

Entergy Corporation
Water Management Overview
2020

Contents

I. Introduction	2
A History of Performance and Disclosure	2
Industry-leading Climate Research and Stakeholder Engagement.....	3
II. Water management governance and oversight.....	5
III. Specific water risk management practices, water risk management tools used, outcomes of such practices including scarcity planning and actions.....	6
IV. Flood risks and mitigation measures, including climate change (storm hardening).....	9
Transmission and Distribution; Hardening Studies	9
Non-Nuclear Generation Portfolio Assessment and Protection.....	12
Nuclear Flood Hazard Evaluation.....	12
V. Publicly Available Statistics and Risk Statements.....	14

I. Introduction

A History of Performance and Disclosure

Protecting the environment is one of many ways Entergy powers life and creates sustainable value for our stakeholders — customers, employees, communities and owners – and this has been true for many years. As long ago as 1972 (the same year in which the federal Clean Water Act was signed into law), our Louisiana operating company, then called Louisiana Power & Light Company, issued its 1971 Annual Report titled *A Better World Tomorrow Is Our Concern Today*, which highlighted the company’s environmental responsibility, including our pledge to “continued cooperation with private and public agencies in responsible efforts to preserve our natural resources and to protect and improve man’s total environment.” In the more modern era of environmental stewardship, our Board of Directors adopted [Entergy’s Environmental Vision Statement](#) in 2002. The statement outlined our objectives in what would today be called environmental sustainability. These objectives include leading by example and demonstrating responsible environmental behavior everywhere we serve.

For 18 consecutive years the Dow Jones Sustainability Index, a global measurement for environmental, social and governance responsibility, has recognized our environmental and other sustainability actions by including Entergy on either its World or North America index or both. Listing on the North America index generally represents a ranking in the top twenty percent of a global industry sector. No other U.S. company in the electric utility sector has this

record of performance on the DJSI. Since 2014 Entergy has scored a perfect 100 in the water-related risks category of the DJSI each year.

As part of our transparency on environmental issues, over the past 15 years, Entergy has developed and disclosed a substantial amount of information related to water risk management, scarcity, use and flooding, while taking into consideration changes that may occur due to climate change such as increased flooding and storms.

The company currently discloses various water metrics annually through various channels, including the company's SEC Form 10K and 10Q filings, its annual Integrated Report, publication of the Edison Electric Institute ESG Template and publication of Entergy's own performance data table. Our disclosures are guided by the framework of the Sustainability Accounting Standards Board. Links to these disclosures and summaries of this information are provided below:

- Water- related risk factors and environmental disclosures from 2019 Form 10-K, pages 34, 259, 266-274, 291, 293-294:
https://cdn.entergy.com/userfiles/content/investor_relations/pdfs/2019_Form_10-K.pdf
- Water-related information from Entergy's latest integrated report, page 52:
<http://integratedreport.entergy.com/>
- Entergy's EEI ESG Template – Quantitative Information:
<https://www.entergy.com/userfiles/content/sustainability/EEI-Quantitative.pdf>
- Entergy's EEI ESG Template – Qualitative Water Information:
<https://www.entergy.com/userfiles/content/sustainability/EEI-Qualitative.pdf>
- Entergy's Performance Data
Table:https://www.entergy.com/userfiles/content/sustainability/performance_data_table.pdf
- Entergy's Statistical Report and Investor Guide :
https://www.entergy.com/userfiles/content/investor_relations/docs/2018_Investor_Guide.pdf
- Entergy's alignment with SASB:
<https://www.entergy.com/sustainability/esg/>

While information for the DJSI is submitted directly to the analyst, we are providing substantially the same information here, along with information from other sources.

Industry-leading Climate Research and Stakeholder Engagement

Entergy also was an early mover in developing risk mitigation information pertaining specifically to climate change. In 2010, Entergy and the America's WETLAND Foundation sponsored a major, first-of-its-kind study of the potential impacts of climate change on the Gulf Coast region and actions that can be taken to lessen those impacts. The objective of the report, Building a Resilient Energy Gulf Coast, was "to develop a consistent fact base that quantifies climate risks in the U.S. Gulf Coast and helps inform economically sensible approaches for addressing this

risk. It represents the first comprehensive analysis of climate risks and adaptation economics along the U.S. Gulf Coast.” The report is available here:

https://www.energy.com/userfiles/content/our_community/environment/GulfCoastAdaptation/Building_a_Resilient_Gulf_Coast.pdf.

Swiss Re, a global reinsurer, was a lead contributor to the research and brought its natural catastrophe and climate risk assessment knowledge to bear on the challenge of quantifying climate risks. The methodology used in this study previously was devised and tested by a consortium of public and private partners, including Swiss Re, in a project on the Economics of Climate Adaptation.

