

# Water 2017 - CMS Energy Corporation

## Module: Introduction

### Page: W0. Introduction

#### W0.1

##### Introduction

###### Please give a general description and introduction to your organization

CMS Energy Corporation's (CMS Energy) business strategy is focused primarily on its principal subsidiary, Consumers Energy Company (Consumers Energy or Company), an electric and natural gas utility serving about 6.7 million of Michigan's 10 million residents. CMS Energy, through its CMS Enterprises subsidiary, is also engaged in domestic independent power production and the marketing of independent power production.

This report is ONLY for the principal subsidiary of CMS Energy, Consumers Energy, and only for facilities with large sources of water withdrawals that maintain a National Pollutant Discharge Elimination System (NPDES) permit consisting of steam electric generating units.

Consumers Energy acknowledges that the long term sustainability of our Company depends upon our ability to listen to our stakeholders and conduct business that promotes environmental health, increases societal value, and brings economic success so that we can provide safe, reliable, and affordable energy to our customers. This commitment is advanced by our "Leave it Better Than We Found It" corporate culture.

In 2016, Consumers Energy continued its commitment to sustainability by maintaining first quartile sustainability performance as compared to its peers and being ranked first among 54 U.S. utilities companies as assessed by Sustainalytics, a global leader in sustainability ratings, research and analysis. Consumers Energy is committed to maintaining 1st quartile performance as defined by our corporate sustainability goal for 2013-2017. As a utility, we recognize that our operations contribute greenhouse gases ("GHGs") to the atmosphere. One of the objectives under this corporate sustainability goal was to create a performance progress report for our greenhouse gas emissions and disclose our results to the public, a goal that was successfully achieved and maintained through 2016. Additionally, under our sustainability goal in 2015 the Company took on new energy efficiency and alternative fuel projects.

This report is made as of the date hereof and contains "forward-looking statements" as defined in Rule 3b-6 of the Securities Exchange Act of 1934, Rule 175 of the Securities Act of 1933, and relevant legal decisions. The forward-looking statements are subject to risks and uncertainties and should be considered in the context of the risk and other factors detailed in CMS Energy's and Consumers Energy's SEC filings. Forward-looking statements should be read in conjunction with "FORWARD-LOOKING STATEMENTS AND INFORMATION" and "RISK FACTORS" sections of CMS Energy's and Consumers Energy's Form 10-K for the year ended December 31, 2016 and as updated in subsequent 10-Qs. CMS Energy's and Consumers Energy's "FORWARD-LOOKING STATEMENTS AND INFORMATION" and "RISK FACTORS" sections are incorporated herein by reference and discuss important factors that could cause CMS Energy's and Consumers Energy's results to differ materially from those anticipated in such statements. CMS Energy and Consumers Energy undertake no obligation to update any of the information presented herein to reflect facts, events or circumstances after June 30, 2017.

#### W0.2

##### Reporting year

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

###### Period for which data is reported

Fri 01 Jan 2016 - Sat 31 Dec 2016

#### W0.3

##### Reporting boundary

###### Please indicate the category that describes the reporting boundary for companies, entities, or groups for which water-related impacts are reported

Companies, entities or groups over which financial control is exercised

#### W0.4

## Exclusions

Are there any geographies, facilities or types of water inputs/outputs within this boundary which are not included in your disclosure?

Yes

### W0.4a

## Exclusions

Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion
Hydroelectric Operations	This report focuses on Consumers Energy's largest sources of water withdrawals, our steam electric power generating facilities which operate under National Pollutant Discharge Elimination System permits and comprise a majority of our water use. Our hydroelectric plants and Ludington Pumped Storage Facility are not included in this report.
Electric Distribution Operations	This report focuses on Consumers Energy's largest sources of water withdrawals, our steam electric power generating facilities which operate under National Pollutant Discharge Elimination System permits and comprise a majority of our water use. Therefore, our electric distribution operations are not included in this report.
Gas Distribution, Transmission and Storage Operations	This report focuses on Consumers Energy's largest sources of water withdrawals, our steam electric power generating facilities which operate under National Pollutant Discharge Elimination System permits and comprise a majority of our water use. Therefore, our natural gas compressor stations are not included in this report.
Service Center, Call Centers and Office Buildings	This report focuses on Consumers Energy's largest sources of water withdrawals, our steam electric power generating facilities which operate under National Pollutant Discharge Elimination System permits and comprise a majority of our water use. Therefore, our service centers, call centers and office buildings are not included in this report.
Non-Utility Operations	This report focuses on Consumers Energy's largest sources of water withdrawals, our steam electric power generating facilities which operate under National Pollutant Discharge Elimination System permits and comprise a majority of our water use. Therefore, non-utility operations are not included in this report.

## Further Information

## Module: Current State

### Page: W1. Context

#### W1.1

Please rate the importance (current and future) of water quality and water quantity to the success of your organization

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital for operations	Important	Direct Use: Quality freshwater from nearby lakes and rivers is withdrawn primarily for non-contact cooling purposes. In addition, water quality is important in steam generation as specific chemicals, including some salts, can result in boiler and condenser tube/pipe corrosion over time. This use is rated as "vital for operations" because without this water input, our steam electric generating facilities would not be able to operate as currently configured. While our intake systems can accommodate moderate fluctuations in water levels, maintaining historic lake and river levels is important to ongoing utilization of our current water intake infrastructure without significant and costly modification. Indirect Use: This use is rated as "important" because freshwater is essential to fuel exploration, production, and processing, which is vital to our operations.
Sufficient amounts of recycled, brackish and/or	Important	Important	Direct: Recycled water is used for non-contact cooling and other plant processes and reduces the amount of freshwater withdrawn for these uses. Two of our generating facilities use primarily recycled water for

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
produced water available for use			condenser cooling. Indirect Use: This use is rated as "important" because recycling and reusing water is essential for fuel exploration, production, and processing, particularly in arid climates with less freshwater availability.

