures might be necessary to address thermal issues, avoiding the high-cost alternative of installing cooling towers at the Labadie Energy Center. We do not believe there are thermal issues at our other fossil energy centers that would require cooling towers. {See Ameren's 2017 IRP for details: <https://q9u5x5a2.ssl.hwcdn.net/-/Media/Missouri-Site/Files/environment/2017-IRP/Chapter-5-Environmental-compliance.pdf?la=en>} Nonetheless, if the Labadie Energy Center would need to reduce or cease operations or install capital intensive modifications, stranded cost issues for shareholders would arise and require regulatory approval for cost recovery.

Timeframe

More than 6 years

Magnitude of potential impact

Medium-high

Likelihood

Unknown

Potential financial impact

Explanation of financial impact

The actual amount of expenditures to comply with these environmental regulations may vary substantially because of uncertainty as to whether EPA will revise regulatory obligations, which compliance strategy will be used, and their ultimate cost, among other things.

Primary response to risk

Pollution abatement and control measures

Description of response

In the event that ongoing studies indicate that the Labadie Energy Center may not fully meet compliance requirements in the future, operating procedures would be implemented to address thermal issues and thereby avoid requirements to install cooling towers at the the Labadie Energy Center.

Cost of response

Explanation of cost of response

Unknown until a response is warranted.

Country/Region

United States of America

River basin

Other, please specify (Mississippi and Missouri River basins)

Type of risk



DISCLOSURE INSIGHT ACTION

Regulatory

Primary risk driver

Regulatory uncertainty

Primary potential impact

Other, please specify (Higher Capital and O&M costs)

Company-specific description

Section 316(b) of the US Clean Water Act (CWA) establishes criteria to protect fish and other aquatic organisms from detrimental impacts associated with large water intake structures. At power plants (including Ameren's energy centers), aquatic organisms can be impinged or entrained within cooling water intake structures, piping and condenser systems. The US Environmental Protection Agency issued revised Section 316(b) regulations in 2014, requiring extensive studies for review by the Missouri Department of Natural Resources and other agencies over the next 4 to 6 years. These include assessments of various control technologies, up to and including cooling tower retrofits. Outcomes of CWA Section 316(b) studies might result in regulatory agencies requiring cooling system modifications or replacement technologies at our Labadie, Rush Island, and Sioux energy centers. Ameren believes the installation of fine mesh screens may be required (upon completion of these studies and review by regulatory agencies) at these three energy centers. {See Ameren's 2017 IRP for details: <https://q9u5x5a2.ssl.hwcdn.net/-/Media/Missouri-Site/Files/environment/2017-IRP/Chapter-5-Environmental-compliance.pdf?la=en>}

Timeframe

4 - 6 years

Magnitude of potential impact

Medium-high

Likelihood

Likely

Potential financial impact

49000000

Explanation of financial impact

Costs for fine mesh screen retrofits at three Ameren Energy Centers were estimated in Table 5.3 of Chapter 5, Environmental Compliance,(Environmental Mitigation Costs) of Ameren Missouri's 2017 Integrated Resource Plan (as referenced above). The Integrated Resource Plan is available at: <https://www.ameren.com/missouri/environment/integrated-resource-plan>

Primary response to risk

Pollution abatement and control measures

Description of response



DISCLOSURE INSIGHT ACTION

Upon completion of the current Section 316(b) studies, we will begin dialogue with the regulatory agencies, and if warranted, begin design, budgeting and procurement of the required technologies.

Cost of response

Explanation of cost of response

Unknown until a response is warranted.

W4.2c

(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?

| | Primary reason | Please explain |
|-------|--|---|
| Row 1 | Risks exist, but no substantive impact anticipated | The majority of low sulfur coal consumed at Ameren's energy centers is sourced from mines located in the Powder River Basin in Wyoming. Water is used in processing coal prior to transport, which adds to the water demand within the basin. Ameren conducted a Water Resiliency and Risk study that concluded that, in the long run, this basin could experience increased water stress. Over time Ameren Missouri expects to increase its portfolio of renewable generation which will reduce our use of coal. |

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Efficiency

Primary water-related opportunity

Cost savings

Company-specific description & strategy to realize opportunity



DISCLOSURE INSIGHT ACTION

Water is used by Ameren in a number of areas. River navigation is utilized for shipment of some large components and other equipment to our energy centers. Water is required to operate our generating facilities which produce electricity for our customers' consumption. Therefore, it is critical to optimize our use of this natural resource.