Building on the information presented in the Building a Resilient Energy Gulf Coast report, in 2011 the America’s WETLAND Foundation and Entergy hosted a series of eleven Blue-Ribbon Community Leadership forums across the Gulf Coast. The forums explored how coastal communities need to adapt to climate challenges in order to keep their areas prosperous and safe into the future.

More recently, Entergy has followed up this action by sponsoring a 2017 report by The Lowlander Center titled Building the Resilience of Small Coastal Businesses. The report is available here:

https://www.energy.com/userfiles/content/environment/docs/LOWLANDER_BROCHURE.pdf.

This project revisits Entergy’s Building a Resilient Energy Gulf Coast report, as well as the background information from meetings hosted in partnership with AWF, in order to determine the impacts of previous actions and remaining opportunities to promote resilience.

In 2019 and 2020, Entergy has sponsored and participated in AWF’s Sea Safe Community Certification initiative forums in Cameron and Thibodaux, Louisiana. The initiative focuses on adaptation to the new normal of coast erosion/sea level rise. During these roundtable discussions, which included elected officials, coastal experts and industry representatives, participants drilled down on how to preserve home values and reduce negative stigma in areas at high risk of sea level rise and other climate impacts. These regions were heavily impacted by Hurricanes Katrina and Rita and residents have worked for years to bring back the communities. Since Katrina and Rita, South Louisiana and its leaders have made tremendous strides to build resiliency into governance and private sector growth. Storm hardening of the electric transmission and distribution systems has been an important part of this effort, as described below.

Projects such as The Lowlander Center report and the recent AWF forums have been funded in part by grants provided through Entergy’s Environmental Initiatives Fund. Since 2001, the Fund has provided grants totaling approximately \$39 million for projects including those that limit carbon emissions, sequester carbon and restore coastal wetlands and upland habitat. A history of Entergy’s EIF projects is available here:

https://www.energy.com/userfiles/content/environment/docs/eif_history.pdf

II. Water management governance and oversight

Governance of water-related risks at Entergy begins with the Board of Directors and extends through management to unit operational subject matter experts. Water risks are incorporated into the company's corporate risk management processes and SEC reporting and are included in Entergy's discussion of material issues in our Integrated Report. Water-related risks are included in the company's discussion of material issues in the Form 10-K, in the ESG section of the annual Integrated Report and in the Material Issues Determination on the sustainability page of entergy.com.

In 2014, Entergy adopted a companywide Water Management Standard, which is part of the broader Entergy environmental management system. The standard is available here: https://www.entergy.com/userfiles/content/environment/Water_Management_Standard.pdf Entergy's EMS establishes the requirement that business units identify and assess risks, including water supply and water quality risks, that could impact their operations. The EMS Functional Procedure establishes the requirement that a risk assessment be conducted annually.

The EMS, including the Water Management Standard, forms one basis of Entergy's annual safety, health and environmental audit program. The audit program uses third-party expertise to conduct audits of compliance, risks and management systems throughout the Entergy system. Audit reports are provided to company management and aggregated audit results are reported to the Audit Committee of the Board of Directors at least annually. Additionally, water-related issues are included in Entergy's broader sustainability reporting and performance initiatives, and sustainability governance is included in the charter of the Board's Governance Committee.

Entergy manages operational water-related risk compliance and planning issues primarily through the work of a cross-functional Water Peer Group. The Water Peer Group is comprised of water subject matter experts from each of the business units. The group examines water supply and discharge issues that impact Entergy's operations provides a forum for subject matter experts to discuss these issues and provides coordination for path-forward strategies to influence these water issues and risks. The peer group uses the World Resources Institute Aqueduct tool to review geographic water stress assessments.

Entergy continually assesses its water use and identifies risks associated with water through several risk management programs. As stated, the company tracks compliance issues at its facilities through its voluntary environmental management system compliance audit process and through permit compliance and reporting processes described below. On a corporate level and for significant capital projects and transactions, risk management includes identifying water impacts for permitting requirements, storm water impacts, wetlands and other water-related risks. The Office of the Corporate Risk Officer's corporate risk committee capital expenditure

review process includes an assessment of water-related and other environmental risks. Water issues are included in a scenario analysis Entergy conducts as part of its overall due diligence review and analysis of any expansion, acquisition, new project or investment. Depending on the project, scenario analysis may include water availability issues, quality issues, intake concerns, wetlands issues and water-related biodiversity impacts. Desktop evaluations are conducted using ArcGIS to determine water impacts of transmission construction projects in preliminary planning phases. Impacts and associated mitigation costs are included in project documents that provide a basis for corporate risk assessment.

Entergy tracks water use at the local level and reports to local agencies as required by permits or regulations that apply to surface water use, ground water use, or . Entergy often engages with regulatory agencies and conservation groups at regional, state and local levels (see specific discussions in section III). Engagement with these groups helps Entergy track potential local water availability issues. If a water scarcity issue occurs, Entergy is committed to working with these groups to address availability, quality and regulatory issues. Entergy also participates in various industry groups that monitor water quantity and quality issues at the national, regional and state levels.