## W1.2

For your total operations, please detail which of the following water aspects are regularly measured and monitored and provide an explanation as to why or why not

Water aspect	% of sites/facilities/operations	Please explain
Water withdrawals-total volumes	76-100	Water withdrawn is monitored at 100% of sites (steam electric generating facilities) due to the vital importance of water to site operations and to track potential environmental risks. Water withdrawal volumes are required to be reported in a number of programs including water stewardship tracking, annual reporting of water usage to the Michigan Department of Environmental Quality (DEQ), and annual reporting to the United States Department of Energy, Energy Information Administration Form 923 Supplemental.
Water withdrawals-volume by sources	76-100	Water withdrawn from surface water, groundwater and municipal sources is monitored at 100% of sites (steam electric generating facilities) for the purposes of tracking water quality and availability from local systems.
Water discharges-total volumes	76-100	Water discharge volumes are monitored at 100% of sites (steam electric generating facilities) due to the vital importance of water to site operations and to track potential environmental risks. Water discharge volumes are required to be reported in a number of programs including water quality monitoring associated with site NPDES permits, annual reporting of water usage to the Michigan Department of Environmental Quality (DEQ), and annual reporting for the United States Department of Energy, Energy Information Administration Form 923 Supplemental.
Water discharges-volume by destination	76-100	Water volume discharged by destinations, including Great Lakes, inland lakes, rivers, ground and municipal water systems, is tracked for 100% of sites (steam electric generating facilities) for purposes of ensuring minimal adverse impact to local ecosystems and ensuring the majority of water withdrawn is returned to the watershed. Additionally, these volumes are required to be reported for water quality monitoring associated with site NPDES permits, annual reporting of water usage to the Michigan Department of Environmental Quality (DEQ), and annual reporting for the United States Department of Energy, Energy Information Administration Form 923 Supplemental.
Water discharges-volume by treatment method	76-100	Water discharged following different treatment methods is tracked for 100% of sites (steam electric generating facilities) to monitor treatment system effectiveness and capacity as well as for required water quality monitoring associated with site NPDES permits.
Water discharge quality data- quality by standard effluent parameters	76-100	Water discharge quality is monitored at 100% of sites (steam electric generating facilities) for compliance with National Pollutant Discharge Elimination System (NPDES) surface water discharge permits as well as state-issued groundwater permits.
Water consumption-total volume	76-100	Water consumption is tracked at 100% of sites (steam electric generating facilities) in order to track consumptive losses through once-through cooling and cooling tower systems and makeup water needs to those systems. Consumptive losses are typically through evaporative losses or discharges to underground injection wells.
Facilities providing fully-functioning WASH services for all workers	76-100	Fully-functioning WASH services are provided for workers at 100% of sites (steam electric generating facilities) and are monitored for usage. Potable sources include groundwater wells and municipal sources, and usage from these sources is required to be reported through municipal water

Water aspect	% of sites/facilities/operations	Please explain
		utility discharge permits, annual reporting of water usage to the Michigan DEQ, and annual reporting for the United States Department of Energy, Energy Information Administration Form 923 Supplemental.

**W1.2a**

**Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations**

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
Fresh surface water	1497795.9	Lower	Due to plant retirements and maintenance outages that took place in 2016, less surface water was withdrawn for operations.
Brackish surface water/seawater	0	About the same	
Rainwater	0	About the same	
Groundwater - renewable	1528.3	Lower	Due to plant retirements and maintenance outages that took place in 2016, less groundwater was withdrawn for process and potable uses.
Groundwater - non-renewable	0	About the same	
Produced/process water	0	About the same	
Municipal supply	5435.8	Higher	The gas-fired combined cycle plants that rely on municipal water for cooling generated more electricity in 2016 versus 2015 and therefore required more municipal water for cooling.
Wastewater from another organization	0	About the same	
Total	1504760.0	Lower	The gas-fired combined cycle plants generate electricity with a significantly lower water intensity than the coal-fired plants. Due to coal-fired plant retirements and outages, the gas-fired combined cycle plants represented a higher percentage of the generating fleet utilization in 2016 than in 2015. This resulted in an overall reduction in total volume withdrawn.

**W1.2b**

**Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations**

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Fresh surface water	1498685.4	Lower	Due to plant retirements and maintenance outages that took place in 2016, less surface water was discharged from operations.
Brackish surface water/seawater	0	About the same	
Groundwater	169.4	Lower	Due to plant retirements and maintenance outages that took place in 2016, less groundwater was discharged from process uses.

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Municipal/industrial wastewater treatment plant	517.8	Higher	The gas-fired combined cycle plants that discharge to municipal water for cooling generated more electricity in 2016 versus 2015 and therefore discharged more municipal water from cooling.
Wastewater for another organization	0	About the same	
Total	1499372.6	Lower	The gas-fired combined cycle plants generate electricity with a significantly lower water intensity than the coal-fired plants. Due to coal-fired plant retirements and outages, the gas-fired combined cycle plants represented a higher percentage of the generating fleet utilization in 2016 than in 2015. This resulted in an overall reduction in total volume discharged.

#### W1.2c

Water consumption: for the reporting year, please provide total water consumption data, across your operations

Consumption (megaliters/year)	How does this consumption figure compare to the last reporting year?	Comment
5387.3	Higher	The gas-fired combined cycle plants utilize cooling towers, which consume water through evaporation. These plants generated more electricity in 2016 versus 2015, and therefore consumed more water in the cooling towers.

#### W1.3

Do you request your suppliers to report on their water use, risks and/or management?

No

#### W1.3b

Please choose the option that best explains why you do not request your suppliers to report on their water use, risks and/or management

Primary reason	Please explain
Important but not an immediate business priority	Water is an important resource to electric generation fuel suppliers. Risks related to water use and availability are mitigated by sourcing fuel from a variety of different suppliers and regions. This determination is reviewed annually, with the next review to be completed by December 31, 2017. Additionally, the Company requests information from its largest suppliers, on a cost basis, to discern if the supplier has the potential to negatively impact the environment, if an environmental management system has been implemented and whether cost effective measures to avoid pollution have been implemented.

#### W1.4

Has your organization experienced any detrimental impacts related to water in the reporting year?

