NRG Energy Inc - Water Security 2022

W0. Introduction

W0.1

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

NRG Energy, Inc., or NRG or the Company, is a consumer services company built on dynamic retail brands. NRG brings the power of energy to customers by producing and selling energy and related products and services, nation-wide in the U.S. and Canada in a manner that delivers value to all of NRG's stakeholders. NRG sells power, natural gas, and home and power services, and develops innovative, sustainable solutions, predominately under the brand names NRG, Reliant, Direct Energy, Green Mountain Energy, Stream, and XOOM Energy. The Company has a customer base that includes approximately 6 million Home customers as well as commercial, industrial, and wholesale customers, supported by approximately 18,000 MW of generation as of December 31, 2021. NRG was incorporated as a Delaware corporation on May 29, 1992. Certain matters discussed in this survey are forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, that are subject to risks and uncertainties. Please see statement below about forward-looking statements.

SAFE HARBOR: In addition to historical information, the information presented in this report includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Exchange Act. These statements involve estimates, expectations, projections, goals, assumptions, known and unknown risks and uncertainties and can typically be identified by terminology such as “may,” “should,” “could,” “objective,” “projection,” “forecast,” “goal,” “guidance,” “outlook,” “expect,” “intend,” “seek,” “plan,” “think,” “anticipate,” “estimate,” “predict,” “target,” “potential” or “continue” or the negative of these terms or other comparable terminology. Such forward-looking statements include, but are not limited to, statements about the Company’s future revenues, income, indebtedness, capital structure, plans, expectations, objectives, projected financial performance and/or business results and other future events, and views of economic and market conditions.

Although NRG believes that its expectations are reasonable, it can give no assurance that these expectations will prove to be correct, and actual results may vary materially. Factors that could cause actual results to differ materially from those contemplated herein include, among others, general economic conditions, hazards customary in the power industry, weather conditions, competition in wholesale power markets, the volatility of energy and fuel prices, failure of customers to perform under contracts, changes in the wholesale power markets, changes in government regulations, the condition of capital markets generally, our ability to access capital markets, cyberterrorism and inadequate cybersecurity, unanticipated outages at our generation facilities, adverse results in current and future litigation, failure to identify, execute or successfully implement acquisitions, repowering or asset sales, our ability to implement value enhancing improvements to plant operations and company-wide processes, our ability to implement and execute on our publicly announced transformation plan, including any cost savings and margin enhancement, our ability to achieve our net debt targets, our ability to proceed with projects under development or the inability to complete the construction of such projects on schedule or within budget, the inability to maintain or create successful partnering relationships, our ability to operate our businesses efficiently, our ability to retain retail customers, our ability to realize value through our commercial operations strategy, the ability to successfully integrate businesses of acquired companies, our ability to realize anticipated benefits of transactions (including expected cost savings and other synergies) or the risk that anticipated benefits may take longer to realize than expected, and our ability to execute our Capital Allocation Plan.

NRG undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. The foregoing review of factors that could cause NRG’s actual results to differ materially from those contemplated in the forward-looking statements included in this report should be considered in connection with information regarding risks and uncertainties that may affect NRG's future results included in NRG's filings with the Securities and Exchange Commission at www.sec.gov.

W-EU0.1a

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

Electricity generation

W-EU0.1b

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

	Nameplate capacity (MW)	% of total nameplate capacity	Gross electricity generation (GWh)
Coal – hard	7920	44	29194
Lignite	0	0	0
Oil	455	3	20
Gas	8149	46	15269
Biomass	0	0	0
Waste (non-biomass)	0	0	0
Nuclear	1132	6	9642
Fossil-fuel plants fitted with carbon capture and storage	0	0	0
Geothermal	0	0	0
Hydropower	0	0	0
Wind	0	0	0
Solar	218	1	740
Marine	0	0	0
Other renewable	0	0	0
Other non-renewable	0	0	0
Total	17874	100	54865

W0.2

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

	Start date	End date
Reporting year	January 1 2021	December 31 2021

W0.3

(W0.3) Select the countries/areas in which you operate.

Australia
United States of America

W0.4

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

USD

W0.5

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

Companies, entities or groups in which an equity share is held

W0.6

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

No

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, an ISIN code	US6293775085
Yes, a Ticker symbol	NRG

W1. Current state

W1.1

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

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	NRG's power generation operations demand sufficient good quality freshwater; direct use is vital for operations. In 2021, 63% of the water used in operations was freshwater for direct use. The primary direct use of freshwater is for the cooling of condensers in the generation of power, with a small amount for steam and WASH (water, sanitation, and hygiene) for workers. Indirect use of good quality freshwater is important for NRG's fuel supply because it is necessary for natural gas production and the manufacturing of chemicals used in the generation of power, therefore indirect use is listed as important. NRG expects the importance of sufficient amounts of good quality freshwater for direct and indirect uses to remain substantially the same in the future. The total volume of freshwater required for direct operations is expected to normalize and eventually decline. However, sufficient amounts of freshwater will remain vital to NRG's overall operations. In addition, sufficient amounts of freshwater are also expected to remain important in NRG's supply chain.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Important	NRG's operation of power generation stations depends on sufficient amounts of recycled, brackish and ocean water to be available, therefore direct use is listed as vital for operations. In 2021, 37% of the water used in operations was recycled, brackish or ocean water for direct use. The primary direct use of brackish and ocean water is for the cooling of condensers in the generation of power. NRG does not use produced water for its operations. NRG suppliers do not indicate that they depend on recycled, brackish or produced water for operations. It is likely that some chemical manufacturing facilities use brackish or recycled water for cooling water in their manufacturing processes; as such, indirect use is listed as important. NRG expects the importance of sufficient amounts of these types of water for direct and indirect uses to remain substantially the same in the future.