III. Specific water risk management practices, water risk management tools used, outcomes of such practices including scarcity planning and actions.

Virtually all of Entergy's discharges to water are controlled either by state-issued, federally enforceable permits issued under the National Pollution Discharge Elimination System of the federal Clean Water Act or by similar state programs. Entergy facilities operate under approximately 40,000 specific water pollution control permit requirements. Across our operations, Entergy protects water resources by maintaining a compliance rate with state and federal water pollution control permit requirements of at least 99 percent from year to year.

Entergy's withdrawal and use of water also is controlled by a system of federal, state and local requirements. For example, cooling water withdrawals are regulated by section 316(b) of the CWA, regulations promulgated thereunder at 40 C.F.R. Part 122 and permits that apply these requirements specifically to the operations of covered units. Often, groundwater and surface water withdrawal are additionally regulated by state withdrawal or diversion permits, limits and reporting requirements. An example of this type of program is the Mississippi water resources regulation and control provisions of Miss. Code Ann. section 51-3-1 et seq., especially the requirement of a state permit for any non-exempted use of surface or ground water found in section 51-3-5.

The Lewis Creek Power Plant in Willis, Texas, is the only Entergy power plant that operates in a water-constrained area. Even this area is not classified as water-stressed as defined by sustainability analyst RobecoSAM and the DJSI; however, the facility is located in Montgomery County, Texas, in the Lone Star Groundwater Conservation District, an area

identified as water-constrained due to a current water use exceeding the local aquifer's sustainable yield by ~20% (25 billion gallons use vs. 21 billion gallons yield). The World Resource's Aqueduct water risk atlas also notes that this area is categorized as medium to high risk based on physical quantity, quality, regulatory and reputational risk categories. Entergy undertook a long-term strategic study of water availability for its Lewis Creek Plant. The study included analysis of the groundwater wells and water plant system. In conjunction with the LSGCD, the facility developed and executed a plan to reduce water withdrawal by 30% through process design changes. By working with the district to optimize water use and leveraging best practices, Lewis Creek was able to exceed its water conservation goal of 30 percent water withdrawal by 2016 – a level also maintained throughout 2019.

Entergy also participates in the Louisiana Water Synergy Project, a collaborative effort led by the U.S. Business Council for Sustainable Development. The WSP started in 2012 and brings together industry, non-profits and government agencies to work on water issues important to the state. Projects include a water simulation module, development of a nutrient trading program for the state and coastal zone resiliency. For additional information see <https://usbcسد.org/water>. The simulation model evaluates stakeholder water conflicts using a watershed scenario analysis. A computer-based simulation model also has been constructed regarding water usage in the Mississippi River basin. The project employs a front-end user interface to allow participants to make decisions that feed into an overall predictive model, which together form a prototype participatory simulation for the Louisiana Gulf Coast. This predictive model is being tested by several groups and is a useful tool for forecasting future impacts based on an analysis of historical trends in land use, land cover and environmental impacts. The resulting simulation model is being used to forecast future trends, educate stakeholders and predict changes under various scenarios.

The US BCSD Water Synergy Project inventory of nutrient releases by point sources within the Mississippi River Industrial Corridor (MRIC) in Louisiana indicates that nutrient releases from industrial and municipal point sources to the MRIC continue to have minimal no impact on nutrient levels in the river. Entergy is also working with the state of Louisiana, non-governmental organizations and businesses to build a Louisiana Freshwater Assessment baseline in our service territory so that we make informed decisions regarding freshwater in the future.

We engage our regulators at the state and local levels to minimize potential risks from regulatory changes. For example, in 2018, during due diligence for a pending acquisition, we engaged the Southeast Texas Groundwater Conservation District to ensure the Gulf Coast Aquifer had sufficient sustainable yield for the facility's continued operation. Similarly, in 2018, we conducted thermal modeling and worked with the Louisiana Department of Environmental Quality to develop a revised minimum standard instream flow (7Q10) for the Houston River and the West Fork of the Calcasieu River for a facility under construction in Westlake, Louisiana. In Louisiana, we remain active on the Capital Area Groundwater Conservation Commission, which provides regulation of groundwater withdrawals associated with the local aquifer system. Entergy also sits on the development team for the creation of the Louisiana Water Code, which

is expected to be the future management tool for groundwater, surface water and its uses based on riparian rights.