Yes

#### W1.4a

Please describe the detrimental impacts experienced by your organization related to water in the reporting year

Countr y	River basin	Impact driver	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
United States of Americ	Other: St. Lawrence , Lake Michigan	Phys- Declining water quality	Higher operatin g costs	At our JH Campbell coal-fired facility, we	Ground water well system length of	The ground water system financial impact is	Infrastructur e investment Infrastructur e	For the ground water well field system, the Company is

Country	River basin	Impact driver	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
a	watershed			operate a groundwater well field system to provide high quality boiler make-up to unit boilers. The water quality and reliable system yield has declined recently.	impact is ongoing until a solution can be identified and implemented.	estimated to range between US \$50,000 - \$1,000,000.	maintenance Increased capital expenditure	investigating the cause of the water quality and quantity decline, and in turn will make capital investment to eliminate or hasten the effects. Alternatively, the Company will make capital investment to replace this infrastructure.
United States of America	Other: St. Lawrence, Lake Michigan and Lake Huron watersheds	Reg-Regulatory uncertainty	Higher operating costs	New federal regulations affecting operation of cooling water intake systems and effluent limitations of process waters specific to the steam electric industry have the potential to require infrastructure modifications at both the JH Campbell and DE Karn facilities. New regulations are being challenged in the courts, and reconsidered by the EPA, creating regulatory uncertainty regarding what might ultimately be required and when to	New regulation length of impact is ongoing until the 2023-2024 time frame. The regulatory uncertainty length of impact is likely a 1-2 year time frame	The new regulation financial impact as currently drafted is estimated to range between US \$70,000,000 and \$104,000,000. The regulatory uncertainty financial impact is unknown.	Engagement with public policy makers Infrastructure investment maintenance Increased capital expenditure	For the new regulation, the Company is developing compliance strategies, including conceptual plans for facility infrastructure modification. For the regulatory uncertainty, the Company is engaged with industry groups to stay aware of court challenges/decisions to better understand how those decisions may/may not affect our regulatory compliance strategies, and in turn, our capital investment needs and associated market competitiveness.

Countr y	River basin	Impact driver	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
				comply with these regulations.				

#### Further Information

### Module: Risk Assessment

#### Page: W2. Procedures and Requirements

##### W2.1

Does your organization undertake a water-related risk assessment?

Water risks are assessed

##### W2.2

Please select the options that best describe your procedures with regard to assessing water risks

Risk assessment procedure	Coverage	Scale	Please explain
Water risk assessment undertaken independently of other risk assessments	Direct operations and supply chain	All facilities and some suppliers	The water risk at each steam electric generation facility is considered on an individual basis. These generating facilities use large amounts of water which require water related risks to be evaluated frequently through NPDES, groundwater and water withdrawal permit requirements. Risk assessments are built into the environmental regulations that we operate under. We operate in a regulatory environment that is mature in regards to water risk assessment and we rely on this framework as a risk assessment tool. Consumers Energy also utilizes a system that assesses the water risk of new projects. This assessment takes into account the water withdrawal and discharge capacities allowed in current permits and does not allow the project to proceed if it exceeds the current permit capacity, and in some cases, the resource capacity established by the State of Michigan. This assessment addresses any water issues that may occur during project inception. Additionally, the Company requests information from its largest suppliers, on a cost basis, to discern if the supplier has the potential to negatively impact the environment, if an environmental management system has been implemented and whether cost effective measures to avoid pollution have been implemented.

##### W2.3

Please state how frequently you undertake water risk assessments, at what geographical scale and how far into the future you consider risks for each assessment

Frequency	Geographic scale	How far into the future are risks considered?	Comment
Annually	Facility	3 to 6 years	When a system design change is presented, the impact on water needs is evaluated to verify the change is consistent with available system and resource capacity and regulatory requirements. Similarly, when new projects are considered, water needs are vetted with associated regulatory requirements. At a minimum, this is reviewed every 5 years with NPDES permit renewals. Water use is reported to state and federal regulatory agencies on an annual basis.

##### W2.4

Have you evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy?

Yes, evaluated over the next 1 year

##### W2.4a

**Please explain how your organization evaluated the effects of water risks on the success (viability, constraints) of your organization's growth strategy?**

The Company has forecasted trends in surface water levels in the Great Lakes and the long term (10- 30 years in the future) risk associated with changing lake levels. Fluctuations in lake water levels could have significant impact on generating facility cooling water operations, but we believe that it is unlikely based on historic ranges.

Generating facility operations staff have access to monthly water level data from the U.S. Army Corps of Engineers (USACE). This information shows the most recent twenty-four month data plus a six month projection. This information helps staff keep abreast of recent trends and forecast short-term changes. Although they have been rarely observed, there are concerns over Great Lakes surface water levels being too low to support full operation at some of the smaller coal units. For example, at the DE Karn Generating Facility ice buildups at various points in the intake system can reduce flow. Thus, reduced surface water levels would exacerbate these issues.

For purposes of this discussion on risk, it was decided that the best future projection for surface water levels would be the most extreme recorded levels from the past 100 years. At such historic lows, our coal-fired DE Karn plant could be affected. However, our highest capacity factor sites likely would not be affected, as JH Campbell has a deep off-shore intake available, and the Zeeland and Jackson natural gas-fired combined cycle plants utilize municipal water supplies.

**W2.5**

**Please state the methods used to assess water risks**

Method	Please explain how these methods are used in your risk assessment
Internal company knowledge Other: Michigan Water Withdrawal Assessment Tool	The Water Withdrawal Assessment Tool was developed by Michigan State University to assess potential impacts to classes of rivers and streams from surface water and groundwater withdrawals. State of Michigan regulations require use of this tool under certain circumstances (i.e. new or increased large withdrawals) to evaluate potential adverse impacts to water resources. This assessment is used to register new or increased withdrawals within a specific threshold, and determines need to obtain water withdrawal permits over this threshold. The tool is organized on a watershed/river system basis, and in turn, on a stream reach basis so that within a watershed potential impacts to individual reaches of streams/rivers can be evaluated. Water use for new facilities and increased use at existing facilities to accommodate plant modification and growth are evaluated using this tool. At project conception stages, internal Company knowledge regarding water supply needs relative to existing source supply and quality is used to inform project needs, including siting and location components. Moreover, our ability to maintain and enhance our business is dependent upon securing water withdrawal and discharge permits. As such, incorporating watershed and/or basin issues, basin or resource management plans, and changing regulatory requirements into our calculus helps us better understand and predict resource limitations, permitting challenges, and potential capital and operational costs. The Company's growth strategy is affected by many factors, including but not limited to water resources. Fortunately, our existing footprint within the Great Lakes basin is an area of abundant freshwater supply. Accordingly, factors other than water resources (such as fuel supply and costs) tend to have a greater influence on organization growth strategies.