W1.2

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

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	NRG measures and monitors water withdrawal total volumes at 20 generation plants, one repair shop, and at office locations. Totals are measured, monitored, and recorded at intervals according to the terms of their permits and are recorded at least monthly in NRG systems. Monitoring frequency and method vary by individual site and permit but are typically measured monthly via a meter or calculated using specific pump rating specifications and hours of operation. The 20 generating locations comprise 99.9% of NRG's total water withdrawal. NRG has a trained environmental professional assigned to each of the generating stations who tracks withdrawal by source. All generation facilities report the cubic meters in NRG's environmental management information system. Withdrawals at non-reporting locations are calculated by the number of site personnel. This data is used to benchmark, manage water withdrawals, and evaluate water total withdrawal.
Water withdrawals – volumes by source	100%	NRG measures and monitors water withdrawal total volumes in millions of gallons that are converted to cubic meters, at 20 generation plants, one repair shop, and at office locations. Totals by source are measured, monitored, and recorded at intervals according to the terms of their permits. Monitoring frequency and method vary by individual site and permit but are typically measured monthly via a meter or calculated using specific pump rating specifications and hours of operation. The generating locations comprise 99.9% of NRG's total water withdrawal. NRG has a trained professional assigned to each of the generating stations who tracks withdrawal by source using observed metered data and reports the cubic meters in NRG's environmental management information system. Withdrawals at non-reporting locations are calculated by the number of site personnel. This data is used to benchmark, manage water withdrawals, and evaluate water withdrawal sources.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	76-99	NRG measures and monitors water withdrawal quality at select facilities where it is a regulatory requirement. Quality is measured, monitored, and recorded at intervals according to the terms of plant permits, and while means of measurement vary by individual site and permit, is typically measured through sampling and testing on at least a monthly basis. When capacity is available, these tests are analyzed directly in on-site labs. Other samples are sent to external labs for analysis. NRG also measures and monitors water withdrawal quality on a voluntary basis at select facilities. NRG holds 38 wastewater discharge permits. The generating locations with wastewater discharge permits comprise 99.9% of NRG's total water withdrawal. NRG has a trained environmental professional assigned to each generating station who tracks withdrawal quality by source using established on-site and off-site sample testing methodologies and reports the data in NRG's environmental management system.
Water discharges – total volumes	100%	NRG measures and monitors water discharges total volume in millions of gallons that are converted to cubic meters, at generating operations with wastewater discharge permits. Totals are measured, monitored, and recorded at intervals according to the terms of their permits, and are recorded at least monthly in NRG systems. Water discharge volume metrics are recorded monthly on the Discharge Monitoring Reports based off of meters or calculated using methods such as pump curves. The generating stations with wastewater discharge permits represent 99.9% of the total water discharged by volume. NRG has staff trained on water accounting and follows the GRI water reporting standards to report observed metered data at each of the generating stations that tracks discharge by volume and reports the cubic meters in NRG's environmental management information system. This data is reported to state agencies as required by each site's wastewater permit.
Water discharges – volumes by destination	100%	NRG measures and monitors water discharges volumes by destination in millions of gallons that are converted to cubic meters, at 20 generation plants, one repair shop, and at office locations. Totals are measured, monitored, and recorded at intervals according to the terms of plant permits, and are recorded at least monthly in NRG systems. The generating stations are 99.9% of the total water discharged by destination. NRG has a water expert that is trained on water accounting and follows the GRI water reporting standard to report observed metered data, tracks discharge by destination and reports in NRG's environmental management information system. This data is reported to state agencies as required by each site's wastewater permit. This data is used to benchmark and manage water discharge by destination.
Water discharges – volumes by treatment method	100%	NRG measures and monitors water discharge - volume by treatment method at generation plants with wastewater discharge permits. Totals are measured, monitored, and recorded at intervals according to the terms of plant permits and are recorded at least monthly in NRG systems. Water treatment metrics are recorded monthly and are reported on the Discharge Monitoring Reports based off of meters or calculated using methods such as pump curves. The generating stations with wastewater discharge permits represent 99.9% of the total water discharge - volume by treatment method. Data is reported to state agencies as required by each site's wastewater permit. Permit non-compliance incidents are reported and tracked in NRG's environmental management system.
Water discharge quality – by standard effluent parameters	100%	NRG measures and monitors water discharge quality data, quality by standard effluent parameters, at its generating operations with wastewater discharge permits. Quality is measured, monitored, and recorded at intervals according to the terms of plant permits, and while means of measurement vary by individual site and permit, is typically measured through sampling and testing at a third-party lab on at least a monthly basis. NRG measures and monitors discharge parameters primarily via effluent quality field measurement instrumentation including pH probes, sample collection and by a third-party lab. Also, plants sample for water quality parameters such as T.S.S, O&G, and heavy metals. The periodicity of sampling is dependent on their permit requirements. All permitted plants record sampling at least monthly. At WA Parish for example, for pH, a sample is collected once per week and is tested in the on-site lab within 15 minutes. All permitted plants record sampling at least monthly.
Water discharge quality – temperature	100%	Water discharge quality - temperature is measured, monitored, and recorded at intervals according to the terms of plant permits, and while means of measurement vary by individual site and permit, is typically measured at the outlet site on at least a monthly basis. NRG measures and monitors discharge quality temperature based on continuous measurement outfall points using measurement devices such as thermocouples, which send the data to the control room and to NRG Environmental personnel through PI and DCS (Digital Control Systems). At WA Parish, temperature is measured at both outfall 001 and outfall 003. We have a probe submersed in the flow that is sampled and recorded by a local data collection device. The frequency is once per minute at outfall 001 and once every two minutes at outfall 003. The final temperature for the daily average is flow-weighted.
Water consumption – total volume	100%	NRG measures and monitors total volume of water consumption at its generating operations with its wastewater discharge permits. Totals are measured, monitored, and recorded at intervals according to the terms of plant permits, and are recorded at least monthly in NRG systems. Discharge Monitoring Reports (DMRs) provide the amount of discharged water and are recorded monthly. We monitor withdrawal rough pump curves, meters, municipal water bills, bills of lading. We monitor discharge via measured and calculated flows recorded on our monthly DMRs. A calculation is performed annually based on instantaneous data and compared to DMR discharge to calculate annual consumption. At WA Parish, for flow at outfall 001, the height of flow through a flume is sampled with an ultrasonic device once permit, and the calculated flow is recorded in a local data collector. For flow at outfall 003, we sum the max flow capability of all pumps feeding the stream. We track the pump on/off for each hour.
Water recycled/reused	26-50	NRG indirectly recycles/reuses water but this is currently not measured or monitored. For example, some generation stations, such as the one in Limestone, intake and release water used from cooling towers and other power plant processes from and to the same water body. As a result, those plants use the same water in their cooling process multiple times, but that water is mixed with other water. Thus, amount of recycled/reused process water are not fully quantified due to commingling from other water sources.
The provision of fully-functioning, safely managed WASH services to all workers	100%	NRG measures and monitors all facilities and provides fully functioning WASH services for all workers. NRG operations are primarily in the United States and OSHA requires WASH services for all workers. The plants use either municipal or onsite water supplies for WASH purposes. Municipal water is measured and monitored per municipality regulations or billing. Sites are inspected by federal regulators in person when randomly selected as part of an OSHA enforcement process, and are informally monitored daily by site management, who report any outages. 100% of NRG facilities have WASH services. Sites are inspected by federal regulators in person when randomly selected as part of an OSHA enforcement process, and are informally monitored daily by site management, who report any outages. 100% of NRG facilities have WASH services.

W1.2b

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

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	2937669	About the same	NRG total water withdrawals remained about the same based on a slight increase of 0.8% in 2021. This increase in total water withdrawals is due to increased power generation. Plants were generating more power due to higher power demand which was a result of the easing of COVID-19 pandemic lockdowns and the associated economic recovery. Additionally, NRG also divested and retired several facilities that withdrew large quantities of water, leading our total water withdrawals to be about the same as last year, as observed by the less than 1% change. About 75% of the water withdrawn is returned to the water body. Future water volumes withdrawn are expected to stay the same or increase slightly over a 1-to 2-year period due to market conditions and shifting of generation asset fuel mix, while following an overall downward trend thereafter. To ensure consistency and relevance, changes to the generation asset portfolio are reflected in 2020 and past data.
Total discharges	2786022	About the same	NRG total discharges remained about the same based on a slight increase of 1.9% in 2021. This increase in total water discharge is due increased power generation. Plants were generating more power due to higher power demand which was a result of the easing of COVID-19 pandemic lockdowns and the associated economic recovery. Additionally, NRG also divested and retired several facilities which discharged large quantities of water, leading our total water discharges to be about the same as last year, as observed by the less than 2% percentage change. 75% of the water withdrawn is returned to the water body. Future discharges are expected to stay the same or increase slightly over a 1-to 2-year period due to market conditions and shifting of generation asset fuel mix, while following an overall downward trend thereafter.
Total consumption	151647	Much lower	NRG's total water consumption decreased by 16% in 2021 due to divestitures and the retirement of facilities that consumed higher quantities of water. Facility water experts evaluate data and calculation methods to ensure data accuracy. Consumption figures are calculated using this formula: water withdrawals - water discharges = water consumption. Consumption volumes are expected to remain the same in the future.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	26-50	About the same	WRI Aqueduct	The proportion of NRG's 2021 water withdrawals from water stressed areas remains the same from 2020. This is due in part to more NRG relevant U.S. territories being designated as high physical risk zones by WRI Aqueduct. In addition, marked decreases were observed in the volumes of water NRG withdraws at two of the 20 facilities included in the WRI Aqueduct analysis were recorded due to decreased power plant capacity factors. NRG utilizes various tools to assist with Water Risk Assessments. We model water risk using the WRI Aqueduct tool by entering 20 facilities coordinates to map our facilities by region and water basin, then applying facilities water withdrawal data to arrive at a volume from stressed areas. The datasets analyzed by the Aqueduct tool include Overall Water Risk, Physical Risk Quality, Physical Risk Quantity, Regulatory & Reputational Risk, Baseline Water Stress, Inter-Annual Variability, Seasonal Variability, Flood Occurrence, Drought Severity, Threatened Amphibians and Groundwater Stress. To assess the "% withdrawn from areas with water stress," facilities identified as "High (40-80%)" and "Extremely High (>80%)" under Overall Water Risk were summed. 9 facilities were found to be located in regions with high or extremely high baseline water stress. WRI Aqueduct data is applied internally to help determine candidates for internal audit and third-party assurance.