Entergy has experience in responding to specific water supply risks. For example, Entergy has worked with the U.S. Corps of Engineers to identify risks, challenges and contingency plans should a saltwater wedge move far enough upstream to impact water intakes near New Orleans. Intrusion of saltwater upstream into the Mississippi River is a naturally occurring periodic condition. Significant saltwater intrusion occurred in the 1930s, 1988 and 1999. When flow drops below 288,000 cubic feet per second, saltwater intrudes to Head of Passes at the mouth of the river. Risks identified were the potential for chlorides to corrode stainless steel condensers and for saltwater to adversely impact ion exchange water purification systems relied upon for maintaining boiler feedwater supply.

Also, in Louisiana, the Columbia Lock and Dam system on the Ouachita River suffered damage and the United States Corps of Engineers lowered the water level to conduct required repairs. The water level fell below the pump suction for our Perryville Plant, which then installed portable water pumps and hoses to obtain cooling water.

Occasionally surface water temperature rises to a point where a facility will need to power down. In 2018, the Pilgrim Nuclear Station (since sold by Entergy) reduced power several times due to seawater approaching the 75-degree standard set by the Nuclear Regulatory Commission. In several instances, down powers to 40% were necessary. The estimated losses exceeded \$8 million. In 2017, Pilgrim reduced power to 70% when water intake temperatures were too high. Additionally, in 2018, the Lake Catherine facility located in Arkansas had to de-rate by approximately 50 MW for less than an hour due to increased water temperatures. Entergy monitors and responds to these situations as it would a physical interruption in water supply. As we build our more modern facilities, water thermal intake issues are a factor in design considerations such as the use of cooling towers, recirculation cooling ponds, and condenser sizing, each of which can mitigate this risk in appropriate circumstances. In 2019, Entergy also purchased its first air-cooled gas-fired generating unit at the Choctaw plant in Mississippi. The company continues to evaluate the operation of that unit.

The information provided above pertains primarily to Entergy utility service territory in Arkansas, Louisiana, Mississippi and Texas. Entergy also operates merchant nuclear facilities in New York and Michigan and has, until recently, operated merchant nuclear units in Vermont and Massachusetts. Most of Entergy's utility and merchant generating units must comply with section 316(a) and (b) of the federal Clean Water Act. Subsection (a) applies limitations to the discharge of heated water into most water bodies and subsection (b) requires protective measures for aquatic species that could be impacted by the withdrawal of cooling water from most water bodies. Compliance with 316(a) and (b) often requires the development of extensive data sets regarding the temperature and aquatic ecosystem around a unit, operational modifications, permitting processes and reporting. For Entergy, this has particularly been required of the Pilgrim nuclear unit in Massachusetts, the Vermont Yankee nuclear unit in Vermont and the Indian Point nuclear units in New York. Of these, only Indian Point is still

owned and operated by Entergy, but the extensive experience in thermal modelling, aquatic management and section 316 permitting and compliance at these units has developed expertise within the company that now benefits the entire Entergy fleet. For example, in 2018, we worked with the Louisiana Department of Environmental Quality and approximately 19 other facilities to establish Mississippi River baseline data for Clean Water Act Section 316(b) implementation.

In 2019, Entergy [donated to the Stony Brook University School of Marine and Atmospheric Sciences](#) an extraordinary scientific collection of archived fish and water data amassed over five decades as part of Entergy's commitment to protect the environment of the Hudson River. The collection provides scientists a unique retrospective on the ecological health of the estuary. Entergy accompanied the donation with seed capital to advance Stony Brook's goal of groundbreaking scientific study of the collection.

IV. Flood risks and mitigation measures, including climate change (storm hardening)

Over the past several years, Entergy has participated in the Department of Energy's Partnership for Energy Sector Climate Resilience. As described by the department, this initiative intends to enhance U.S. energy security by improving the resilience of energy infrastructure to extreme weather and climate change impacts. The goal is to accelerate investment in technologies, practices and policies that will enable a resilient 21st-century energy system and to facilitate risk-based decision making and cost-effective strategies for a more climate-resilient U.S. energy infrastructure. DOE's role is to assist in the development of information, analytical methods and case studies of emerging best practices. Entergy submitted a resilience plan as part of the initiative in 2016. The document is available here:

https://entergy.com/userfiles/content/environment/docs/Resilience_Plan.pdf

Much of the transmission and distribution information presented below is included in that document.

Transmission and Distribution; Hardening Studies

In 2005, Hurricanes Katrina and Rita damaged hundreds of acres of coastal wetlands, transmission towers, distribution poles and lines, substations and generating facilities, leaving millions of Entergy customers without power. Hurricane Katrina alone led to nearly \$300 million in facility improvements and \$1.7 billion in hardening investments at Entergy.

However, Entergy's hardening strategy actually began 40 years earlier when Hurricane Betsy pummeled the region, causing widespread flooding and extensive power outages in the New Orleans area. Afterward, the company took stock of measures necessary to sustain

transmission lines and other facilities during such damaging events. The goal was to keep storm outage frequency and duration to a minimum. Because Hurricane Betsy's wind speeds topped 140 mph, the company hardened its transmission system well beyond National Electrical Safety Code requirements.