**W2.6**

**Which of the following contextual issues are always factored into your organization's water risk assessments?**

Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included	Water availability and quantity are important to Consumers Energy generating facilities, primarily as once-through cooling water. Water levels and general conditions are monitored by facility operations and corporate environmental staff on a routine basis. When a system design change is presented the impacts on water needs are evaluated (via the Water Withdrawal Assessment Tool and internal knowledge of the resource) to verify that there is available water capacity with no adverse impact. Similarly, when new projects are considered water needs are vetted with associated water quality standards and reporting requirements.
Current water regulatory frameworks and tariffs at a local level	Relevant, included	As these issues arise, they are evaluated under the existing framework of State water withdrawal regulations, waste water discharge permitting and other applicable water availability and quality regulations. To do this, Consumers Energy uses internal Company knowledge. Consumers Energy also participates on the State of Michigan, Water Use Advisory Council, which was established by the Governor of Michigan. Through participation on this council, Consumers Energy



Issues	Choose option	Please explain
		represents utility interests in water use regulations and stays abreast on state and regional developments and associated dialogue.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included	Consumers Energy has local personnel throughout the State of Michigan who are responsible for stakeholder conflicts. These representatives ensure that such conflicts are brought to the attention of the appropriate personnel so that their risks will be assessed and a resolution will be implemented. The Company uses internal Company knowledge of the stakeholders, the stakeholders' issues and the particular resource to address the issue.
Current implications of water on your key commodities/raw materials	Relevant, not yet included	At this time, the Company does not require suppliers to report specifically on water use and quality risks. However, the Company does request information from suppliers to discern if materials and/or services could negatively impact the environment, if an environmental management system has been implemented and whether cost effective measures to avoid pollution have been implemented.
Current status of ecosystems and habitats at a local level	Relevant, included	When assessing new projects an internal review captures any impacts on aquatic ecosystems and habitats to determine if applicable permits are required. If a permit is required, risks are mitigated through the permitting process. To be successful in this process, the Company uses its internal knowledge of sensitive ecosystems, species and habitats, and at times, knowledge of technical experts outside the Company.
Current river basin management plans	Relevant, included	When assessing new projects, an internal review to identify any impacts on river basins, and in turn to determine if any permits are required. If a permit is required, risks are mitigated through the permitting process. To be successful in this process, the Company uses its internal knowledge of existing river basin management plans or governmental policies on this issue.
Current access to fully-functioning WASH services for all employees	Relevant, included	Employees doing physical labor need showers. The majority of these employees are at generating facilities and natural gas compressor stations (and our gas storage operations and service centers, which are not captured in the scope of this report due to their comparatively small water use). Employees at all facilities have access to restrooms and potable water.
Estimates of future changes in water availability at a local level	Relevant, included	Estimates of future changes in water availability are a part of every facility's planning process. The Company uses the Water Withdrawal Assessment Tool, internal Company knowledge and other publicly available information to address this issue. The Company has forecasted trends in the Great Lakes' surface water levels and the long term (10- 30 years in the future) risk associated with changing lake levels. Fluctuations in water levels could have significant impact on generating facility cooling water operations. Generating facility operations staff are provided with monthly water level data from the U.S. Army Corps of Engineers (USACE). This report shows the most recent twenty-four month data plus a six month projection. This information helps staff keep abreast of recent trends and forecasted short-term changes. Although they have been rarely observed, there are concerns over Great Lakes surface water levels being too low to support full operation. For example, a known issue is at the DE Karn Generating Facility where ice buildups at various points in the intake system reduce flow. Reduced surface water levels would exacerbate these issues. Long term Great Lakes water level research does not provide targets with high confidence levels. There is a great deal of variance in projections from the research community. For purposes of this discussion on risk, it was decided that the best future projection for surface water levels would be the most extreme recorded levels from the past 100 years.
Estimates of future potential regulatory changes at a local level	Relevant, included	Risk is primarily addressed at the State and federal regulatory level. We track local regulations and changes to them and respond on a case by case basis, often by responding directly to the regulatory agency as part of a public meeting/comment period or collaboratively working with an industry trade association or group.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included	Evaluated on a case by case basis. Consumers Energy has local personnel throughout the State of Michigan who are responsible for stakeholder conflicts. These representatives ensure that potential future conflicts are brought to the attention of the appropriate personnel so that there risks will be assessed and a resolution will be implemented. The Company uses its internal knowledge to address this issue.

Issues	Choose option	Please explain
Estimates of future implications of water on your key commodities/raw materials	Relevant, included	Long term Great Lakes water level research does not provide targets with high confidence levels. There is a great deal of variance in projections from the research community. For purposes of this discussion on risk, it was decided that the best future projection for surface water levels would be the most extreme recorded levels from the past 100 years.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Future potential changes to ecosystems and habitats are evaluated on a case by case basis. When assessing new projects an internal review captures any impacts on aquatic ecosystems and habitats to determine if a permit is required. If a permit is required, risks are mitigated through the permitting process.
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Relevant, included	A prime example is our proposed Thetford plant analysis (a natural gas combined cycle planned unit). Due to an evaluation of sufficient water quantity and quality at our proposed and permitted Thetford Generating Facility, it was decided to permit and use air cooling instead of water cooling; however, we purchased an existing natural gas combined cycle unit in lieu of constructing Thetford at this time. The Company has forecasted trends in surface water levels in the Great Lakes and the long term (10- 30 years in the future) risk associated with changing lake levels. Fluctuations in water levels could have significant impact on generating facility cooling water operations. Generating facility operations staff have access to monthly water level data from the USACE. This information shows the most recent twenty-four month data plus a six month projection. This information helps staff keep abreast of recent trends and forecast short-term changes. Although they have been rarely observed, there are concerns over Great Lakes surface water levels being too low to support full operation. For example, a known issue is at the DE Karn Generating Plant where ice buildups at various points in the intake system reduces flow. Reduced surface water levels would exacerbate these issues. For purposes of scenario risk analysis, it was decided that the best future projection for surface water levels would be the most extreme recorded levels from the past 100 years. Only the DE Karn Generating Plant would be affected, since other sites use municipal water or an off-shore deep water intake.
Scenario analysis of regulatory and/or tariff changes at a local level	Relevant, included	The Company uses its internal knowledge to address this issue. The Company has government/regulatory/legislative affairs departments that track the prevailing agendas of government agencies, regulatory programs and legislative bodies to gauge the potential for changes in regulations and laws affecting the electric utility sector.
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Relevant, included	The Company uses its internal knowledge to evaluate on a case by case basis. The Company participates on several working stakeholder committees/groups affecting water-centric regulations (e.g. Governor's Water Use Advisory Committee). Through our participation in these groups, the Company maintains awareness of stakeholder concerns.
Scenario analysis of implications of water on your key commodities/raw materials	Relevant, not yet included	At this time, the Company does not require suppliers to report specifically on water use and quality risks. However, the Company does request information from suppliers to discern if materials and/or services could negatively impact the environment, if an environmental management system has been implemented and whether cost effective measures to avoid pollution have been implemented. The Company does not request information from suppliers regarding future scenarios.
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Future potential changes to ecosystems and habitats are evaluated on a case by case basis. When assessing new projects an internal review captures any impacts on aquatic ecosystems and habitats to determine if a permit is required. If a permit is required, risks are mitigated through the permitting process.
Other	Not evaluated	No other issues were considered by the Company in 2016.