Estimated timeframe for realization

Unknown

Magnitude of potential financial impact

Unknown

Potential financial impact

Explanation of financial impact

Financial impacts have not been estimated.

Type of opportunity

Other

Primary water-related opportunity

Other, please specify (Dry coal ash management)

Company-specific description & strategy to realize opportunity

Three coal generating stations are being converted to manage coal combustion residuals in a dry state and thereby reduce water usage and discharge. Modifications are being made to comply with revised Clean Water Act Steam Electric Effluent Guidelines applicable to these facilities.

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

Medium

Potential financial impact

340000000

Explanation of financial impact

On November 3, 2015, the EPA issued a revised rulemaking for steam electric power plant discharges (the Steam Electric Effluent Guidelines Rule). This rule prohibits discharges of ash transport water. As such, Ameren Missouri will have to construct new or augmented fly ash handling systems and new bottom ash handling systems. Ameren Missouri will also need to construct new wastewater treatment systems to manage discharges from various power plant systems such as demineralizer regenerations, storm water, and other process wastewater. We believe the modifications described above will be required at each of our coal-fired energy



DISCLOSURE INSIGHT ACTION

centers except Meramec. With its retirement at the end of 2022, it is assumed that Meramec would be exempted from these requirements. In 2015, Ameren Missouri began to design waste water treatment systems and conversion to dry ash handling for the Labadie, Rush Island, and Sioux energy centers. Costs for these retrofits at these three Ameren energy centers were estimated in Table 5.3 of Chapter 5, Environmental Compliance,(Environmental Mitigation Costs) of Ameren Missouri's 2017 Integrated Resource Plan (as referenced above). The Integrated Resource Plan is available at: <https://www.ameren.com/missouri/environment/integrated-resource-plan>

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, total water accounting data and comparisons with the previous reporting year.

Facility reference number

Facility 1

Facility name (optional)

Callaway Energy Center

Country/Region

United States of America

River basin

Other, please specify (Missouri River)

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

Nuclear

Oil & gas sector business division

Not applicable

Total water withdrawals at this facility (megaliters/year)

30252

Comparison of withdrawals with previous reporting year



DISCLOSURE INSIGHT ACTION

About the same

Total water discharges at this facility (megaliters/year)

8009

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

22243

Comparison of consumption with previous reporting year

About the same

Please explain

"About the same" is used to denote year to year changes of + or - 15%

Facility reference number

Facility 2

Facility name (optional)

Labadie Energy Center

Country/Region

United States of America

River basin

Other, please specify (Missouri River)

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

Not applicable

Total water withdrawals at this facility (megaliters/year)

1737724

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)



DISCLOSURE INSIGHT ACTION

1733385

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)

4339

Comparison of consumption with previous reporting year

About the same

Please explain

"About the same" is used to denote year to year changes of + or - 15%

Facility reference number

Facility 3

Facility name (optional)

Meramec Energy Center

Country/Region

United States of America

River basin

Mississippi River

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

Not applicable

Total water withdrawals at this facility (megaliters/year)

394624

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

394332

Comparison of discharges with previous reporting year



DISCLOSURE INSIGHT ACTION

About the same

Total water consumption at this facility (megaliters/year)

292

Comparison of consumption with previous reporting year

Much lower

Please explain

"About the same" is used to denote year to year changes of + or - 15%; "Much lower" is used to denote a reduction of more than 15% but less than 31%

Facility reference number

Facility 4

Facility name (optional)

Rush Island Energy Center

Country/Region

United States of America

River basin

Mississippi River

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

Not applicable

Total water withdrawals at this facility (megaliters/year)

1270414

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

1268045

Comparison of discharges with previous reporting year

About the same



DISCLOSURE INSIGHT ACTION

Total water consumption at this facility (megaliters/year)