The decision to take this action decades ago proved justified when Hurricanes Katrina and Rita struck the coastline. Although Entergy sustained significant system damage, a 2007 hardening study commissioned by the company indicated that 99 percent of the structures located within 20 miles of the Louisiana and Texas coastlines survived the winds. In total, of more than 90,000 structures along that stretch of coast exposed to the high winds of both hurricanes, only 770 sustained structural damage such as breaks in utility poles.

Major storms like these are not just coastal events. Although the NESC changed the codes in 2007 to require structures along the Louisiana and Texas coastlines to withstand 140 mph winds, Entergy exceeds these requirements further inland than codes require by hardening our structures to withstand strong winds that accompany hurricanes long after landfall.

Data collected for the 2007 study gave engineers information needed to develop a number of strategies, including investments that reduce costs to customers over the life of the facilities. Steps Entergy has taken include building transmission lines using concrete or steel poles within 20 miles of the coast, replacing transmission and distribution crossing structures over major highways with concrete or steel poles and building new substations to elevations above the 100-year flood plain, as established by the U.S. Geological Survey. The current design standards for transmission line construction on Entergy's system do not allow the use of wood poles. Entergy also has studied its distribution system and other structures along the coast and farther inland and has taken steps to harden and protect those properties from high winds and potential floodwaters. Distribution service centers in New Orleans East, Chalmette and St. Rosalie, Louisiana were elevated to provide protection from storm surge inundation during severe weather events.

As stated above, our electric power facilities are designed and constructed to meet or exceed the requirements of the NESC. We use concrete and steel structures exclusively for transmission projects systemwide, both replacement and new construction. We use extreme wind-load criteria of 150 mph on all new standard substation structures installed in the Entergy service territories and we use extreme wind-load criteria of 140 mph on new or rebuilt lines in the vital transportation, industrial and urban corridor south of Interstate 10. Based on site analysis, we elevate critical transmission substation components, like control houses, switches, breakers, etc., to reduce the risk of flooding. For circuits crossing interstate highways, we support transmission lines on steel or concrete structures. We are in the process of expanding this standard to include all major hurricane evacuation route crossings.

Entergy has two Transmission Control Centers in Little Rock, Arkansas and Jackson, Mississippi, to centralize and consolidate the operation of the company's bulk electric system. The buildings are constructed to withstand an EF5 event. We have also joined the industry group RESTORE to

more efficiently cooperate and share equipment like transformers for faster recovery from disasters.

Just about ten years ago, the company made improvements to our transmission system totaling about \$300 million. Today, we are investing approximately \$1 billion annually to improve our transmission infrastructure and reliability. In 2019 alone we completed projects at a cost of more than \$1 billion dollars that included facilities designed to better withstand storms.

Entergy deploys storm guys on critical distribution structures in open marsh areas along the coast. Storm guys are tensioned cables designed to add stability to our structures. On distribution circuits close to the Gulf Coast, we only use class three (or larger) poles for trunk feeder construction. Class three poles are rated to withstand 3,000 lbs. of horizontal load.

Entergy continually prepares for storms and flooding and limits the potential damages they can inflict on our systems by:

- Completing at least one cycle of transmission aerial inspections prior to June of each year.
- Continuing to identify distribution circuits with operational challenges and devices which tend to cause reliability issues and take appropriate steps to improve the performance of these facilities.
- Identifying and removing dangerous trees outside of rights-of-way to prevent them from falling into our lines.
- Purchasing portable batteries and mobile substation equipment for quick restoration of power when our substations are compromised by storms.
- Upgrading communications systems to enhance our ability to limit the impact of outages through improved protection and controls.

We evaluate hardening strategies from a customer perspective, weighing the benefits of fewer and shorter outages against the high costs of hardening the system which our customers ultimately must pay for.

- We propose projects and strategies we believe are valuable for our customers.
- Our regulators provide guidance on the prudence of investments, including storm hardening strategies.
- Maximizing resiliency everywhere is not cost-effective for our customers but targeted programs that cost-effectively reduce the risks to reliability posed by

major storms is good for all stakeholders. Thus, Entergy continually searches for ways to improve the resiliency of its systems while also managing costs.

Within the past 10 years, Entergy has targeted approximately 25 critical substations in Louisiana alone for additional storm hardening. We've built structures to elevate critical equipment at existing substations with a potential for flooding, constructed levees around substation equipment to protect infrastructure from flooding and designed many new substations to sit above the 100-year flood plain, raised the site, or, when possible, located the site out of the flood plain. In one unique case, we designed and built a portable control house. This mobile unit can be removed and transported to higher ground if a storm surge is expected.