## W2.7

Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
Customers	Relevant, included	When assessing water risks we take into account our customers' perspectives as it is important our customers recognize our commitment to being a reliable and

Stakeholder	Choose option	Please explain
		environmentally conscious company while also keeping electric and gas rates affordable. We have done this through conducting a materiality assessment. This assessment allows a variety of Company stakeholders to communicate to the Company what environmental, social and governance issues are the most important to them.
Employees	Relevant, included	Employee knowledge and understanding of water risks is acknowledged as a vital component to managing water risks. Responsibility for maintaining compliance with permits and water regulation is shared among employees. The level and amount of training connected to water risks is evaluated to determine the Company's overall risk and based on job function. We also engage our employees through conducting a materiality assessment. This assessment allows a variety of Company stakeholders to communicate to the Company what environmental, social and governance issues are the most important to them.
Investors	Relevant, included	We have made investors aware of our water stewardship initiative and routinely update them on our progress toward meeting goals as part of our overall environmental stewardship commitment. When assessing water risks, we take into consideration how investors perceive water risk as their perceptions drive our ability to acquire capital and earn a return on their investment. To further take into account the views of the investment community, Consumers Energy responds to an annual questionnaire from Sustainalytics, a sustainability benchmarking organizing who specializes in the sustainability interests of investors. Sustainalytics provides us with a list of issues that are most material to the investment group within the categories of environment, social and governance.
Local communities	Relevant, included	In communities where our facilities are located, local communities are directly impacted by our water use decisions. Our employees comprise portions of these local communities. Thus considering impacts to local communities is also considering impacts to employees. When planning new projects we take into consideration how local communities will be impacted. We also participate in various state advisory groups to further protect these communities such as the Michigan Department of Environmental Quality's Water Use Advisory Council and Wetlands Advisory Council where we serve as the representative for Michigan's electric and gas utilities. We also participated in an "expert" workshop hosted by the International Joint Commission (IJC) to develop "ecological indicators" to measure the efficacy of actions taken under the renewed Great Lakes Water Quality Agreement between the United States and Canada. Our Senior Vice President for Governmental and Public Affairs also serves on the IJC's Great Lakes Water Quality Board. Additionally, we have an internal process for stakeholder engagement for new generation projects. We also engage with local communities through conducting a materiality assessment. This assessment allows a variety of Company stakeholders to communicate to the Company what environmental, social and governance issues are the most important to them. Moreover, we have designated staff serving as local community area managers who routinely engage with the local governments, communities representatives and customers in their area to learn of and respond to specific inquiries, including environmental related inquiries.
NGOs	Relevant, included	Consumers Energy monitors prominent environmental non-governmental organizations (NGOs) to take their opinions into considerations when assessing environmental risk. The Company's Foundation supports numerous watershed based conservation groups including Friends of the Rouge, Huron Pines, and Headwaters Conservancy to decrease the State's water risks. The Foundation also supports various land conservancies, such as the Grand Traverse Land Conservancy, the Little Traverse Bay Conservancy, and others which protect the land and the watersheds within their service area. NGOs have an opportunity to comment on the NPDES permit in the permitting process. Additionally, we engage with NGOs through conducting a materiality assessment. This assessment allows a variety of Company stakeholders to communicate to the Company what environmental, social and governance issues are the most important to them.
Other water users at a local level	Relevant, included	We assess all local water users to determine water risks. This includes other industries with high water usage rates such as agriculture.
Regulators	Relevant, included	We comply with all water withdrawal and discharge regulations as well as regulations dealing with sensitive species and habitats, water resources (i.e., wetlands, streams, and floodplains), and erosion and sedimentation control. We also engage with regulators through conducting a materiality assessment. This assessment allows a variety of Company stakeholders to communicate to the Company what environmental, social and

Stakeholder	Choose option	Please explain
		governance issues are the most important to them.
River basin management authorities	Not relevant, explanation provided	There are no specific River Basin management authorities in our territory.
Statutory special interest groups at a local level	Relevant, included	When new projects are submitted for environmental review that affect Native American tribes on the Au Sable, Manistee and Muskegon Rivers, as well as treaty waters of Lake Michigan, we proceed with consideration for these tribes.
Suppliers	Relevant, included	The Company requests information from suppliers to discern if an environmental management system has been implemented and whether cost effective measures to avoid pollution have been implemented.
Water utilities at a local level	Relevant, included	The Company utilizes water from several local water utilities. As part of our business interactions with local water utilities/purveyors, we provide estimates of average and peak water use. Subsequently, through this process they evaluate the impact of our water use on their system's capacity.
Other	Not relevant, explanation provided	No other stakeholders were considered by the Company in 2016.