2369

Comparison of consumption with previous reporting year

Much higher

Please explain

"About the same" is used to denote year to year changes of + or - 15%; "Much higher" is used to denote a increase of more than 15% but less than 31%

Facility reference number

Facility 5

Facility name (optional)

Sioux Energy Center

Country/Region

United States of America

River basin

Mississippi River

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

Coal - hard

Oil & gas sector business division

Not applicable

Total water withdrawals at this facility (megaliters/year)

939524

Comparison of withdrawals with previous reporting year

About the same

Total water discharges at this facility (megaliters/year)

937583

Comparison of discharges with previous reporting year

About the same

Total water consumption at this facility (megaliters/year)



DISCLOSURE INSIGHT ACTION

1941

Comparison of consumption with previous reporting year

About the same

Please explain

"About the same" is used to denote year to year changes of + or - 15%

W5.1a

(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.

Facility reference number

Facility 1

Facility name

Callaway Energy Center

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

29928

Brackish surface water/seawater

0

Groundwater - renewable

323.8

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

Surface water and groundwater data provided

Facility reference number

Facility 2

Facility name



DISCLOSURE INSIGHT ACTION

Labadie Energy Center

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

1731755

Brackish surface water/seawater

0

Groundwater - renewable

5969

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

Surface water and groundwater data provided

Facility reference number

Facility 3

Facility name

Meramec Energy Center

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

394624

Brackish surface water/seawater

0

Groundwater - renewable

0

Groundwater - non-renewable

0

Produced water

0

Third party sources



DISCLOSURE INSIGHT ACTION

0

Comment

Surface water data provided

Facility reference number

Facility 4

Facility name

Rush Island Energy Center

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

1270382

Brackish surface water/seawater

0

Groundwater - renewable

31.82

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

Surface water and groundwater data provided

Facility reference number

Facility 5

Facility name

Sioux Energy Center

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

939524

Brackish surface water/seawater

0



DISCLOSURE INSIGHT ACTION

Groundwater - renewable

0

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

Surface water data provided

W5.1b

(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

Facility reference number

Facility 1

Facility name

Callaway Energy Center

Fresh surface water

8009

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

0

Comment

Facility reference number

Facility 2

Facility name



DISCLOSURE INSIGHT ACTION

Labadie Energy Center

Fresh surface water

1733385

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

0

Comment

Facility reference number

Facility 3

Facility name

Meramec Energy Center

Fresh surface water

394332

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

5

Comment

Facility reference number

Facility 4

Facility name

Rush Island Energy Center

Fresh surface water

1268045



DISCLOSURE INSIGHT ACTION

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

0

Comment

Facility reference number

Facility 5

Facility name

Sioux Energy Center

Fresh surface water

937583

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

0

Comment

W5.1c

(W5.1c) For each facility referenced in W5.1, provide the proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name

Callaway Energy Center

% recycled or reused



DISCLOSURE INSIGHT ACTION

2-10%

Comparison with previous reporting year

This is our first year of measurement

Please explain

As originally designed various "Low Volume" wastewaters (a categorical waste stream per the Steam Electric Effluent Guidelines regulations) and treated sanitary wastewater was to be discharged via NPDES permitted outfalls. However, modification were made to instead divert these waste streams (following treatment in lagoons and wetlands) to the plant's primary raw water treatment system for reuse.

Facility reference number

Facility 2

Facility name

Labadie Energy Center

% recycled or reused

None

Comparison with previous reporting year

This is our first year of measurement

Please explain

Facility reference number

Facility 3

Facility name

Meramec Energy Center

% recycled or reused

None

Comparison with previous reporting year

This is our first year of measurement

Please explain

Facility reference number

Facility 4



DISCLOSURE INSIGHT ACTION

Facility name

Rush Island Energy Center

% recycled or reused

None

Comparison with previous reporting year

This is our first year of measurement

Please explain

Facility reference number

Facility 5

Facility name

Sioux Energy Center

% recycled or reused

Less than 1%

Comparison with previous reporting year

This is our first year of measurement

Please explain

The wet flue gas desulphurization system (i.e. scrubber) at Sioux is operated as a closed loop system, yet requires considerable make-up water to replace water lost to evaporation. Scrubber wastewater is treated in "gypsum" ponds to settle out solids for ultimate disposal in the Plant's landfill. The supernatant from these ponds is recycled to supplement the water demand of the scrubber.