Non-Nuclear Generation Portfolio Assessment and Protection

As Entergy designs and builds new generation, the site selection process involves reviewing the site for access, transmission interconnection and flood potential. For Entergy's natural gas-fired new generation, additional considerations in the site selection process include fuel and water supplies. To address flooding, the site is reviewed against 100-year floodplain data and specific data associated with the site. All the current natural gas-fired new generation builds are located at existing Entergy sites where there is an understanding of how the site is impacted by flooding. The determination of the site elevation takes into account the flooding data to provide reasonable assurance that the major power block equipment is not impacted by flood waters. The major power block equipment includes the gas turbines, steam turbines, transformers and electrical switch gear rooms. Also, the site elevation considers construction impact and costs. In some cases, the site elevation is above the ground water level, which eases the installation of underground components. For solar new generation builds, the solar panels are designed and constructed at an elevation protective of flooding. Flooding data is also considered for the design elevation of inverters, transformers and energy storage containers.

During the design phase, wind loading on structures is in accordance with the International Building Code and the American Society of Civil Engineering — Minimum Design Loads for Buildings and other structures standards. ASCE 7 provides users with site-specific wind speeds used in the determination of the design of wind loads for the buildings and structures. ASCE 7 also addresses design loads for seismic, rain and ice impacts. The IBC addresses the design and installation of building systems and provides regulations that safeguard the public health and safety in all communities, large and small.

Nuclear Flood Hazard Evaluation

Flooding hazards have been re-evaluated systematically at each of Entergy's nuclear plants using the latest methodology and information beyond original design requirements set by the Nuclear Energy Institute's 12-06 Diverse and Flexible Coping Strategies Implementation Guide. Sources and standards of methodology and information are from national laboratories, national weather service, U.S. Army Corps of Engineers, Federal Emergency Management Agency, Federal Energy Regulatory Commission, Department of Energy, cutting edge researchers and scientists and other federal and international agencies and institutions. Flooding hazard mechanisms assessed include extreme hurricanes, tsunamis, intense rainfall, flooding rivers, dam failures, ice jams, seiches and combinations of these.

Entergy's nuclear fleet generally was found to have margins beyond design basis re-evaluation providing protection of important plant structures, systems and components. One plant required a strategy to prepare for an extreme hurricane surge during the advance warning time from the National Hurricane Center. Plant staff is prepared and able to execute the strategy. The U.S. Nuclear Regulatory Commission requires all safety-significant structures, systems and components to be designed for the most severe natural phenomena. The NRC includes an added safety margin to ensure that the standards account for the risk that a flood could be more severe than any recorded historical event. All nuclear power plant sites, including those at Entergy, performed assessments and analyzed the potential consequences of floods. Our safety equipment is located in areas where even extremely rare floods cannot reach. We have completed walk-downs at our plants, looking for opportunities to prevent flooding. By focusing on our Prevention, Detection and Correction Model, we have installed prevention modes such as having storage of pumps and generators in separate buildings to ensure availability, installing physical barriers and training employees. Entergy team members are experienced, highly trained and prepared to respond to a variety of off-normal situations including severe weather events, such as floods, tornadoes, hurricanes and lightning. Through our emergency response plans, we regularly train and perform exercises to protect our employees and communities.

The industry has developed a diverse, flexible approach called FLEX to mitigate the potential impacts of unforeseen events. Building on existing installed backup safety systems, this strategy provides another layer of backup equipment at facility sites and national rapid response centers in Phoenix and Memphis. Collectively, these industry actions represent an investment of more than \$4 billion.

Plants are hardened against potential flooding. Emergency core cooling systems are watertight—they are sealed, with submarine doors for access. Electrical switchgear for emergency operations at the plants is protected from flooding by elevating it above potential flood levels. Dry fuel storage facilities meet federal regulatory design requirements including that casks are designed to withstand the effects of natural phenomena such as floods, tornadoes, lightning and hurricanes. All operating Entergy interim spent fuel storage facilities have been evaluated against the worst-case postulated flood; canisters remain sealed during flood conditions.

V. Publicly Available Statistics and Risk Statements

The links provided in section I, above, provide extensive public disclosure of water management-related statistics and risks. For the reader's convenience, selected information is reproduced below.

The total water consumption data provided below includes cooling water withdrawn at Entergy's generation plants in 2018. Updated data is provided at least annually at the sources linked above. Entergy calculates the water data included here based on operational data submitted to U.S. regulatory authorities. Entergy obtains cooling water and other process water from various groundwater and surface water sources at our generating plants.