#### Further Information

### Module: Implications

#### Page: W3. Water Risks

##### W3.1

**Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?**

Yes, direct operations and supply chain

##### W3.2

**Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk**

Consumers Energy defines a substantive change in our business, operations, revenue or expenditure for water risk as any change that would dramatically affect our operation reliability, costs or reputation. The definition applies to direct operations. Specific levels of change or numeric metrics of change in business, operations, revenue or expenditure for water are not established. Electricity markets are complex and based on many factors, including the relative cost of electricity within an established organization, often covering several states. The organization is approved by the Federal Energy Regulatory Commission (FERC) to coordinate, control and monitor the use of the electric transmission system by utilities, generators and marketers. For the operations and facilities covered in this response, that organization is the Mid-Continent Independent System Operator (MISO), Zone 7.

##### W3.2a

**Please provide the number of facilities\* per river basin exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure; and the proportion of company-wide facilities this represents**

Country	River basin	Number of facilities exposed to water risk	Proportion of company-wide facilities that this represents (%)	Comment
United States of America	Other: St. Lawrence, Lake Michigan Watershed	4	61-70	A facility is a steam electric generation facility.
United States of America	Other: St. Lawrence, Lake Huron Watershed	1	11-20	A facility is a steam electric generation facility.
United States of America	Other: St. Lawrence, Lake Erie Watershed	1	11-20	A facility is a steam electric generation facility.

##### W3.2b

For each river basin mentioned in W3.2a, please provide the proportion of the company's total financial value that could be affected by water risks

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected	Comment
United States of America	Other: St. Lawrence, Lake Michigan Watershed	% generation capacity	91-100	Ultimately each facility within the watershed and the associated electric generation capacity of each facility could be affected.
United States of America	Other: St. Lawrence, Lake Huron Watershed	% generation capacity	91-100	Ultimately each facility within the watershed and the associated electric generation capacity of each facility could be affected.
United States of America	Other: St. Lawrence, Lake Erie Watershed	% generation capacity	91-100	Ultimately each facility within the watershed and the associated electric generation capacity of each facility could be affected.

**W3.2c**

Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Other: St. Lawrence, Lake Michigan Watershed	Physical-Drought Regulatory-Regulation of discharge quality/volumes leading to higher compliance costs Regulatory-Regulatory uncertainty	Higher operating costs	Changing water levels could result in the restructuring of cooling water intake and discharge structures. More stringent water use and/or discharge regulations could affect cost to customers as a result of increased capital spending and operation and maintenance costs.	>6 years	Unknown	Medium-high	Engagement with public policy makers Increased capital expenditure	Medium-high costs	Strategy is site specific, but would generally include relocating intake structure locations. Strategy also includes continued engagement with policy makers to ensure sound science and appropriate cost-benefit evaluations are considered.

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Other: St. Lawrence, Lake Huron Watershed	Physical-Drought Regulatory-Regulation of discharge quality/volumes leading to higher compliance costs Regulatory-Regulatory uncertainty	Higher operating costs	Changing water levels could result in the restructuring of cooling water intake and discharge structures and affect ability of facility to receive coal deliveries via container ship. More stringent water use and/or discharge regulations could affect cost to customers as a result of increased capital spending and operation and maintenance costs.	>6 years	Unknown	Medium-high	Engagement with public policy makers Increased capital expenditure	Medium-high costs	Strategy is site specific, but would generally include relocating intake structure locations. Strategy also includes continued engagement with policy makers to ensure sound science and appropriate cost-benefit evaluations are considered.

### W3.2d

Please list the inherent water risks that could generate a substantive change in your business operations, revenue or expenditure, the potential impact to your supply chain and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Other: St. Lawrence, Lake Michigan Watershed	Physical-Seasonal supply variability/Inter annual variability Regulatory-Regulatory uncertainty	Higher operating costs	The largest supplier cost is the cost of fuel (i.e. coal and natural gas). Impact might include water	>6 years	Unknown	Unknown	Engagement with public policy makers	Our strategy would be implemented on a case by case. Potential costs remain unknown at this time.	Costs are too difficult to predict at this time due to unknown magnitude of potential

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				regulations specific to the coal and natural gas industries. Coal supply could be impacted by lake levels, and in turn require we dredge intake locations to support continued operation.						l impacts.
United States of America	Other: St. Lawrence, Lake Huron Watershed	Physical-Seasonal supply variability/Inter annual variability Regulatory-Regulatory uncertainty	Higher operating costs	The largest supplier cost is the cost of fuel (i.e. coal). Impact might include water regulations specific to the coal industry. Fuel supply could be impacted by lake levels, and in turn require we dredge intake locations to support	>6 years	Unknown	Unknown	Engagement with public policy makers	Our strategy would be implemented on a case by case. Potential costs remain unknown at this time.	Costs are too difficult to predict at this time due to unknown magnitude of potential impacts.

Count ry	River basin	Risk driver	Potenti al impact	Descripti on of potential impact	Timefra me	Likeliho od	Magnitu de of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				continued operation.						

#### Further Information

#### Page: W4. Water Opportunities

##### W4.1

Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?

Yes

##### W4.1a

Please describe the opportunities water presents to your organization and your strategies to realize them

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Comment
United States of America	Increased shareholder value Other: Continued business operation	Water has and will continue to be an important resource in electric generation. It is used to generate steam to turn a turbine. Additionally, water is used for condenser cooling at our gas and coal-fired units. Consumers Energy understands the significance of the Great Lakes and their impact on our business. Having these abundant water resources available to our operations allows the company to efficiently operate. We intend to continue to protect and preserve the Great Lakes while using them to fulfill our operational needs. If we did not have access to a water source Consumers Energy's generating units would not be able to operate. Wise management of this resource and disclosure of management efforts aligns with shareholder interests.	>6 years	Water is a necessary component for our operations. In the future, access to water sources will continue to be considered when developing new generating assets. Shareholders support our water stewardship goals (reduction in water intensity of 17% by 2017 and 20% by 2020), and disclosure of our progress toward meeting these goals.
United States of America	Regulatory changes	The Clean Water Act Part 316(b) regulations require management of entrainment and impingement of fish and larvae at cooling water intake structures. The off-shore intake structure at JH Campbell unit 3, the largest coal-fired unit in the fleet, was built to take advantage of the depth and temperatures of Lake Michigan for cooling. This intake structure is already compliant with the 316(b) regulations. The Company will take advantage of this technology to demonstrate compliance with the requirements of the regulations. This strategy will be implemented through submission of required reports under the NPDES permit within the next year. The financial implications are such that zero capital cost will be incurred for this unit. If this intake technology were not present, new, compliant intakes or cooling towers could be required, costing \$50 million or more.	1-3 years	