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	1851322	Much higher	The primary direct use of freshwater is for the cooling of condensers in the generation of power, with a small amount for steam and WASH (water, sanitation, and hygiene) for workers. NRG fresh surface water withdrawals increased by 25% in 2021. The increase in freshwater withdrawal is due to increased generation at high water use plants that utilize freshwater for their operations. The pandemic event of 2020 also contributed to the unusual increase in generation capacity due to shifting consumer consumption and power demand. Future freshwater volumes withdrawn are expected to stay the same or increase over a 1- to 2- year period due to market conditions following an overall downward trend thereafter.
Brackish surface water/Seawater	Relevant	1074569	Much lower	The primary direct use of brackish surface water/seawater is for the cooling of condensers in the generation of power. NRG brackish surface water/seawater withdrawals decreased by 25% in 2021. The decrease in brackish surface water/seawater is due to decreased generation at high water use plants that utilize brackish surface water/seawater for their operations. Future brackish water volumes withdrawn are expected to stay the same or increase over a 1- to 2- year period due to market conditions and then follow an overall downward trend.
Groundwater – renewable	Not relevant	<Not Applicable>	<Not Applicable>	NRG does not differentiate between renewable and non-renewable groundwater in our water accounting and is considering new data collection methodologies to be implemented in the future to distinguish between the two. Currently, as a conservative measure, all groundwater for the purposes of this disclosure is reported under non-renewable groundwater. We anticipate renewable groundwater to make up a portion of our groundwater use in the future, when measurement of this resource is available.
Groundwater – non-renewable	Relevant	11778	About the same	The primary direct use of groundwater is for the cooling of condensers in the generation of power, with a small amount for steam and WASH (water, sanitation, and hygiene) for workers. NRG recorded about the same non-renewable groundwater volumes withdrawn during 2021, compared to 2020, although the relative amount of groundwater used is very small as compared to other sources of water. The slight decrease in non-renewable groundwater volumes, which was calculated to be a 3% decrease since 2020, was due to lower run times at plants that use groundwater. Future volumes are expected to remain relatively constant.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	NRG does not use produced/processed water at any of our generating assets because it is not generated in onsite processing of raw materials. Future volumes are expected to remain constant.
Third party sources	Not relevant	<Not Applicable>	<Not Applicable>	NRG does not use produced/processed water at any of our generating assets because it is not generated in onsite processing of raw materials. Future volumes are expected to remain constant.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	2231577	Much higher	Discharges to fresh surface water are relevant to NRG because plants are sited based on available cooling water and the ability to discharge to appropriate locations based on permits. Plants located near rivers will discharge to that destination, and plants near lakes will discharge to that destination. NRG fresh surface water discharges increased by 31% in 2021. The increase in freshwater discharge is due to increased generation at high water use plants. Future freshwater volumes discharged are expected to stay the same or increase over a 1 to 2 year period due to market conditions and then follow an overall downward trend.
Brackish surface water/seawater	Relevant	548181	Much lower	Discharges to brackish surface water/seawater are relevant to NRG because plants are sited based on available cooling water and the ability to discharge to appropriate locations, therefore plants located near brackish surface water bodies will discharge to that destination, and plants near the ocean will discharge to that destination, etc. NRG brackish surface water/seawater discharges was much lower in 2021 showing a 46% decrease from 2020. The decrease in brackish surface water/seawater discharge is due to decreased generation at high water use plants that utilize this water source. Future brackish water volumes withdrawn are expected to decrease over a 1-to 2-year period due to plant retirements, following an overall downward trend.
Groundwater	Relevant	400	About the same	NRG typically discharges water into the ground relative to other discharge destinations, as plants are typically sited near other destinations better suited for power generation water discharge processing. Regardless, this destination is deemed relevant to NRG because we have a very small amount of wastewater discharge to the groundwater. The amount of groundwater discharged was about the same compared to 2020. Operational activities at the facilities discharging to groundwater sources remained the same, so no material changes to the quantity of groundwater discharged were recorded. Future volumes are expected to remain substantially the same.
Third-party destinations	Relevant	5864	Much lower	NRG discharges water to third party destinations when available, as it often creates a revenue stream. NRG discharged a much lower water volume to third party destinations during 2021. WA Parish Generating Station comprises all of NRG's water discharged to others, with approximately 75% going to rice farmers and 25% going to other users for industrial purposes. During 2021, WA Parish Generating Station discharged 43% less water to third-party sources. WA Parish discharged most of its water to freshwater sources during 2021. Future volumes are expected to stabilize and remain relatively constant.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	1266	This is our first year of measurement	100%	1,266 megaliters of water discharged by NRG facilities was treated to the primary level. We treat discharge to remove nitrogen and phosphorus, along with other dissolved inorganic substances through coagulation, sedimentation, activated carbon adsorption and ion exchange methods. Discharge volumes were subject to strict water quality controls before being released to receiving water bodies. Water discharge level and type of treatments are based on the requirements of our discharge permits and their corresponding regulatory limits. Water treatment metrics are recorded monthly on the Discharge Monitoring Reports, along with measurements at the various discharge outfalls.
Secondary treatment	Relevant	274	This is our first year of measurement	100%	274 megaliters of water discharged by NRG facilities was treated to the secondary level. Discharge containing organic compounds is generated at our facilities that clean and process natural rubber. We monitor water discharge quality (e.g., pH, BOD, COD, SS, harmful substances, etc.) based on applicable regulations by continuous real time monitoring or third-party sampling analysis at all of our facilities (mostly on a monthly basis). Water discharge level and type of treatments are based on the requirements of our discharge permits and their corresponding regulatory limits. Water treatment metrics are recorded monthly on the Discharge Monitoring Reports, along with measurements at the various discharge outfalls.
Primary treatment only	Relevant	526831	This is our first year of measurement	100%	526,831 megaliters of water discharged by NRG facilities was treated to the primary level. This discharged water is treated to the primary level before discharge to local treatment facilities under municipal discharge permits. Primary treatment varies depending on the characteristics of the sub-operation's discharge, and may include pH adjustment, flocculation, sedimentation and filtration. Water discharge level and type of treatments are based on the requirements of our discharge permits and their corresponding regulatory limits. Water treatment metrics are recorded monthly on the Discharge Monitoring Reports, along with measurements at the various discharge outfalls.
Discharge to the natural environment without treatment	Relevant	2434032	This is our first year of measurement	100%	Water discharge level and type of treatments are based on the requirements of our discharge permits and their corresponding regulatory limits. Water volumes which do not need to be treated per the discharge permits we comply with are discharged to the natural environment without treatment. Water treatment metrics are recorded monthly on the Discharge Monitoring Reports, along with measurements at the various discharge outfalls.
Discharge to a third party without treatment	Relevant	18	This is our first year of measurement	100%	At our facilities, water is used for drinking water and sanitation/hygiene services. These volumes are discharged to a third party without treatment. The third party (municipal sewage treatment plant) applies a conventional secondary treatment, and the treatment plant publicly states compliance with local water regulations.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	Other discharges are not relevant in this report.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	26989000000	2937669.09	9187.2158 4125052	The total water withdrawal efficiency metric is expected to stay the same or decrease slightly over a 1-to 2-year period due to shifting generation asset fuel mix and portfolio makeup but will increase in the longer term in line with reduction in once through cooling systems associated with coal generation and follow an overall upward trend thereafter. Our portfolio decarbonization efforts remain ongoing and as we progress towards this goal, our total water withdrawal efficiency will increase.

W-EU1.3

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

Yes

W-EU1.3a

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

Water intensity value (m3)	Numerator: water aspect	Denominator	Comparison with previous reporting year	Please explain
0.06	Total water withdrawals	MWh	About the same	In 2021 NRG's total water withdrawal intensity per unit of electricity generation was 0.06 megaliters (15,850 gallons) per MWh. Last year, NRG's total water withdrawal intensity per unit of electricity generation was 0.08 megaliters (20,341 gallons) per MWh. Hence, our water intensity value is about the same compared to the previous reporting year figure. The slightly lower water withdrawal intensity is due to the divestments of higher water withdrawing plants. It had been anticipated that intensity may increase over the next one to two years based on shifting generation asset fuel mix and portfolio makeup but will decrease in the longer term in line with reduction in once-through cooling systems associated with coal generation. This metric is used internally to support the development of sustainability initiatives related to water, for instance the development of new water targets. In 2021, as part of a larger corporate strategy to reduce water withdrawal intensity, NRG continues to undergo detailed water desktop audits at three high use generation stations to reveal gaps in measurement and reporting quality as well as reasons behind high water use, with the goal of further developing strategies to reduce water withdrawal intensity at the fleet level. . Water reduction in our plant operations is an important part of our overall sustainability strategy.

W1.4

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

Yes, our customers or other value chain partners

W1.4c

(W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

With customers, NRG's Business Solutions' team provides value-add and/or stand-alone sustainability advisory services to customers in need of specific or holistic approach to their corporate sustainability program. Among resources frequently discussed during engagement is water conservation. In 2021, we guided more business customers to sustainable solutions. Our method for doing so was leveraging our energy industry knowledge, a technology-agnostic mindset, and a focus on their unique situations, goals, and needs. From there, robust solutions — efficient, resilient, cost-effective, and sustainable — naturally emerged. We routinely track and measure the success of our engagement practices. In 2021, the percentage of customers asking for NRG business solutions services is more than 50%, considering that we have not fully implemented the sustainability advisory services marketing plan for the year, which slowed down due to the pandemic. With partners in the value chain, NRG is a founding member of the Natural Gas Supply Collaborative (NGSC). NGSC has 16 members, including NRG, representing some of the industry's biggest natural gas purchasers that are promoting safe and responsible practices for natural gas supply. NRG has worked with this group on establishing environmental and social indicators for natural gas producers, one of which is water. Among the indicators for water are: (1) Quantitative: water use (total and freshwater intensity), water testing, spill reporting; (2) Management Strategy (qualitative): freshwater use strategy, well planning and integrity strategy, wastewater management strategy. We continuously engage with the other members of the NGSC by harnessing open and constant communication in addition to regularly scheduled meetings. This way, novel problems and expectations can be identified, predicted and responded to. This reduces the risk of future water-related conflicts.

W2. Business impacts

W2.1

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

No

W2.2

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

No

W3. Procedures

W-EU3.1

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

NRG identifies and classifies potential water pollutants according to regulatory requirements. We obtain all required permits and report results of water discharges to regulatory agencies monthly, typically the U.S. state. We have 38 wastewater discharge permits in the U.S. 4 total exceedances were found and promptly recorded in 2021. Exceedance information is entered in our incident management system, which enables NRG management to identify the root cause and correct it. We assess our operations each month through our environmental key performance indicator (EKPI), which measures leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws. Our goal for 2021 was to have all of our plants meet their plant-specific targets, and we achieved a 93.1 percent success result.