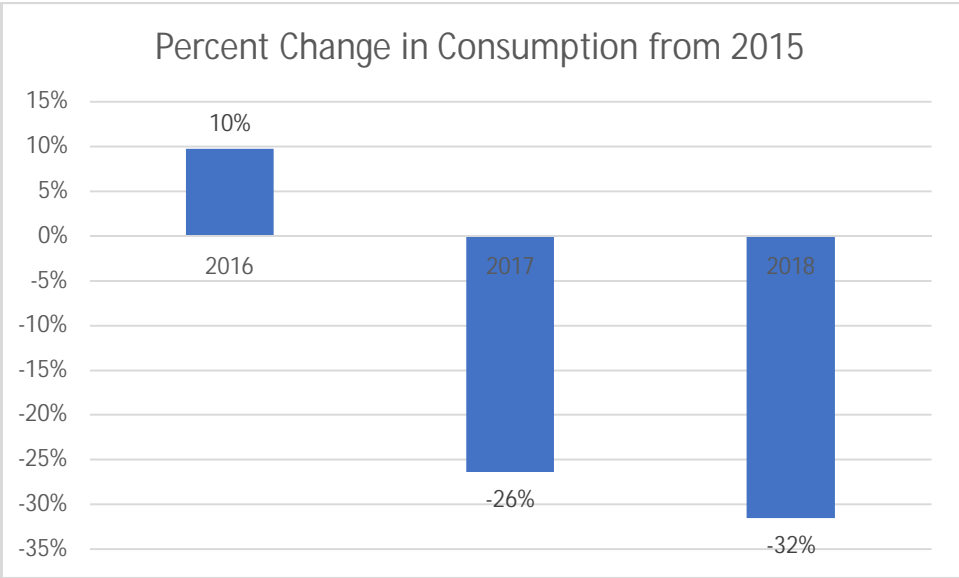
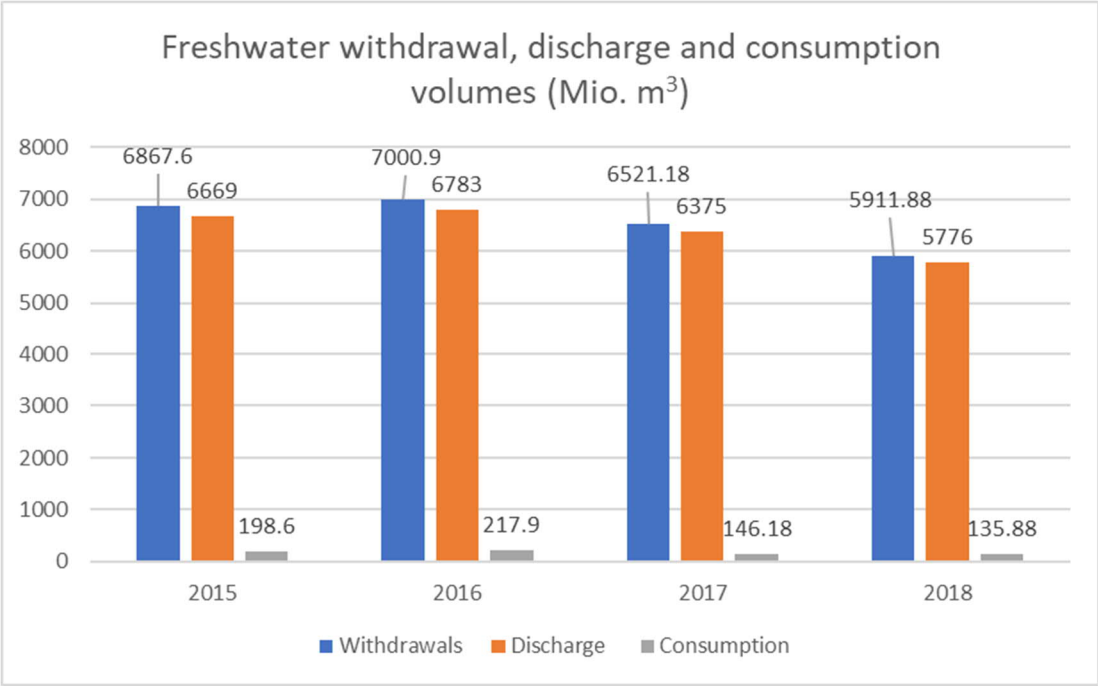
Depending on its quality, some of this water must be conditioned by various water treatment technologies to allow its use in our ultra-pure systems. Entergy implements a controlled losses program to conserve this ultra-pure process water and minimize the waste of high-quality boiler condensate. These conservation efforts reduce the amount of wastewater being treated and released back to the environment. In the normal course of business and as permitted and authorized by various local and state regulatory agencies, Entergy discharges cooling water and other waste waters to natural and man-made receiving water bodies. Under these permits, Entergy monitors and reports various water quality parameters at the discharge points or at internal control points. In 2018, Entergy experienced 30 permit exceedances out of more than 40,000 samples/measurements. This represents a compliance rate of 99.93 percent.