## Further Information

### Module: Accounting

#### Page: W5. Facility Level Water Accounting (I)

##### W5.1

Water withdrawals: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
Facility 1	United States of America	Other: St. Lawrence, Lake Michigan Watershed	BC Cobb Generating Plant	100165.3	Much lower	The BC Cobb Plant withdrew less water in 2016 than 2015 because the coal-fired plant was retired in April 2016.
Facility 2	United States of America	Other: St. Lawrence, Lake Michigan Watershed	JH Campbell Generating Complex	892158.3	About the same	The JH Campbell complex withdrew approximately the same volume of water in 2016 as in 2015.
Facility 3	United States of America	Other: St. Lawrence, Lake Huron Watershed	Karn/Weadock Generating Complex	437011.1	Lower	The Karn/Weadock Complex withdrew less water in 2016 than 2015 because the JC Weadock coal-fired plant retired in April 2016.
Facility 4	United States of America	Other: St. Lawrence, Lake Erie Watershed	JR Whiting Generating Plant	70089.4	Much lower	The JR Whiting Plant withdrew less water in 2016 than 2015 because the coal-fired plant retired in April 2016.
Facility 5	United States of America	Other: St. Lawrence, Lake Michigan Watershed	Zeeland Generating Station	3007.7	Higher	The Zeeland Plant used more water in 2016 than 2015 because it generated more electricity in 2016 than in 2015 which resulted in increased cooling and process water usage.
Facility 6	United States of America	Other: St. Lawrence, Lake Michigan Watershed	Jackson Generating Station	2328.1	Higher	The Jackson Plant used more water in 2016 than 2015 because it generated more electricity in 2016 than in 2015 which resulted in increased cooling and process water usage.

## Further Information

### Page: W5. Facility Level Water Accounting (II)

#### W5.1a

**Water withdrawals:** for the reporting year, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.1

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
Facility 1	100156.6	0	0	8.8	0	0	0	0	
Facility 2	890692.4	0	0	1465.9	0	0	0	0	
Facility 3	436911.1	0	0	0	0	0	100.0	0	
Facility 4	70035.8	0	0	53.6	0	0	0	0	
Facility 5	0	0	0	0	0	0	3007.7	0	
Facility 6	0	0	0	0	0	0	2328.1	0	

#### W5.2

**Water discharge:** for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain
Facility 1	100135.8	Much lower	The BC Cobb Plant discharged less water in 2016 than 2015 because the coal-fired plant was retired in April 2016.
Facility 2	891922.8	About the same	The JH Campbell complex discharged approximately the same volume of water in 2016 as in 2015.
Facility 3	436729.3	Lower	The Karn/Weadock Complex discharged less water in 2016 than 2015 because the JC Weadock coal-fired plant was retired in April 2016.
Facility 4	70066.9	Much lower	The JR Whiting Plant discharged less water in 2016 than 2015 because the coal-fired plant was retired in April 2016.
Facility 5	127.5	Higher	The Zeeland Plant discharged more water in 2016 than 2015 because it generated more electricity in 2016 than in 2015 which resulted in increased cooling and process water discharges.
Facility 6	390.3	Higher	The Jackson Plant discharged more water in 2016 than 2015 because it generated more electricity in 2016 than in 2015 which resulted in increased cooling and process water discharges.

#### W5.2a

**Water discharge:** for the reporting year, please provide water discharge data, in megaliters per year, by destination for all facilities reported in W5.2

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
Facility 1	100135.8	0	0	0	0	
Facility 2	891753.4	0	0	169.4	0	
Facility 3	436729.3	0	0	0	0	
Facility 4	70066.9	0	0	0	0	
Facility 5	0	127.5	0	0	0	
Facility 6	0	390.3	0	0	0	

#### W5.3

Water consumption: for the reporting year, please provide water consumption data for all facilities reported in W3.2a

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
Facility 1	29.5	Much lower	The BC Cobb Plant consumed less water in 2016 than 2015 because the coal –fired plant was retired in April 2016.
Facility 2	235.5	Lower	The JH Campbell Complex consumed less water in 2016 than 2015 because major outages reduced the time the plant operated and therefore reduced the volume of water consumed through plant processes.
Facility 3	281.8	Lower	The Karn/Weadock Complex consumed less water in 2016 than 2015 because the JC Weadock coal-fired plant was retired in April 2016.
Facility 4	22.5	Much lower	The JR Whiting Plant consumed less water in 2016 than 2015 because the coal-fired plant was retired in April 2016.
Facility 5	2880.3	Higher	Consumptive losses for the gas-fired combined cycle plants are primarily due to evaporation from the cooling towers. The Zeeland Plant generated more electricity in 2016 than 2015 and therefore used more condenser cooling water which resulted in higher evaporative losses from the cooling towers.
Facility 6	1937.7	Higher	Consumptive losses for the gas-fired combined cycle plants are primarily due to evaporation from the cooling towers. The Jackson Plant generated more electricity in 2016 than 2015 and therefore used more condenser cooling water which resulted in higher evaporative losses from the cooling towers.

#### W5.4

For all facilities reported in W3.2a what proportion of their water accounting data has been externally verified?

Water aspect	% verification	What standard and methodology was used?
Water withdrawals- total volumes	Not verified	Water withdrawals are not verified by an external party, but are reported to the State of Michigan Department of Environmental Quality (MDEQ) through Annual Water Use Reporting for the state's Water Use Program and are subject to state inspection.
Water withdrawals- volume by sources	Not verified	Water withdrawals by sources are not verified by an external party, but are reported to the MDEQ through Annual Water Use Reporting for the state's Water Use Program and are subject to state inspection.
Water discharges- total volumes	Not verified	Water discharges are not verified by an external party, but are reported to the MDEQ through Annual Water Use Reporting for the state's Water Use Program as well as through the NPDES Permit program, and are subject to state inspection.
Water discharges- volume by destination	Not verified	Water discharges by destination are not verified by an external party, but are reported to the MDEQ through Annual Water Use Reporting for the state's Water Use Program as well as through the NPDES Permit program, and are subject to state inspection.
Water discharges- volume	Not verified	Water discharges by treatment method are not verified by an external party, but

Water aspect	% verification	What standard and methodology was used?
by treatment method		are reported to the MDEQ through Annual Water Use Reporting for the state's Water Use Program as well as through the NPDES Permit program, and are subject to state inspection.
Water discharge quality data- quality by standard effluent parameters	Not verified	Water discharges by treatment method are not verified by an external party, but are reported to the MDEQ through the NPDES Permit program and are subject to state inspection.
Water consumption- total volume	Not verified	Water consumption is not verified by an external party.

#### Further Information

### Module: Response

#### Page: W6. Governance and Strategy

##### W6.1

Who has the highest level of direct responsibility for water within your organization and how frequently are they briefed?

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
Board of individuals/Sub-set of the Board or other committee appointed by the Board	Scheduled-annual	At least annually, the Chief Executive Officer and President and the Board of Directors are briefed on water related issues, including progress toward meeting water stewardship goals and impacts of existing and proposed regulations on operations and long-term financial plans.

##### W6.2

Is water management integrated into your business strategy?

Yes

##### W6.2a

Please choose the option(s) below that best explains how water has positively influenced your business strategy

Influence of water on business strategy	Please explain
Water resource considerations are factored into location planning for new operations	When a new operations facility is being evaluated, the impacts on water needs are evaluated to verify that there is available water capacity with no adverse impact. This evaluation takes into account the criteria needed to obtain permits. For example, Consumers Energy has proposed and evaluated a new gas fired unit. This evaluation considered water withdrawal needs and associated supply. The outcome of this evaluation impacted locations being considered and plant design.
Publicly demonstrated our commitment to water	Through our water stewardship goals we are recognized by our stakeholders as an environmentally conscious company creating solid relationships with stakeholders.

##### W6.2b

Please choose the option(s) below that best explains how water has negatively influenced your business strategy

Influence of water on business strategy	Please explain
Increased capital expenditure	Complying with new regulations increases our capital costs and reduces capital investment available for the rest of the business.

##### W6.3

Does your organization have a water policy that sets out clear goals and guidelines for action?

Yes

##### W6.3a

Please select the content that best describes your water policy (tick all that apply)

Content	Please explain why this content is included
Publicly available	Consumers Energy's water policy is accessible on our Corporate website as a stakeholder outreach

Content	Please explain why this content is included
Company-wide Performance standards for direct operations Commitment to customer education Incorporated within group environmental, sustainability or EHS policy	tactic. This is a Corporate policy encompassing all of our operations with a heightened focus on our direct generation operations. Consumers Energy also produces an annual Sustainability report which aims to educate our stakeholders on our most material environmental, social and governance issues including water.

#### W6.4

How does your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) during the most recent reporting year compare to the previous reporting year?

Water CAPEX (+/- % change)	Water OPEX (+/- % change)	Motivation for these changes
0	0	

Further Information

#### Page: W7. Compliance

##### W7.1

Was your organization subject to any penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting year?

No

Further Information

#### Page: W8. Targets and Initiatives

##### W8.1

Do you have any company wide targets (quantitative) or goals (qualitative) related to water?

Yes, targets and goals

##### W8.1a

Please complete the following table with information on company wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Reduction of product water intensity	Water stewardship	Reduce water intensity (gal/MWH) by 17% by 2017 and 20% by 2018 through operational efficiencies and strategic shifts in the generating fleet towards less coal-fired generation. Target year advanced from 2020 to 2018 due to projections indicating goal will be met two years early.	% reduction per unit of production	2012	2018	85%

##### W8.1b

Please describe any company wide qualitative goals (ongoing or reached completion during the reporting period) and your progress in achieving these

Goal	Motivation	Description of goal	Progress
Other: Improve water stewardship practices company-wide	Water stewardship	In conjunction with the water intensity reduction target, the company is pursuing a goal of improving water stewardship practices, particularly at generating facilities. The goal has several objectives, including: 1) increased scrutiny through environmental review process	Items 1, 2 and 3 were implemented in 2016 and efforts are ongoing. Items 1&2 - increased scrutiny of water usage of new projects resulted in water reuse options being considered for multiple projects. Improvements to environmental review form

Goal	Motivation	Description of goal	Progress
		for projects requiring new water withdrawals, 2) inclusion of reuse or recycle options for projects with water requirements, and 3) management of water-intensive systems with efforts to reduce run time of such equipment where possible. Timeline for achievement is to have all objectives completed and implemented by end of 2019.	and process in 2017 and 2018 will give additional opportunities to address new project water usage and reuse options. Item 3 - procedure changes implemented to reduce run time on condenser pumps at one plant in 2016, additional opportunities to be tested and implemented in 2018.

#### Further Information

### Module: Linkages/Tradeoff

#### Page: W9. Managing trade-offs between water and other environmental issues

##### W9.1

Has your organization identified any linkages or trade-offs between water and other environmental issues in its value chain?

Yes

##### W9.1a

Please describe the linkages or trade-offs and the related management policy or action

Environmental issues	Linkage or trade-off	Policy or action
Aquatic Organism Impact	Linkage	At steam electric generating stations, reductions in cooling water intake structure water withdrawals for once-through cooling systems have been correlated with reductions in impingement and entrainment of fish and other aquatic organisms. Where applicable, the Company is evaluating the design, operation and location of cooling water intake structures to meet federal regulatory requirements/standards aimed at reducing impingement and entrainment mortality.

#### Further Information

### Module: Sign Off

#### Page: Sign Off

##### W10.1

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

Name	Job title	Corresponding job category
Linda Hilbert	Executive Director, Environmental & Laboratory Services	Environment/Sustainability manager

##### W10.2

Please indicate that your organization agrees for CDP to transfer your publicly disclosed data regarding your response strategies to the CEO Water Mandate Water Action Hub.

Note: Only your responses to W1.4a (response to impacts) and W3.2c&d (response to risks) will be shared and then reviewed as a potential collective action project for inclusion on the WAH website.

By selecting Yes, you agree that CDP may also share the email address of your registered CDP user with the CEO Water Mandate. This will allow the Hub administrator to alert your company if its response data includes a project of potential interest to other parties using water resources in the geographies in which you operate. The Hub will publish the project with the associated contact details. Your company will be provided with a secure log-in allowing it to amend the project profile and contact details.

No