NRG follows EPA regulations pertaining to waste from the power generation process. On April 17, 2015, the EPA enacted a rule which regulates the disposal of CCRs (coal combustion residuals). We maintain a CCR Rule Compliance Data and Information page on nrg.com as required. In 2021, NRG has 11 surface impoundments defined by 40 CFR 257.2 as a facility or part of a facility that is a natural topographic depression, human-made excavation or diked area formed primarily of earthen materials. The CCR regulations require impoundments that meet the criteria of 40 CFR 257.73 to have a third-party professional engineer conduct a hazard potential classification assessment. 6 out of 11 impoundments subject to the rule were found to be of satisfactory (the highest rating available) on structural integrity in 2021. While the rest have been classified under not applicable (N/A) category.

Reducing effluents and waste is important to us as stewards of the environment. NRG relies on regulatory agencies to evaluate potential water-related impacts on ecosystems and human health caused by potential pollutants and set appropriate standards. These impacts include potential adverse wildlife, plant life, and human health impacts of wastewater permit exceedances. Should a wastewater permit exceedance occur, we determine the root cause and correct it. Spill Prevention Countermeasure and Control Plans and Stormwater Pollution Prevention Plans at every facility include requirements such as secondary containment procedures for materials; emergency responder procedures; and emergency equipment ready for deployment such as booms and absorbents to prevent hydrocarbons reaching any body of water. NRG requires these measures at every facility regardless of local regulation. In 2021, NRG owned and operated facilities generated 1,179,000 metric tons of coal combustion residuals (CCR), more than 853,000 metric tons (72 percent) of which were recycled. The percentage of recycled CCR has increased by 10.8% since 2017.

NRG is continuously in the process of identifying water related risks in our supply chain, primarily related to fuels. Natural gas is an increasingly important fuel to keep power affordable and to add flexible fast-start capacity that allows faster scaling of renewables on the grid. Specific human health, ecosystem and water impacts possible in this part of our value chain, according to the EPA, include activities in the hydraulic fracturing water cycle, which may negatively impact the quality or quantity of drinking water or air quality. To encourage responsible natural gas production, NRG is part of the Natural Gas Supply Collaborative, which calls on natural gas producers to disclose information related to methane and air emissions, water quality, chemicals and community health and safety. Water impacts included in the Collaborative's call for disclosure include Water Use (Total and Freshwater Intensity), Water Testing, Spill Reporting, Freshwater Use Strategy, Well Planning and Integrity Strategy, and Wastewater Management Strategy. Regulators and civil society groups have been engaging natural gas producers for years, but the Collaborative is the first example of major corporate consumers articulating their sustainability priorities as a group. NRG is continuing to engage with the Collaborative to further incentivize production practices that minimize negative environmental and social impact.

W-EU3.1a

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

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
Hydrocarbons	In the case of a spill or unpermitted discharge, hydrocarbons present at generation facilities could cause groundwater contamination or water body contamination. The scale and magnitude of the potential impact would depend on the size of the spill or unpermitted discharge, the location of the impact, as well as the type of hydrocarbon, ranging from minimal to substantive. We operate within the limits of wastewater discharge permits. Those limits are dictated, developed, and prepared by the states based on their rigorous analysis and monitoring.	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness	NRG's system maintenance and operations procedures are designed to ensure compliance with effluent quality standards at every facility. NRG has in place comprehensive spill prevention plans at every generation facility. Spill Prevention Countermeasure and Control Plans and Stormwater Pollution Prevention Plans at every facility include requirements such as secondary containment procedures for materials; emergency responder procedures; and emergency equipment ready for deployment such as booms and absorbents to prevent hydrocarbons reaching any body of water. NRG requires these measures at every facility regardless of local regulation. Operations are assessed each month through our environmental key performance indicator (EKPI), which measures a number of leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws. Our goal for 2021 was to have all of our plants meet their plant-specific targets, and we achieved a 93.1 percent success result. To continuously improve environmental performance, we use an Environmental Management Information System (EMIS). This system provides us the tools and transparency to efficiently track our generation fleet's environmental performance. We use EMIS and root cause applications to report incidents, analyze root causes and ensure completion of corrective actions.

Potential water pollutant	Description of water pollutant and potential impacts	Management procedures	Please explain
Coal combustion residuals	An unpermitted discharge from a coal combustion residual impoundment could cause groundwater contamination or water body contamination. The scale and magnitude of the potential impact would depend on the size of the spill or unpermitted discharge and the location of the impact, ranging from minimal to substantive. We operate within the limits of our permits. Those limits are dictated, developed, and prepared by the states based on their rigorous analysis and monitoring.	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness	NRG's system maintenance and operations procedures are designed to ensure compliance with effluent quality standards at every facility. NRG has in place comprehensive spill prevention plans at every generation facility. Spill Prevention Countermeasure and Control Plans and Stormwater Pollution Prevention Plans at every facility include requirements such as secondary containment procedures for materials; emergency responder procedures; and emergency equipment ready for deployment such as booms and absorbents to prevent hydrocarbons reaching any body of water. NRG requires these measures at every facility regardless of local regulation. Operations are assessed each month through our environmental key performance indicator (EKPI), which measures a number of leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws. NRG follows EPA regulations pertaining to waste from the power generation process. On April 17, 2015, the EPA enacted a rule which regulates the disposal of CCRs (coal combustion residuals). We maintain a CCR Rule Compliance Data and Information page on nrg.com as required. NRG has 11 surface impoundments defined by 40 CFR 257.2 as a facility or part of a facility that is a natural topographic depression, human-made excavation or diked area formed primarily of earthen materials. The CCR regulations require impoundments that meet the criteria of 40 CFR 257.73 to have a third-party professional engineer conduct a hazard potential classification assessment. Success is measured by number of impoundments subject to the rule found to be of satisfactory (the highest rating available) structural integrity. 6 out of 11 impoundments subject to the rule were found to be of satisfactory structural integrity in 2021. To continuously improve environmental performance, we use an Environmental Management Information System (EMIS). This system provides us the tools and transparency to efficiently track our generation fleet's environmental performance. We use EMIS and root cause applications to report incidents, analyze root causes and ensure completion of corrective actions.
Contaminated cooling water	In case of a release, chemicals used in cooling tower blowdown could cause groundwater contamination or water body contamination. The scale and magnitude of the potential impact would depend on the size of the spill or unpermitted discharge and the location of the impact, ranging from minimal to substantive. We operate within the limits of our permits. Those limits are dictated, developed, and prepared by the states based on their rigorous analysis and monitoring.	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness	NRG's system maintenance and operations procedures are designed to ensure compliance with effluent quality standards at every facility. NRG has in place comprehensive spill prevention plans at every generation facility. Spill Prevention Countermeasure and Control Plans and Stormwater Pollution Prevention Plans at every facility include requirements such as secondary containment procedures for materials; emergency responder procedures; and emergency equipment ready for deployment such as booms and absorbents to prevent hydrocarbons reaching any body of water. NRG requires these measures at every facility regardless of local regulation. Operations are assessed each month through our environmental key performance indicator (EKPI), which measures a number of leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws. Our goal for 2021 was to have all of our plants meet their plant-specific targets, and we achieved a 93.1 percent success result. To continuously improve environmental performance, we use an Environmental Management Information System (EMIS). This system provides us the tools and transparency to efficiently track our generation fleet's environmental performance. We use EMIS and root cause applications to report incidents, analyze root causes and ensure completion of corrective actions.
Thermal pollution	Water is drawn into our facilities for cooling purposes, is warmed in the process of cooling the equipment, and is then discharged. The delta-T between intake and discharge temperatures is subject to regulatory monitor and permit due to potential ecological impacts of warmed water. The potential impacts of thermal pollution include damage to water ecosystems and the loss of biodiversity by death of aquatic plants, insects, fish, and amphibians as a consequence of thermal shock. The scale and magnitude of the potential impact on ecosystems and human health is relatively low as water temperature is able to be controlled using various methods, including reducing the amount of power a facility is generating (derating) in order to maintain discharge temperatures within the limits. We operate within the limits of our permits. Those limits are dictated, developed, and prepared by the states based on their rigorous analysis and monitoring.	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness	NRG's system maintenance and operations procedures are designed to ensure compliance with thermal water discharge standards at every facility. In accordance with local permit criteria water temperature is controlled using various methods, including reducing the amount of power a facility is generating (derating) in order to maintain discharge temperatures within the limits. Operations are assessed each month through our environmental key performance indicator (EKPI), which measures a number of leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws. To continuously improve environmental performance, we use an Environmental Management Information System (EMIS). This system provides us the tools and transparency to efficiently track our generation fleet's environmental performance. We use EMIS and root cause applications to report incidents, analyze root causes and ensure completion of corrective actions. Our goal for 2021 was to have all of our plants meet their plant-specific targets, and we achieved a 93.1 percent success result.
Other, please specify (Metals, TSS, Oil, and Grease)	NRG monitors for metals in discharge at several generation stations, as well as total suspended solids (TSS), and oil and grease. The scale and magnitude of the potential impact would depend on the size of the spill or unpermitted discharge and the location of the impact. TSS, oil and grease in discharged water causes dissolved oxygen levels in the water to decrease, which may lead to the loss of biodiversity in the impacted area. Relatively small volumes of these materials onsite make impacts less substantive. We operate within the limits of wastewater discharge permits. Those limits are dictated, developed, and prepared by the states based on their rigorous analysis and monitoring.	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Emergency preparedness	NRG's system maintenance and operations procedures are designed to ensure compliance with effluent quality standards at every facility. NRG has in place comprehensive spill prevention plans at every generation facility. Spill Prevention Countermeasure and Control Plans and Stormwater Pollution Prevention Plans at every facility include requirements such as secondary containment procedures for materials; emergency responder procedures; and emergency equipment ready for deployment such as booms and absorbents to prevent hydrocarbons reaching any body of water. NRG requires these measures at every facility regardless of local regulation. Operations are assessed each month through our environmental key performance indicator (EKPI), which measures a number of leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws. To continuously improve environmental performance, we use an Environmental Management Information System (EMIS). This system provides us the tools and transparency to efficiently track our generation fleet's environmental performance. We use EMIS and root cause applications to report incidents, analyze root causes and ensure completion of corrective actions. Our goal for 2021 was to have all of our plants meet their plant-specific targets, and we achieved a 93.1 percent success result.