Municipal water for cooling water purposes had only been used at the Rhode Island State Energy Center, which is no longer owned by Entergy. For that reason, the values shown for 2016 thru 2018 are zero. Entergy withdraws water from salt or brackish water bodies at four locations - Sabine Plant in Texas, Michoud Plant in Louisiana, Pilgrim Nuclear Station in Massachusetts and Indian Point Nuclear Plant in New York. These consumption amounts are not included in the 2018 results. In 2018 consumptive water use decreased due to several reasons. For example, Entergy's nuclear generation capacity and legacy steam-turbine capacity decreased from 2017. Also our newer combined-cycle gas units use less water than legacy single-cycle steam-turbine units.

Entergy Water Management

	2015	2016	2017	2018
Total municipal water supplies (or from other water utilities)	2.3	0	0	0
Fresh surface water (lakes, rivers, etc.)	6819	6957	6486	5884
Fresh ground water	46.3	43.9	35.18	27.88

Withdrawals	6867.6	7000.9	6521.18	5911.88
Discharge	6669	6783	6375	5776
Consumption	198.6	217.9	146.18	135.88
% reduction in consumption from 2015		10%	-26%	-32%
% of facilities covered in the data	100%	100%	100%	100%



As shown in the table and graphs above, Entergy's net water consumption is relatively small compared to its withdrawals because most of the water is returned to the water body. The three main uses of water include:

- Cooling water that passes through facilities before returning to the same or a nearby water source.
- Process water consumed in the steam cycle.
- Potable water in offices.

Entergy's primary use of water is for cooling in either once-through or closed-cycle systems. Most of the water withdrawn is returned to the water body source; some water is "consumed" via evaporation, although this water still is returned to the natural water cycle in the form of water vapor. Closed cycle cooling reduces the amount of water withdrawal needed since the water is used several times. The table below is available as part of the EEI ESG Template, available at <https://www.entergy.com/userfiles/content/sustainability/EEI-Quantitative.pdf>

Entergy Corporation EEI ESG/Sustainability Metrics - Quantitative Information							
<small>ABOUT THIS PUBLICATION: This report has been prepared for information purposes and is not intended for use in connection with any sale or purchase of or any offer to buy any securities of Entergy Corporation or its subsidiaries. Entergy has made a good faith effort to compile this information. However, due to the evolving nature of ESG reporting and the time lapse for some values, some historical information is based on estimates while other information is taken from actual data reported at the time. For EEI ESG/Sustainability qualitative information, visit entergy.com/sustainability.</small>							
Parent Company: Entergy Corporation Operating Company(s): Entergy Arkansas, LLC, Entergy Louisiana, LLC, Entergy Mississippi, LLC, Entergy New Orleans, LLC, Entergy Texas, Inc., System Energy Resources, Inc., EWC Owned Companies Business Type(s): Vertically Integrated Utility; Additional Wholesale Generation State(s) of Operation: Arkansas, Louisiana, Massachusetts, Michigan, Mississippi, New York, Texas, Massachusetts, Michigan, New York, Texas, Vermont State(s) with RPS Programs: Massachusetts, Michigan, New York, Texas, Vermont Regulatory Environment: Both regulated and deregulated Report Date: March 2019							
Ref. No.	Refer to the Definitions tab for more information on each metric	Third Party Verified	Baseline 2000 Actual	2016 Actual	2017 Actual	2018 Actual	Comments, Links, Additional Information, and Notes
8	Fresh Water Resources						
8.1	Water Withdrawals - Consumptive (Billions of Liters/MWh)	Yes	Not Available	1.85E-06	1.19E-06	1.05E-06	In 2016, Entergy updated the method for determining water use, so prior years are not provided.
8.2	Water Withdrawals - Non-consumptive (Billions of Liters/MWh)	Yes	Not Available	5.75E-05	5.33E-05	4.57E-05	

The information below is made available at part of Entergy's online Performance Data Table, available at https://www.entergy.com/userfiles/content/sustainability/performance_data_table.pdf

ENTERGY PERFORMANCE DATA TABLE					
This data table reports indicators Entergy considers to be important to the company and its stakeholders, and to measure its sustainability. This data is from Entergy's two primary business units: Utilities and EWC. It is based on 100% operational control in all cases except for air emissions which are reported on an equity basis. Additional data and information can be found in our online GRI matrix located at the following web link (HERE).					
AS-REPORTED FINANCIAL HIGHLIGHTS	2014	2015	2016	2017	2018
ENVIRONMENT - Click (here) for these and other environmental metrics sorted by media category.					
Fines and penalties (\$, shown in year paid)	750	12,723	20,000	603,371 ^a	34,250
Water permit exceedences	20	29	24	32	30
Water Withdrawn - used in cooling (millions of cubic meters)	-	-	12,778 ^c	11,262	11,063

Includes settlement regarding 2015 Indian Point transformer failure, executed in 2017 and explained in detail in our 2017 10K.