W5.1d

(W5.1d) For the facilities referenced in W5.1, what proportion of water accounting data has been externally verified?

Water withdrawals – total volumes

% verified

76-100

What standard and methodology was used?

The verification was undertaken in accordance with the ERM CVS assurance methodology which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and is a CDP-accepted standard. The ERM CVS Independent Assurance Statement is attached. See question W11, W-FI.



DISCLOSURE INSIGHT ACTION

Water withdrawals – volume by source

% verified

76-100

What standard and methodology was used?

The verification was undertaken in accordance with the ERM CVS assurance methodology which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and is a CDP-accepted standard. The ERM CVS Independent Assurance Statement is attached. See question W11, W-FI.

Water withdrawals – quality

% verified

Not verified

What standard and methodology was used?

Water discharges – total volumes

% verified

76-100

What standard and methodology was used?

The verification was undertaken in accordance with the ERM CVS assurance methodology which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and is a CDP-accepted standard. The ERM CVS Independent Assurance Statement is attached. See question W11, W-FI.

Water discharges – volume by destination

% verified

76-100

What standard and methodology was used?

The verification was undertaken in accordance with the ERM CVS assurance methodology which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and is a CDP-accepted standard. The ERM CVS Independent Assurance Statement is attached. See question W11, W-FI.

Water discharges – volume by treatment method

% verified

Not verified

What standard and methodology was used?

Water discharge quality – quality by standard effluent parameters

% verified



DISCLOSURE INSIGHT ACTION

Not verified

What standard and methodology was used?

Water discharge quality – temperature

% verified

Not verified

What standard and methodology was used?

Water consumption – total volume

% verified

76-100

What standard and methodology was used?

The verification was undertaken in accordance with the ERM CVS assurance methodology which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and is a CDP-accepted standard. The ERM CVS Independent Assurance Statement is attached. See question W11, W-FI.

Water recycled/reused

% verified

76-100

What standard and methodology was used?

The verification was undertaken in accordance with the ERM CVS assurance methodology which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and is a CDP-accepted standard. The ERM CVS Independent Assurance Statement is attached. See question W11, W-FI.

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.



DISCLOSURE INSIGHT ACTION

| | Scope | Content | Please explain |
|-------|--------------|---|--|
| Row 1 | Company-wide | Description of business impact on water Commitments beyond regulatory compliance | Ameren’s Water Policy - Our company is committed to protecting natural resources, including the preservation of water. Though our facilities are geographically situated in an area of ample water supply, operating divisions within Ameren take into consideration the impact of our operations on both water quality and use. We have made conscious decisions to conserve water in the design and modifications of our facilities, and plan to conserve water further in the future. |

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) of the individual(s) on the board with responsibility for water-related issues.

| Position of individual | Please explain |
|---|--|
| Other, please specify (Board of Directors Committees) | The Board of Directors Audit and Risk Committee oversees the Company's overall enterprise risk management program. The Board of Directors Finance Committee oversees capital expenditure planning and reviews and approves major capital projects, including those related to water-related initiatives. The Board of Directors Nuclear and Operations Committee oversees all operational matters, including environmental compliance matters. |

W6.2b

(W6.2b) Provide further details on the board’s oversight of water-related issues.

| | Frequency that water-related issues are a scheduled agenda item | Governance mechanisms into which water-related issues are integrated | Please explain |
|-------|---|--|---|
| Row 1 | Sporadic - as important matters arise | Monitoring implementation and performance Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding business plans | Operations, Enterprise Risk Management, and Environmental Services staff raise issues of concern to the Board of Directors for consideration and decision-making. Such matters are discussed by the Nuclear and Operations Committee of the Board of Directors. |



DISCLOSURE INSIGHT ACTION

| | Frequency that water-related issues are a scheduled agenda item | Governance mechanisms into which water-related issues are integrated | Please explain |
|--|---|--|----------------|
| | | Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing innovation/R&D priorities | |

W6.3

(W6.3) Below board level, provide the highest-level management position(s) or committee(s) with responsibility for water-related issues.