W3.3

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

Yes, water-related risks are assessed

W3.3a

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

Value chain stage
Direct operations

Coverage
Full

Risk assessment procedure
Water risks are assessed as a standalone issue

Frequency of assessment
Annually

How far into the future are risks considered?
More than 6 years

Type of tools and methods used
Tools on the market
International methodologies and standards
Databases

Tools and methods used
WRI Aqueduct
Other, please specify (Facility-specific annual risk assessments, annual permit reviews, tracking trends and emerging regulations and trade organizations)

Contextual issues considered
Water availability at a basin/catchment level
Water regulatory frameworks
Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered
Customers
Employees
Investors
Local communities
Regulators

Comment
NRG evaluates water risk at all generating stations in our direct operations. A comprehensive company-wide risk assessment approach is taken because water risk is linked with other risks, such as air emissions. Each generating facility is unique and NRG's approach identifies and addresses water risks for each location. Risks are identified, evaluated, and responded to by managing plant operations.

Value chain stage
Supply chain

Coverage
Full

Risk assessment procedure
Water risks are assessed in an environmental risk assessment

Frequency of assessment
More than once a year

How far into the future are risks considered?
More than 6 years

Type of tools and methods used
Enterprise risk management
International methodologies and standards
Databases

Tools and methods used
Environmental Impact Assessment
Regional government databases
Other, please specify (Internal Company Methods, Reporting protocols and standards from GRI, DTF, CDP and IPIECA. Management Strategies on Freshwater Use, Well Planning and Integrity, and Wastewater Management.)

Contextual issues considered
Water availability at a basin/catchment level
Water regulatory frameworks
Status of ecosystems and habitats

Stakeholders considered
Customers
Employees
Investors
Local communities

Comment
NRG is a founding member of the Natural Gas Supply Collaborative (NGSC). NRG has worked with this group on establishing environmental and social indicators for natural gas producers, one of which is water. Among the indicators for water are (1) Quantitative: water use (total and freshwater intensity), water testing, spill reporting; (2) Management Strategy (qualitative): freshwater use strategy, well planning and integrity strategy, wastewater management strategy.

We are internally evaluating a supplier engagement strategy for our natural gas suppliers to engage them on water management. For reference see: https://www.mjbradley.com/sites/default/files/NGSCIndicatorsFinal.pdf.

W3.3b

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

NRG identifies and assesses water risk for all direct operations using a company-wide risk assessment approach because water risk is linked with other risks, such as air emissions.

The risk identification, assessment, and response process apply to both direct operations and supply chain. NRG uses measures, metrics and indicators leveraging management and professional judgment in:

1. Financial impact: Corporate earnings and capital expenditure on technologies to reduce water consumption and withdrawal
2. Plant operation: Operation disruption due to shortage; Increase in water cost; Value chain risks
3. Environmental impact: Availability; Quality of river basins; Regulations on supply or management of water

Water risk is monitored by the risk owners (individual plant operators) on an ongoing basis and reported to management upon material changes with a threshold of 20% in water consumption and withdrawal levels. If determined through risk management analysis appropriate to the scenario that a water supply risk exists that could impact projected generation levels at any plant within a two-year time frame, risk mitigation efforts are identified and economically evaluated for implementation. Water regulatory frameworks are also monitored to ensure that we are in compliance with the current environmental regulations and can continue to satisfy any new rules proposed by state environmental agencies. NRG conducts specific annual risk assessments, annual permit reviews, tracking trends and emerging regulations and trade organizations. The status of ecosystems and habitats are monitored to ensure that each facility we are operating is in compliance with its permit requirements. Not complying with permit requirements could result in the facility being fined or facing legal action. NRG's system maintenance and operations procedures are designed to ensure compliance with thermal water discharge standards at every facility so that the ecosystems and habitats of aquatic life in the region remain unaffected. NRG measures and monitors all facilities and provides fully functioning WASH services for all workers. NRG operations are primarily in the United States and OSHA requires WASH services for all workers. Sites are inspected by federal regulators in person when randomly selected as part of an OSHA enforcement process, and are informally monitored daily by site management, who report any outages. NRG Plant Ops reviews modelling scenarios generated. Plant water usage is reviewed annually. Analysis is reviewed by the senior leaders of NRG Operations, Engineering and Commercial Operations. On a case-by-case basis if an issue is identified it is escalated to the appropriate business unit to be addressed in line with risk, context of the issue, and budget. The WRI Aqueduct tool is used annually to develop a high-level view of basin level risk that informs strategic decision-making and the setting of goals and targets. Water availability at a basin/catchment level is monitored as part of overall process for assessing water risk. 9 facilities were found to be located in regions with high or extremely high baseline water stress this year, a number which has decreased by 36% since last year. This tool is utilized to access the entirety of our generation fleet. It provides full coverage of our direct operations and was chosen because of its open-source nature and ease of use. Each generating facility is unique. The water risk approach identifies and addresses risks for each covering:

1. Availability
2. Quality
3. Regulatory
4. Stakeholders
5. Value chain impacts
6. Financial
7. Operational
8. Environmental

When assessing water-related risks within our direct operations – we consider our customers, who expect power to be provided to them without interruptions in service. Our investors expect us to carry out our operations with sustainability in mind. NRG is committed to reducing environmental impacts across all our operations, which includes mitigating water-related risks. Safety and Well-being are part of the core values at NRG and have always been a priority for our employees. We provide WASH services for all workers. These services are monitored daily to ensure no outages. Finally, with 2,937,669 megaliters of water discharged per year, it is important for NRG to reduce risk and consider the health of water basins NRG and our communities rely on. We are evaluating how to have a more consistent impact on water in the environment and in the communities where we operate if our business composition changes. Risk response decisions are primarily made and executed by managing plant operations to maintain compliance with all regulations.

W4. Risks and opportunities

W4.1

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

Yes, both in direct operations and the rest of our value chain

W4.1a

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

NRG's definition of substantive water risk is the possibility that an event will occur and significantly alter the achievement of NRG's business goals. For example, material changes with a threshold of 20% in water consumption and withdrawal levels would trigger a report to the management by the risk owners. Risk identification and assessment process applies to both direct operations and supply chain. NRG uses the measures, metrics and indicators for water risk assessment leveraging the management and professional judgment from the following perspectives:

Financial impact
1) Corporate earnings
2) Capital expenditure on technologies to reduce water consumption and withdrawal

Plant operation
1) Operation disruption due to water shortage
2) Increase in costs of water usage
3) Value chain risk

Environmental impact
1) Water availability
2) Water quality of river basins
3) Regulations that impact supply and/or management of water

Water risks, for the purposes of this disclosure, are considered to have substantive financial impact to NRG's business if they could impact a significant proportion of the company's gross margin from power generation in a given region. An example is the risk of water shortage in the Brazos River and its potential to interrupt operations at the WA Parish plant, which is one of the biggest in our Texas fleets. If it is determined that a water supply risk exists that could impact projected generation levels within any plant within the subsequent two-year time frame, risk mitigation efforts are identified and economically evaluated for implementation. NRG SVP, Plant Operations reviews modelling scenarios generated for water risk determination. Plant level NRG Water usage analysis is reviewed annually. NRG water usage analysis is reviewed by the senior leaders of NRG Operations, Engineering and Commercial Operations.

W4.1b

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

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	2	1-25	NRG considers 2 facilities to represent exposure to water risks with the potential to have a substantive financial or strategic impact on our business, comprising less than 25 percent of our company-wide facilities.

W4.1c

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

Country/Area & River basin

United States of America	Brazos River

Number of facilities exposed to water risk
2

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
1-25

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
21-30

Comment
NRG has 2 stations on the Brazos River, Limestone Generating Station and WA Parish Generating Station that are exposed to water risk. Together, Limestone and WA parish annual gross margins represent a significant amount of NRG's annual economic gross margin of $5,573 million, as reported in the company's 2021 Form 10-K. The Brazos River has many stakeholders that depend on water. Drought conditions have the potential to make water unavailable for stakeholders.

W4.2

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

Country/Area & River basin

United States of America	Brazos River

Type of risk & Primary risk driver

Chronic physical	Water scarcity

Primary potential impact
Reduction or disruption in production capacity

Company-specific description
NRG has 2 stations on the Brazos River, Limestone Generating Station and WA Parish Generating Station that are exposed to water risk. These two generating stations have a combined capacity of 5,292 MW, representing 25% of NRG's total rated capacity for 2021. This is one of the main reasons why the Brazos River is important to NRG operations.

In addition, Brazos River also has many stakeholders that depend on water. The water in the Brazos River is 100% accounted for through water rights. Drought conditions have the potential to make water unavailable for stakeholders. Lack of water availability at these generating stations could lead to interruptions in our direct operations. This impact is current and is modelled to 2060. This risk was identified using internal company methods. NRG Comm Ops Managers and internal forecasting resources manage risk associated with water availability.

Timeframe
1-3 years

Magnitude of potential impact
High

Likelihood
Unlikely

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact
In the unlikely event of water unavailability in the Brazos River basin, it is assumed that Limestone Generating Station would be most at risk of an operational interruption due to water contracts.

Primary response to risk
Engage with regulators/policymakers

Description of response
NRG has engaged with regulators to respond to this risk. Specifically, NRG has secured "firm" water supplies through contracts with the Brazos River Authority (BRA) for 150,000 acre - feet per year through state-issued permits; issued in 1926. The BRA control more than 750,000 acre-ft of water stored in 11 large reservoirs across the Brazos River Basin. "Firm" water is the amount of water that has been modelled by the Texas Commission on Environmental Quality as being available on a year-to-year basis through the 9 year "drought of record" in the Brazos River Basin. NRG was one of several parties that successfully petitioned for implementation of a watermaster program in the Brazos River Basin, a Texas Commission on Environmental Quality (TCEQ) program that regulates diverters in accordance with state water law during periods of water shortage. NRG first petitioned for the implementation of a watermaster program in the Brazos River Basin during 2013 and the Final Order from TCEQ was received in April 2014.

Cost of response

Explanation of cost of response
These NRG stations are located in the Gulf Coast Region. The cost for firm water and the annual cost of the watermaster (which is paid for by all customers on the Brazos River) includes 1 FTE + the cost of the water + the cost of the Watermaster, which is annual.

W4.2a

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

Country/Area & River basin

United States of America	Brazos River

Stage of value chain
Supply chain

Type of risk & Primary risk driver

Reputation & markets	Changes in consumer behavior

Primary potential impact
Constraint to growth

Company-specific description
NRG has identified natural gas as a key focus area in our supply chain. A recent supply chain materiality assessment showed our riskiest spend categories are associated with fuels (supply and transport), and spending data analyzed in the assessment suggested that NRG should prioritize risk reduction in natural gas due to the shifting asset base. Natural gas, which makes up more than 46% of our nameplate capacity, is an increasingly important fuel to keep power affordable and to add flexible fast-start capacity that allows faster scaling of renewables on the grid, and as a result it will be vital to NRG's supply chain for years to come. Lack of visibility into water impacts in the natural gas supply chain poses a risk to NRG.

Timeframe
4-6 years

Magnitude of potential impact
Medium

Likelihood
Unlikely

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact
Many variables are involved in this value chain risk, and the first step toward developing an understanding of the financial impact is to increase our visibility into the magnitude of the risk through increased disclosure by suppliers and continued assessment of our value chain.

Primary response to risk

Supplier engagement	Promote adoption of waste water management procedures among suppliers

Description of response
To encourage responsible natural gas production, NRG partners with 12 companies that comprise more than 13% of the market for delivered gas in the U.S. as part of the Natural Gas Supply Collaborative. NGSC members encourage natural gas producers to build on recent progress and continue to improve transparency and voluntarily report on the collaborative's environmental performance indicators, including water, detailed in the October 2017 report "Environmental and Social Performance Indicators for Natural Gas Production." Regulators and civil society groups have been engaging natural gas producers for years, but the Collaborative is the first example of major corporate consumers articulating their sustainability priorities as a group. NRG is continuing to engage with the Collaborative to further provide incentives to production practices that minimize negative environmental and social impact. Water impacts included in the Collaborative's report include Water Use (Total and Freshwater Intensity), Water Testing, Spill Reporting, Freshwater Use Strategy, Well Planning and Integrity Strategy, and Wastewater Management Strategy.

Cost of response

Explanation of cost of response
The cost of the response to this risk includes staff to develop NRG's approach to responsible sourcing and membership fees for the Natural Gas Supply Collaborative (NGSC) in 2021.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes, we have identified opportunities, and some/all are being realized

W4.3a

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

Type of opportunity
Efficiency

Primary water-related opportunity
Improved water efficiency in operations

Company-specific description & strategy to realize opportunity
Climate change may affect the availability of a secure and economical supply of water in some locations, which is essential for the continued operation of NRG's generation plants. As such, the ability to conserve water use is advantageous.

This opportunity was realized through internal and third-party water audits. NRG has identified its plant in the generation fleet located at Joliet, Illinois, with the opportunity to reduce its water use while idling. This plant is kept online at times without generating electricity, and pumps continue to run to keep the plant ready. Evaluation is ongoing to quantify the magnitude of the potential financial impact of the water being used vs. the potential solutions. In 2019, we submitted a permit application for the implementation of this operational action that will reduce water usage. The application process is still ongoing and the permit is currently being reviewed by the Illinois Environmental Protection Agency. We anticipate receiving a draft permit later this year (2022).

Estimated timeframe for realization
Current - up to 1 year

Magnitude of potential financial impact
Low-medium

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact
Many variables may be involved in the increased water use at the plant, including a repowering to natural gas, changes in idling durations, and changes in net capacity factor. As a result, the financial impact of potential solutions is complex to calculate and will be evaluated later in the project once these variables have been adequately analyzed.

W5. Facility-level water accounting

W5.1

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

Facility reference number
Facility 1

Facility name (optional)
Limestone Generating Station

Country/Area & River basin

United States of America	Brazos River

Latitude
31.4231

Longitude
-96.2526

Located in area with water stress
Yes

Primary power generation source for your electricity generation at this facility
Coal - hard

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
11706

Comparison of total withdrawals with previous reporting year
Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
11064

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable
0

Withdrawals from groundwater - non-renewable
642

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
0

Total water discharges at this facility (megaliters/year)
0

Comparison of total discharges with previous reporting year
About the same

Discharges to fresh surface water
0

Discharges to brackish surface water/seawater
0

Discharges to groundwater
0

Discharges to third party destinations
0

Total water consumption at this facility (megaliters/year)
11706

Comparison of total consumption with previous reporting year
Lower

Please explain
The Limestone Generating Station maintains wastewater discharge permit; it did not discharge in 2021. This station has operated as a zero-discharge facility for 12 years. Freshwater is pumped from Lake Limestone to supply water to cooling towers. The amount of water consumed is directly correlated with the withdrawal decrease. Decrease is due to decreased generation due to market conditions. Withdrawal and Discharge are directly measured. Consumption is calculated as withdrawal minus discharge.

Facility reference number
Facility 2

Facility name (optional)
WA Parish Generating Station

Country/Area & River basin

United States of America	Brazos River

Latitude
29.4754

Longitude
-95.6322

Located in area with water stress
Yes

Primary power generation source for your electricity generation at this facility
Coal - hard

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
67323

Comparison of total withdrawals with previous reporting year
About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
64162

Withdrawals from brackish surface water/seawater
0

Withdrawals from groundwater - renewable
0

Withdrawals from groundwater - non-renewable
3161

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
0

Total water discharges at this facility (megaliters/year)
30003

Comparison of total discharges with previous reporting year
Higher

Discharges to fresh surface water
30003

Discharges to brackish surface water/seawater
0

Discharges to groundwater
0

Discharges to third party destinations
0

Total water consumption at this facility (megaliters/year)
37320

Comparison of total consumption with previous reporting year
Much lower

Please explain
Fresh surface water is withdrawn from the Brazos to Smithers Lake to cool the WA Parish facility. Groundwater is used for WASH and steam. Rain is diverted to Smithers Lake. Fuels are coal and natural gas. Consumption decreased this year due to decreased runtimes. Withdrawal and Discharge are directly measured, and consumption is calculated as Withdrawal - Discharge.

W5.1a

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

Water withdrawals – total volumes

% verified
76-100

Verification standard used
The review was conducted in accordance with the attestation standards established by the American Institute of Certified Public Accountants. Total water withdrawals-total volumes include total withdrawals. Municipal water utility is determined from invoices. Surface water and ground water is determined by company owned metering devices, pump operating characteristics with pump operating logs, water balance engineering estimates, rainfall data applied to surface areas with run-off coefficients.

Please explain
<Not Applicable>

Water withdrawals – volume by source

% verified
76-100

Verification standard used
The review was conducted in accordance with the attestation standards established by the American Institute of Certified Public Accountants. The review includes total withdrawals from surface water (lakes, rivers or oceans), ground water, rainwater and municipal water utilities. Municipal water utility is determined from invoices.