Name of the position(s) and/or committee(s)

Chief Executive Officer (CEO)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

The CEO receives information on a regular basis on water-related matters from both subject matter experts in Ameren business segments and other organizations of which Ameren is a member.

W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4

(W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

No, and we do not plan to introduce them in the next two years

W6.5



(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

- Yes, direct engagement with policy makers
- Yes, trade associations
- Yes, funding research organizations

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

Ameren Environmental Services staff share roles and jointly participate in meetings and communications with: regulatory agencies, advisory groups (including the Missouri River Recovery Implementation Committee, the Missouri Water Protection Forum, and the Illinois Environmental Regulatory Group), Ameren's Environmental Advocacy Committee, and Ameren's Enterprise Risk Management Committee. These staff, in conjunction with Ameren leadership, are responsible for both processes and commitments, ensuring coordination with and consistent adherence to Ameren's water policy.

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

| | Are water-related issues integrated? | Long-term time horizon (years) | Please explain |
|-------------------------------|--|--------------------------------|--|
| Long-term business objectives | Yes, water-related issues are integrated | 16-20 | We are committed to operating in a sustainable manner, and are doing this by carefully balancing our key responsibilities to our customers and the communities we serve, our co-workers, our shareholders, and the environment. Reflecting this balanced approach to sustainability, Ameren's commitment to strong corporate governance includes policies and principles that integrate environmental, social and governance matters into our broader risk management and strategic planning initiatives. For example the 2017 Ameren Missouri Integrated Resource Plan for the next twenty year planning horizon included considerations for water related issues. See Ameren's 2017 IRP for details: https://q9u5x5a2.ssl.hwcdn.net/-/Media/Missouri-Site/Files/environment/2017-IRP/Chapter-5-Environmental-compliance.pdf?la=en |



DISCLOSURE INSIGHT ACTION

| | Are water-related issues integrated? | Long-term time horizon (years) | Please explain |
|---|--|--------------------------------|---|
| Strategy for achieving long-term objectives | Yes, water-related issues are integrated | 16-20 | We are committed to operating in a sustainable manner, and are doing this by carefully balancing our key responsibilities to our customers and the communities we serve, our co-workers, our shareholders, and the environment. Reflecting this balanced approach to sustainability, Ameren's commitment to strong corporate governance includes policies and principles that integrate environmental, social and governance matters into our broader risk management and strategic planning initiatives. For example the 2017 Ameren Missouri Integrated Resource Plan for the next twenty year planning horizon included considerations for water related issues. |
| Financial planning | Yes, water-related issues are integrated | 16-20 | We are committed to operating in a sustainable manner, and are doing this by carefully balancing our key responsibilities to our customers and the communities we serve, our co-workers, our shareholders, and the environment. Reflecting this balanced approach to sustainability, Ameren's commitment to strong corporate governance includes policies and principles that integrate environmental, social and governance matters into our broader risk management and strategic planning initiatives. For example the 2017 Ameren Missouri Integrated Resource Plan for the next twenty year planning horizon included considerations for water related issues. |

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

| | Water-related CAPEX (+/- % change) | Anticipated forward trend for CAPEX (+/- % change) | Water-related OPEX (+/- % change) | Anticipated forward trend for OPEX (+/- % change) | Please explain |
|-------|------------------------------------|--|-----------------------------------|---|---|
| Row 1 | | | | | Ameren does not track or disclose "water-related" CAPEX and OPEX as defined by CDP for this question. |

W7.3

(W7.3) Does your organization use climate-related scenario analysis to inform its business strategy?



DISCLOSURE INSIGHT ACTION

| | Use of climate-related scenario analysis | Comment |
|-------|--|---|
| Row 1 | Yes | Ameren includes a carbon price in its evaluation of long-term resource planning for its Missouri regulated business through its Integrated Resource Plan (IRP) process. The price is included to represent the expectation for either regulation of carbon dioxide (CO2) emissions through a mechanism that establishes an explicit price for CO2 emissions, such as a carbon tax or cap-and-trade program, or emission credit trading markets. For its 2017 IRP, Ameren Missouri used a base and high scenario price of \$3.71 per short ton starting in 2025 and escalating at approximately 12% per year. The prices used in the IRP process are established, based on discussions with Company executives involved in environmental, regulatory and legislative activities. Establishment of the carbon price assumptions includes a review of price assumptions used or produced by other utilities, policy analysts, and government agencies, including the Social Cost of Carbon estimates used by the federal government. |

W7.3a

(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?

No

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

No, and we do not anticipate doing so within the next two years

Please explain

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.



DISCLOSURE INSIGHT ACTION

| | Levels for targets and/or goals | Monitoring at corporate level | Approach to setting and monitoring targets and/or goals |
|-------|--|--|--|
| Row 1 | Business level specific targets and/or goals | Targets are monitored at the corporate level Goals are monitored at the corporate level | Ameren developed targets as described below, based on best sector practice, water stewardship, risk mitigation, and regulatory compliance requirements. Solutions were determined through engineering evaluations and risk assessments for each site. Progress towards elimination of the use of water for ash handling is monitored through the use of project schedules and cost management procedures. Groundwater quality is monitored through the use of sampling wells and laboratory analyses over the long term. |

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Other, please specify (Eliminate use of water for ash handling)

Level

Site/facility

Labadie Energy Center

Primary motivation

Recommended sector best practice

Target is based on sector best practice, water stewardship, risk mitigation, and regulatory compliance requirements.

Description of target

Eliminate the use of water for ash handling (by conversion to dry ash management) at the Labadie Energy Center, thereby reducing water use by approximately 4.8 billion gallons a year. This is a multi-year design and construction project.

Quantitative metric

Other, please specify (Percent of project complete)

Baseline year

2015

Start year

2016

Target year

2019



DISCLOSURE INSIGHT ACTION

% achieved

40

Please explain

Metric is percent complete of engineering and construction project to install new facilities.

Target reference number

Target 2

Category of target

Other, please specify (Eliminate use of water for ash handling)

Level

Site/facility

Rush Island Energy Center

Primary motivation

Recommended sector best practice

Target is based on sector best practice, water stewardship, risk mitigation, and regulatory compliance requirements.

Description of target

Eliminate the use of water for ash handling (by conversion to dry ash management) at the Rush Island Energy Center, thereby reducing water use by approximately 4.8 billion gallons a year. This is a multi-year design and construction project.

Quantitative metric

Other, please specify (Percent of project complete)

Baseline year

2015

Start year

2016

Target year

2018

% achieved

61

Please explain

Metric is percent complete of engineering and construction project to install new facilities.



DISCLOSURE INSIGHT ACTION

Target reference number

Target 3

Category of target

Other, please specify (Eliminate use of water for ash handling)

Level

Site/facility

Sioux Energy Center

Primary motivation

Recommended sector best practice

Target is based on sector best practice, water stewardship, risk mitigation, and regulatory compliance requirements.

Description of target

Eliminate the discharge of water for ash handling (by conversion to a closed-loop bottom ash and dry fly ash management system) at the Sioux Energy Center thereby reducing water use by approximately 1.7 billion gallons a year. This is a multi-year design and construction project

Quantitative metric

Other, please specify (Percent of project completion)

Baseline year

2015

Start year

2016

Target year

2020

% achieved

8

Please explain

Metric is percent complete of engineering and construction project to install new facilities.

Target reference number

Target 4

Category of target

Other, please specify (Install new wastewater treatment system)



DISCLOSURE INSIGHT ACTION

Level

Site/facility

Labadie Energy Center

Primary motivation

Recommended sector best practice

Target is based on sector best practice, water stewardship, risk mitigation, and regulatory compliance requirements.

Description of target

Design and construction of new wastewater treatment systems at the Labadie Energy Center with potential for recycle to improve effluent water quality.

Quantitative metric

Other, please specify (Percent of project complete)

Baseline year

2014

Start year

2014

Target year

2019

% achieved

46

Please explain

Metric is percent complete of engineering and construction project to install new facilities.

Target reference number

Target 5

Category of target

Other, please specify (Install new wastewater treatment system)

Level

Site/facility

Rush Island Energy Center

Primary motivation

Recommended sector best practice



DISCLOSURE INSIGHT ACTION

Target is based on sector best practice, water stewardship, risk mitigation, and regulatory compliance requirements.

Description of target

Design and construction of new wastewater treatment systems at the Rush Island Energy Center with potential for recycle to improve effluent water quality.

Quantitative metric

Other, please specify (Percent of project complete)

Baseline year

2014

Start year

2014

Target year

2018

% achieved

46

Please explain

Metric is percent complete of engineering and construction project to install new facilities.

Target reference number

Target 6

Category of target

Other, please specify (Install new wastewater treatment system)

Level

Site/facility

Sioux Energy Center

Primary motivation

Recommended sector best practice

Target is based on sector best practice, water stewardship, risk mitigation, and regulatory compliance requirements.

Description of target

Design and construction of new wastewater treatment systems at the Sioux Energy Center with potential for recycle to improve effluent water quality.

Quantitative metric



DISCLOSURE INSIGHT ACTION

Other, please specify (Percent of project complete)

Baseline year

2014

Start year

2014

Target year

2020

% achieved

10

Please explain

Metric is percent complete of engineering and construction project to install new facilities.

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

W9. Linkages and trade-offs

W9.1

(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?

Yes

W9.1a

(W9.1a) Describe the linkages or tradeoffs and the related management policy or action.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Decreased wastewater treatment

Description of linkage/tradeoff



DISCLOSURE INSIGHT ACTION

Increased reliance on wind, solar and other non-hydro renewable energy generation sources will reduce GHG emissions and use of water resources.

Policy or action

Ameren Missouri operates a 5.7 MW (DC) solar park located in O'Fallon, MO, the O'Fallon Renewable Energy Center. Solar energy reduces reliance on water resources compared to coal-fired and/or nuclear generation. Ameren is transitioning to cleaner generation through implementation of wind and solar technologies as described in the Ameren Missouri 2017 Integrated Resource Plan, available at Ameren.com. The plan calls for the addition of at least 700 megawatts (MW) of wind generation by 2020, the addition of 100 MW of solar generation by 2027, and the planned retirement of more than half of Ameren Missouri's coal-fired generation over the next 20 years. All of these changes will result in the use of less water for generation of electricity.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Other, please specify (Reduced water use in operations)

Description of linkage/tradeoff

Our company is committed to protecting natural resources, including the preservation of water. Capital expenditures are required for our continued efforts in environmental stewardship. Coal Combustion Residuals and Effluent Limitations Guidelines rules will reduce use of water due to the requirements of these rules.

Policy or action

These rules/regulations will reduce water consumption. An additional impact will be increased customer rates, creating a burden for our low income customers. As we transition to clean energy in a responsible and affordable manner for our customers, we will reduce water consumption as well. Additionally, Ameren is employing low water fixtures in potable water applications.

W10. Verification

W10.1

(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?

No, but we are actively considering verifying within the next two years

W11. Sign off



W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

As referenced in several of the questions above, water data, risk assessment reports, and compliance information is available to the public on the Ameren website at <https://www.ameren.com/Environment/managing-ccrs>, and at <https://www.ameren.com/missouri/environment/integrated-resource-plan>. For convenience, several reports from these websites have been attached to this survey. Also attached is a copy of the Independent Assurance Statement from ERM CVS.

[Chapter-5-Environmental-compliance.pdf](#)

[Pond Closure Fact Sheet.pdf](#)

[Sioux-Haley-Aldrich-Report.pdf](#)

[Meramec-Haley-Aldrich-Report.pdf](#)

[Rush-Island-Haley-Aldrich-Report.pdf](#)

[Labadie-Haley-Aldrich-Report.pdf](#)

[ERM CVS 2018 CDP Assurance Statement Ameren_FINAL.pdf](#)

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

| | Job title | Corresponding job category |
|-------|--|----------------------------|
| Row 1 | Senior Vice President, Innovation and Corporate Strategy | Other, please specify |

W11.2

(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

No