Please explain
<Not Applicable>

Water withdrawals – quality by standard water quality parameters

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water discharges – total volumes

% verified
76-100

Verification standard used
The review was conducted in accordance with the attestation standards established by the American Institute of Certified Public Accountants. Total water discharge is the total of all water discharge reported by each facility in its monthly Discharge Monitoring Report (DMR) to maintain compliance with wastewater discharge permits and discharges to publicly owned treatment works determined by volumes indicated on water/sewer invoices.

Please explain
<Not Applicable>

Water discharges – volume by destination

% verified
76-100

Verification standard used
The review was conducted in accordance with the attestation standards established by the American Institute of Certified Public Accountants. Total water discharge is the total of all water discharge reported by each facility in its monthly Discharge Monitoring Report (DMR) to maintain compliance with wastewater discharge permits and discharges to publicly owned treatment works determined by volumes indicated on water/sewer invoices.

Please explain
<Not Applicable>

Water discharges – volume by final treatment level

% verified
76-100

Verification standard used
All discharges are regulated by state environmental agencies and are regulated by NPDES permits. Permits require water testing to meet EPA and/or Standard Methods. Water testing laboratories are required to be NELAC accredited.

Please explain
<Not Applicable>

Water discharges – quality by standard water quality parameters

% verified
76-100

Verification standard used
All discharges are regulated by state environmental agencies and are regulated by wastewater discharge permits. Permits require water testing to meet EPA and/or Standard Methods. Water testing laboratories are required to be NELAC accredited.

Please explain
<Not Applicable>

Water consumption – total volume

% verified
76-100

Verification standard used
The review was conducted in accordance with the attestation standards established by the American Institute of Certified Public Accountants. The difference between total quantity of water withdrawn and total quantity of water discharged in cubic meters for the year ending December 31, 2018 at the Company's facilities under operational control.

Please explain
<Not Applicable>

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?
Yes, we have a documented water policy that is publicly available

W6.1a

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

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Commitment to safely managed Water, Sanitation and Hygiene (WASH) in local communities Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	Water availability and quality are material sustainability issues for NRG. Power generating operations account for 99.9% of water withdrawn. As such, NRG's water policy includes a description of our business dependency and business impact on water. NRG's water policy is incorporated in the 1/2014 environmental policy and sets performance standards for direct operations to meet or exceed applicable laws related to water; reduce our environmental impacts by integrating water-related considerations in business ops and strategy, operate efficiently, use cleaner, cost-effective technologies; promote biodiversity; engage in the regulatory process; and measure the effectiveness of water programs. The policy supports international standards and recognized initiatives including GRI, DJSI, and CDP. It also includes reference to responding to procurement data requests from customers and NGOs. The Environmental Group, our policy implementing entity, will assist with sustainability reporting such as the NRG Sustainability Report, the Global Reporting Initiative (GRI) table and other voluntary reporting or benchmarking determined by NRG. The Environmental Group also provides data required to complete U.S. Securities and Exchange Commission (SEC) disclosure. The water policy is aligned with the company's water targets and goals, including our 2016 reduction goal, where we set a target to reduce water withdrawal 40 percent by 2030 from a 2014 baseline across all of our direct operations. NRG operates primarily in the United States, and it is a federal requirement to provide WASH for all employees.

W6.2

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

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Board-level committee	NRG water resources, compliance, regulatory issues are discussed with the board. The Governance & Nominating Committee (which hears briefings from the Chief Sustainability Officer [VP Sustainability] at least twice annually) handles water issues including the nature, ambition, and timescale of goals; the assessment of environmental water risks; and the overall direction of the company's water strategy as formulated by Sustainability, Environmental, and Regulatory staff. This board committee's risk oversight focus areas include: "Strategies and efforts to manage the company's environmental, economic and social impacts, including, environmental, climate change and sustainability policies and programs," which include water. Other committees and the board as a whole will also deal with water issues as relevant, for instance a water issue related to the South Texas Project nuclear power plant would be overseen by the Nuclear Oversight Committee; a water risk issue materially impacting the company financially would be overseen by the Finance and Risk Management Committee. In 2021, incentives to named executive officers to meet specific environmental sustainability goals such as water management was under review and consideration by the Board. Starting in 2022, it was decided that our compensation program will tie a portion of our named executive officers' overall compensation to the achievement of targets related to environmental performance which includes water management.

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Setting performance objectives	In 2021, the NRG board's Governance and Nominating Committee continued to oversee strategies and efforts to manage environmental, economic and social impacts, including environmental, climate change and sustainability policies and programs. This includes water-related issues. NRG's VP of Sustainability presents updates more than half yearly. In addition, other disciplines (Engineering & Construction, Asset Management, Environmental and Government Affairs) present at other cadences and may include a discussion of water where relevant to the matter presented. A typical board update from the VP of Sustainability includes progress and projections on achievement of NRG climate and water goals. As with other organizations that have chosen to make sustainability part of their strategic imperative, sustainability at NRG means driving business results, reducing risk and enhancing the company's brand value. Sustainable Business lies at the core of our five-pillar strategy because it encompasses initiatives that embed sustainability in the organization. This includes our objectives for NRG to be recognized as a leader on transparency to measure key sustainable business goals and to manage stakeholder engagement. Our Sustainable Business strategy ties financial performance with decarbonization efforts. It also advances dialogue around future corporate reporting while engaging with our broad stakeholder network. This is supported by a strong governance structure that starts with the Board of Directors and the CEO and extends to all business leaders within our organization. The governance mechanisms into which NRG integrates water-related issues contribute to the board's oversight of those issues by acknowledging that water is an integral aspect of a wide-ranging and diverse set of business imperatives – not simply an operational issue at the plant level. Along with financial objectives, company sustainability objectives including water reduction goals are integrated into long-term business planning for fossil fuel generation, including the overall types of plants that may be of strategic interest in the company's mergers, acquisitions, and divestitures plans. All major decisions are reviewed by the board to specifically assess exposure to and management of sustainability-related risks, including water risk.

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Yes	Our directors represent a diverse mix of skills, experiences and viewpoints that are relevant to our company and facilitate effective oversight. Currently, five of our eleven board members (45%) have competency on Environmental/Sustainability issues which includes water-related issues.	<Not Applicable>	<Not Applicable>

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)
Chief Sustainability Officer (CSO)

Responsibility
Assessing future trends in water demand
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
More frequently than quarterly

Please explain
The NRG Chief Sustainability Officer (CSO) has responsibility for water related issues, and reports to the Senior VP-Corporate Affairs, who reports to the CEO. CSO duties related to water include coordination with SVP, Environmental/Asst. General Counsel, Environmental Policy to ensure alignment on water reporting; leadership of water strategy including public commitments; and alignment with standards (UN SDGs). CSO leads staff that work with risk, finance, environmental, regulatory, and plant staff to manage water. In 2021, the board's Governance and Nominating Committee oversaw efforts to impact environmental, climate change and sustainability policies and programs. Outcomes of water issues are reported to CDP and in our Sustainability Report. The water portion of the report to the Board typically contains relevant water-related issues, e.g., progress toward achievement of water target, and an opportunity for the Board to provide substantive input.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	No, not currently but we plan to introduce them in the next two years	Starting in 2022, it was decided that our compensation program will tie a portion of our named executive officers' overall compensation to the achievement of targets related to environmental performance which includes water management.

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?
Yes, direct engagement with policy makers
Yes, trade associations

W6.5a

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

NRG engages in activities to directly and indirectly influence public policy on water. In 2021 NRG continued to engage with policy makers and indirectly engaged in policy influence through trade associations. The development of all significant policy positions is coordinated through appropriate senior management, ensuring overall consistency with NRG's water stewardship strategy. NRG is a member of trade associations that engage generally in education and advocacy efforts on a number of industry issues. The Company's Policy provides additional information regarding criteria for, and oversight of, the Company's participation in these associations. The political activity of such associations is not necessarily representative of a position of the Company, and the benefits that the Company receives from these trade or business associations are primarily expertise and the ability to gain insight on industry-setting standards. Payments made to business or trade associations are subject to the Company's Political Contribution Policy and are reviewed annually by the Governance and Nominating Committee. All NRG's policy positions that are published or disclosed go through a consistent review process involving NRG's Investor Relations, Legal, Marketing and Communication teams. If inconsistency is discovered at any point in the process, the Legal department acts as the final arbiter to correct the inconsistency with relevant subject matter experts.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?
Yes (you may attach the report - this is optional)
2021 10-K FINAL.pdf
2021-sustainability-report.pdf

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	11-15	Water issues are integrated into NRG's long-term business objectives spanning the next 11-15 years. Along with financial objectives, company sustainability objectives including water reduction goals are integrated into long-term business planning for fossil fuel generation, including the overall types of plants that may be of strategic interest in the company's mergers, acquisitions, and divestitures plans. NRG's long-term business objectives include investment in other low water use businesses, including refocused participation in the renewables marketplace. For example, in 2018 NRG Business Solutions rolled out Renewable Select, an offsite renewable energy solution that helps shift the company's revenue center (and customers' energy buying options) from fossil fuel generation to less water- and GHG-intensive processes. Long-term plans are made by business units as well as the Strategy team and aligned with water use reduction goals set by the Sustainability team in close collaboration with other business units charged with forecasting business opportunities, challenges, and needs.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	Water issues are integrated into NRG's long-term business strategy spanning the next 11-15 years. Company water reduction goals are integrated into long-term business planning for fossil fuel generation, including the overall types of plants that may be of strategic interest in the company's mergers, acquisitions, and divestitures plans. Individual generation plant long-term planning integrates water availability, quality, regulatory and reputational water risk, and cost. Water availability is also considered in long-term strategic planning for new lines of business, for instance the ongoing integration of water audit availability for customers into the new NRG Business Solutions Energy Efficiency division as well as the long-term plan to invest to grow NRG's 3-million customer Retail business, as a low water use source of revenue generation. NRG's long-term plans include investment in other low water use businesses, including refocused participation in the renewables marketplace.
Financial planning	Yes, water-related issues are integrated	11-15	Water issues are integrated into NRG's long-term financial planning spanning the next 11-15 years Company water reduction goals are integrated into short and long-term financial planning for fossil fuel generation, especially around the negotiation of water contracts and long-term water rights protection in river basins with the potential to experience scarcity. For example, as a founding member of the Lower Brazos River Coalition, NRG works closely with fellow stakeholders to protect water availability for all, a long-term financial planning measure in addition to a water stewardship activity. Goals are integrated into financial planning around the types of plants that may be of strategic interest in the company's M&A and divestitures plans. Individual plant long-term financial planning integrates water availability, quality, regulatory and reputational water risk, and cost. Water availability is also considered in strategic planning for new lines of business, i.e. water audit availability for customers of energy efficiency and sustainability consulting services and the long-term plan to invest to grow NRG's Retail business as a low water use revenue generator. NRG's long-term plans include investment in other low water use businesses, including refocused participation in the renewables marketplace.

W7.2

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

Row 1

Water-related CAPEX (+/- % change)

25

Anticipated forward trend for CAPEX (+/- % change)

10

Water-related OPEX (+/- % change)

-0.7

Anticipated forward trend for OPEX (+/- % change)

-5

Please explain

Water OPEX such as water supply costs, permits renewals, periodic on-site and off-site training for staff and equipment maintenance, remained constant due to few new operations-related projects. Capex spend such as current and future equipment and fixture change outs and periodic installations of water pollution prevention devices where necessary, are expected to increase slightly over the 5-year plan (when compared to 2017), mostly due to projects associated with compliance with new or modified regulations including 316(b). OPEX spend are still projected to decrease by about 5% over the next 5 years, due primarily to continuing decrease in water related O&M projects and changes in operating profile.

W7.3

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

	Use of scenario analysis	Comment
Row 1	Yes	In 2020-2021, NRG conducted a transition risk-based climate scenario analysis. The analysis examines the fuel mix and associated greenhouse gas (GHG) intensity of NRG electricity sales under a U.S. Energy Information Agency (EIA) carbon fee scenario over 2026-2050. Please see 2020-TCFD.pdf (nrg.com) for detailed parameters, assumptions, and analytical choices and results.

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Climate-related	In 2020-2021, NRG conducted a transition risk-based climate scenario analysis, our inaugural Task Force on Climate-related Financial Disclosures (TCFD) Report. The analysis examines the fuel mix and associated GHG intensity of NRG electricity sales under a EIA carbon fee scenario over 2026-2050. This quantitative transition risk scenario analysis was started in late 2020.	Carbon is one of the biggest sources of risk in our portfolio. We already pay for carbon emissions under RGGI and AB32 and carbon taxes are a growing possibility. Physical risks include sea level rise and extreme weather events which can affect the productivity of our power generating assets as well as customer demand. Increased severity of extreme weather events could disrupt NRG's operations and supply chain and cause them to incur significant costs in preparing for, or responding to, these effects. These or other changes in weather patterns could lead to increased operating costs, capital expenses, or commodity purchase costs. Several of our generation assets are in Texas, where recent severe weather events have affected the productivity of power generating plants. NRG monitors water risk actively and carefully and works with local entities on water quality and safety.	NRG's most substantive decision to date is the setting of our certified science-based targets that remain some of the industry's most aggressive. NRG remains committed to executing against our goals to reduce carbon emissions from a 2014 baseline by 50% by 2025 and net-zero by 2050. Our targets are aligned with the 1.5 degree Celsius pathway put forth by the 2015 Paris Agreement. One of the ways we plan to meet our targets is by diversifying our current generation fleet and retiring or divesting from carbon intensive power generating assets, which require large quantities of water to operate. This strategy better prepares us to continue to meet our customers' demands during climate change events which may drastically decrease the water supply available.

W7.4

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

Row 1

Does your company use an internal price on water?

No, but we are currently exploring water valuation practices

Please explain

NRG recognizes that the true value of water is not accounted for in many markets and that the costs of treatment and delivery, as well as opportunity costs and environmental and social costs, are not well captured. Diverse water contract structures and costs as well as differences between basin ecosystems adds complexity to the consistent valuation of water in markets across the business, which we continue to evaluate.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	Yes	We are aligned with CDP's definition, i.e. products having a lower detrimental impact on water resources, water quality and ecosystems than the market norm.	<Not Applicable>	We offer our residential and business customers numerous types of renewable electricity subscription plans. Electricity from renewable sources is less water intensive than electricity from fossil fuels.

W8. Targets

W8.1

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

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Activity level specific targets and/or goals Site/facility specific targets and/or goals Brand/product specific targets and/or goals Basin specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	Ensuring success and clearly communicating our ambition around water stewardship is what motivates us to set goals and track and report their progress. NRG does not set public goals for every key water performance indicator we track in order to simplify stakeholder communication. We aim to continually (annually or more frequently) evaluate the relevance as well as the progress of our goals and targets to ensure that we incorporate emerging risks and opportunities. There is no single process to set goals and targets. For instance, in 2016 NRG set a goal to reduce water withdrawal 40 percent by 2030 from 2014 levels. This goal was set by a water working group led by the sustainability team and comprising leaders and hands-on staff from divisions across the company that dealt with water, including Commercial Operations, Environmental, Engineering and Construction, Asset Management, Business Operations, and Regulatory Affairs. The water working group met quarterly over the period of a year with the objective of steering water strategy and setting a goal. The objective was to include the right expertise from across the company to understand once-through cooling at power plants, business strategies such as repowering plants from coal to gas, capacity factor net decreases due to market conditions, and ecological concerns. Other goals and targets are set based on basic-specific issues.

W8.1a

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

Target reference number
Target 1

Category of target
Water withdrawals

Level
Company-wide

Primary motivation
Water stewardship

Description of target
In 2016 NRG set a target to reduce water withdrawal 40 percent by 2030 from a 2014 baseline across all of NRG's direct operations, including 33 generation facilities, one repair station, and offices.

Quantitative metric
% reduction in total water withdrawals

Baseline year
2014

Start year
2016

Target year
2030

% of target achieved
100

Please explain
In 2021, our withdrawals were 45% less than in 2014. The primary direct use of this water is cooling of condensers during power generation. We have designed our approach to water management with the understanding that water issues are site-specific. Changes to the composition of our generation fleet and market conditions have added complexity to our expected pathway to achieving this goal, creating a changing baseline. Using less water remains a priority, and we are evaluating how to have a more consistent impact on water in the environment and in the communities where we operate if our business composition changes.

W8.1b

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

Goal
Watershed remediation and habitat restoration, ecosystem preservation

Level
Site/facility

Motivation
Risk mitigation

Description of goal
With 2,937,669 megaliters of water discharged during 2021, it is important for NRG to set goals that reduce risk and consider the health of water basins NRG and our communities rely on. Water pollution prevention is an annual goal; each facility has a goal of zero permit exceedances. NRG has 38 stormwater and/or wastewater discharge permits; the goal for permit compliance is 100%. Each generation facility has assigned Environmental professionals responsible for monitoring compliance. We assess our operations each month through our environmental key performance indicator (EKPI), which measures a number of leading and lagging parameters such as notices of violation (NOVs), reportable spills and compliance with laws.

Baseline year
2017

Start year
2018

End year
2021

Progress
NRG sets multiple environmental goals, including company-wide and at the plant level. We assess our plant operations through our nine EKPIs, which focus on water pollution prevention, permit compliance, and internal metrics. EKPIs are reported monthly via a Q&A module in Intelex, an EH&SQ management software that collects environmental data to track facilities' risks, performance and compliance. Intelex is evaluated periodically to ensure that it continues to support environmental requirements and responsibilities, effectively produces desired results and performance, and facilitates continual improvement of environmental performance. In 2021, NRG's company-wide results showed a 38% improvement as compared to the baseline year of 2014, beating our target. In addition, 93.1% of our generation fleet met or exceeded their plant-specific targets. We consider these results to be successful. Site-specific EKPI performance impacts the compensation of all employees at that site, fostering collective accountability and environmental commitment within the workforce.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

No, we are waiting for more mature verification standards and/or processes

W10. Sign off

W-FI

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

Attached are the following documents that we deemed relevant to our organization's response to this year's CDP Water Report.
2021 10-K FINAL.pdf
2021-sustainability-report.pdf

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Chief Executive Officer	Chief Executive Officer (CEO)

W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms