

ENVIRONMENTAL PERFORMANCE METRICS

2021 Electricity Generated and Generation Capacity¹

	Electricity Generated (net megawatt-hours)		Generation Capacity (megawatts)	
	MWh (thousands)	Percent	MW	Percent
Total Carbon-Free	89,910	41.7%	15,206	28.2%
Nuclear	75,328	34.9%	8,907	16.5%
Wind ²	7,387	3.4%	2,987	5.5%
Conventional Hydro ²	2,870	1.3%	1,339	2.5%
Solar ²	4,325	2.0%	1,973	3.7%
Total Lower-Carbon	78,053	36.2%	19,832	36.7%
Natural Gas	77,679	36.0%	19,788	36.7%
Fuel Cell	374	0.2%	44	0.1%
Total Higher-Carbon	48,395	22.4%	16,647	30.8%
Coal	48,181	22.3%	15,652	29.0%
Oil	214	0.1%	995	1.8%
Pumped-Storage Hydro³	(614)	-0.3%	2,300	4.3%
Total	215,745	100%	53,985	100%
Purchased Carbon-free Generation (Includes PPAs)²	9,088	Equivalent to 4%	4,212	Equivalent to 8%

¹ All regulated data is based on the firm summer capacity of Duke Energy's ownership share of generating plants as of December 31, 2021. Commercial wind and solar is based on the nameplate capacity, with majority-owned assets presented at 100% capacity. Purchased carbon-free generation includes connected renewables (wind, solar, hydro) in Duke Energy's regulated service territories. It does not include purchased biomass or net-metered generation. Reduced capacity is used for plants with transmission capacity limitations. Totals do not add up exactly because of rounding.

² See "Statement Regarding Renewable Energy Certificates" on page 67.

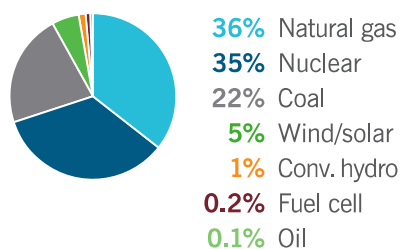
³ Pumped-storage hydro helps meet peak demand and, like other storage technologies, consumes more energy than it produces.

2021 electricity generated and generation capacity

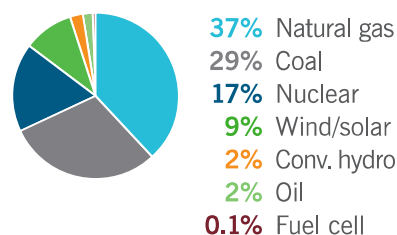
Duke Energy has a diverse, increasingly clean generation portfolio. Over 40% of the electricity we generated in 2021 was from carbon-free sources, including nuclear, wind, hydro and solar. Thirty six percent was from lower-carbon natural gas, which emits about half as much carbon dioxide as coal. And about 22% was from higher-carbon coal and oil. Taken together, owned and purchased renewables are equivalent to almost 11% of our electricity generation.

Regulated and Commercial Businesses Combined: 2021 Electricity Generated and Generation Capacity

2021 Electricity Generated¹



2021 Generation Capacity¹



¹ Excludes pumped-storage hydro.

Fuels Consumed For Electric Generation¹

	2008	2019	2020	2021
Coal (million tons)	63.1	24.3	19.7	19.9
Oil (million gallons)	231	26.0	19.4	27.3
Natural gas (billion cubic feet)	163	567	585	631

¹ All data based on Duke Energy's ownership share of generating assets as of the end of each calendar year. Fuels used by Ohio Valley Electric Corporation (OVEC) are excluded because power from OVEC and associated emissions are accounted as purchased power and Scope 3 emissions.

Fuels consumed for electric generation

Since 2008, the use of coal and oil as generation fuels has significantly decreased. These fuels are being replaced by cleaner natural gas and renewables.

ENVIRONMENTAL PERFORMANCE METRICS

CONTINUED

Water Withdrawn and Consumed for Electric Generation

(billion gallons)

	2011	2019	2020	2021
Withdrawn	5,900	4,657	4,696	4,924
Consumed	105	73	125	111
Consumption intensity (gallons per MWh generated)	456	337	594	516

Data for 2020 and 2021 were developed using processes aligned with the CDP Water methodology. Data are not consistently available at time of publication to apply this methodology to earlier years.

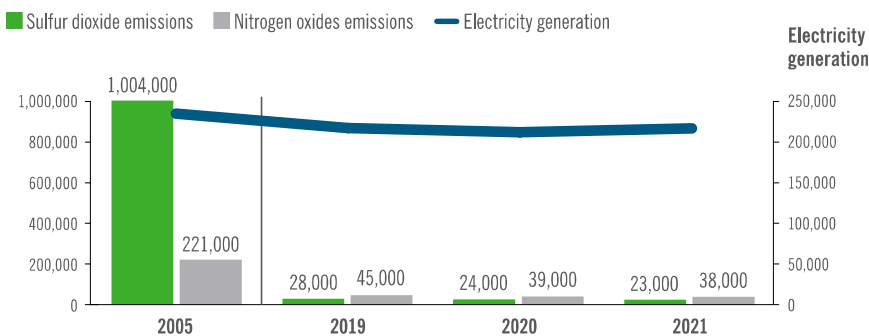
Scope 1 Emissions

Emissions From Electric Generation¹

	2005	2019	2020	2021
CO₂ emissions (thousand metric/short tons)	139,000/ 153,000	84,000/ 93,000	74,000/ 82,000	77,000/ 85,000
CO₂ emissions intensity (pounds per net kWh)	1.29	0.86	0.78	0.79
SO₂ emissions (metric/short tons)	1,004,000/ 1,107,000	28,000/ 31,000	24,000/ 27,000	23,000/ 25,000
SO₂ emissions intensity (pounds per net MWh)	9.3	0.3	0.3	0.2
NO_x emissions (metric/short tons)	221,000/ 244,000	45,000/ 50,000	39,000/ 43,000	38,000/ 42,000
NO_x emissions intensity (pounds per net MWh)	2.1	0.5	0.4	0.4
CH₄ emissions (CO ₂ equivalent) (thousand metric/short tons)	381/420	169/186	142/157	151/166
N₂O emissions (CO ₂ equivalent) (thousand metric/short tons)	663/731	327/361	272/300	289/318

¹ All data based on Duke Energy's ownership share of generating assets as of December 31, 2021. Totals may not add up exactly due to rounding.

Sulfur Dioxide and Nitrogen Oxides Emissions (metric tons)¹ and Electricity Generation (thousand net megawatt-hours)



¹ SO₂ and NO_x reported from Duke Energy's electric generation based on ownership share of generating assets.

Water withdrawn and consumed for electric generation

Water withdrawn is the total volume removed from a water source, such as a lake or a river. Because of the once-through cooling systems on many of our coal-fired and nuclear plants, almost 98% of this water is returned to the source and available for other uses. *Water consumed* is the amount of water removed for use and not returned to the source.

Emissions from electric generation

Many factors influence emissions levels and intensities, including demand for electricity, generation diversity and efficiency, weather, fuel and purchased power prices, and emissions controls deployed. Since 2005, our carbon dioxide (CO₂) emissions decreased by 44%, sulfur dioxide (SO₂) emissions decreased by 98% and nitrogen oxides (NO_x) emissions decreased by over 83%. These decreases are primarily due to the addition of pollution control equipment for SO₂ and NO_x in previous years, replacement of coal generation with natural gas and renewables and increased dispatch of cleaner, more efficient plants. In 2021, CO₂ emissions were somewhat higher than in 2020 due to increased generation as the economy began to rebound, though the long-term reduction trend continued.

ENVIRONMENTAL PERFORMANCE METRICS

CONTINUED

Methane Emissions from Natural Gas Distribution

(thousand metric/short tons)¹

	2018	2019	2020	2021
CH₄ emissions (CO ₂ equivalent)	160/176	168/185	178/196	245/270

¹ Methane emissions are calculated by applying EPA emission factors to facility counts such as miles of pipeline, and the number of meters/services and adding component leaks based on survey data.

Sulfur Hexafluoride Emissions from Electric Transmission and Distribution

(thousand metric/short tons)¹

	2018	2019	2020	2021
SF₆ emissions (CO ₂ equivalent)	305/336	477/526	384/423	363/400

¹ SF₆ emissions vary year to year due to maintenance, replacement and storm repair needs.

Scope 2 Greenhouse Gas Emissions

(thousand metric/short tons)

	2019	2020	2021
Power purchases Estimated from power purchases for Duke Energy facilities that are not served by Duke Energy itself (CO ₂ equivalent).	5.3/5.8	3.7/4.1	2.1/2.3

Scope 3 Greenhouse Gas Emissions

(thousand metric/short tons)

	2019	2020	2021
Fuel and energy-related activities (not reported in Scope 1 or 2) This is an estimate of CO ₂ emissions associated with electricity Duke Energy purchased for resale (CO ₂ equivalent).	12,200/ 13,400	13,300/ 14,600	13,300/ 14,600
Use of sold products These are CO ₂ emissions from the use of natural gas that Duke Energy delivered to its end-use customers (CO ₂ equivalent).	17,600/ 19,400	16,600/ 18,300	17,500/ 19,300
Employee travel This is an estimate of CO ₂ emissions associated with employee travel (CO ₂ equivalent).	16.4/18.1	4.9/5.4	4.2/4.7

Methane emissions from natural gas distribution

Methane (CH₄) is the primary component of natural gas and is a greenhouse gas. We work to minimize methane emissions, but some is released during pipeline operations and maintenance. Duke Energy announced in October 2020 its goal of reducing methane emissions in its natural gas distribution companies to net-zero by 2030. The emissions reported here are estimates pursuant to EPA methodology. The EPA methodology applies emissions factors to facility counts such as miles of pipe, customer meters, numbers of services, and other equipment. As our distribution system expands due to customer growth, the emissions estimates increase because additional facilities are added.

Sulfur hexafluoride emissions

Sulfur hexafluoride (SF₆) is a greenhouse gas that is used as an insulating gas in high-voltage electric transmission and distribution switchgear. We work to minimize SF₆ emissions, but some is released during operations and maintenance.

Scope 3 greenhouse gas emissions

We are currently working to determine the emissions associated with relevant Scope 3 categories. Then we will prioritize the categories for which we have adopted goals and identify what actions the company can take over time to reduce these emissions.

ENVIRONMENTAL PERFORMANCE METRICS

CONTINUED

Toxic Release Inventory

(thousand pounds)¹

	2007	2018	2019	2020
Releases to air	97,969	5,110	4,259	3,210
Releases to water	257	520	162	159
Releases to land	22,052	10,148	8,290	7,000
Off-site transfers	155	3,469	3,122	508
Total	120,434	19,246	15,832	10,876

¹ Data pertain to electric generation facilities Duke Energy owns or operates and where Duke Energy is the responsible reporting party. Totals do not add up exactly due to rounding.

Waste

	2018	2019	2020	2021
Solid waste				
■ Total generated (thousand short tons) ¹	104	118	108	110
■ Percent recycled	79%	77%	80%	79%
Hazardous waste generated (short tons) ²	281	232	2,536	709
Low-level radioactive waste (Class A, B and C) generated (cubic feet) ³	126,123	140,331	128,739	—

¹ Weights are estimated based on volumes where necessary. Excludes Duke Energy Renewables, which has smaller volumes, and large nonreplicable projects such as plant demolitions.

² Hazardous waste generation fluctuates mainly due to maintenance projects. For example, in 2020 a very large maintenance project was completed at one of our power plants.

³ Total of Class A, B and C waste disposal as reported to the Nuclear Regulatory Commission. Crystal River Unit 3 is not included in these statistics, because it is not part of the operating fleet, and is retired. Data for 2021 will be available later in 2022.

Reportable Oil Spills to Water¹

	2018	2019	2020	2021
Spills	32	17	18	16
Gallons	387	140	208	124

¹ Includes oil spilled to waters of the U.S.

Environmental Regulatory Citations¹

	2018	2019	2020	2021
Citations	17	25	13	8
Fines/penalties (dollars)	\$533,776	\$97,558	\$581	\$18,399

¹ Includes U.S. federal, state and local citations and fines/penalties.

Toxic Release Inventory (TRI)

Duke Energy's TRI releases for 2020 were down 91% from 2007, primarily due to the significant investments we've made in environmental controls for our power plants, and decreased coal generation. Variations in releases were largely due to coal ash basins and their closure operations. These releases are expected to decrease significantly as coal ash basins are closed. (Data for 2021 will be available in August 2022.)

Waste

Duke Energy nearly met its goal to recycle 80% of solid waste. We are working on strategies to minimize landfilled waste and continually improve performance on this goal. These strategies include planning to avoid waste generation, reuse and repurposing of generated materials, identifying reuse and recycling technologies and partners, and benchmarking with other companies to identify best practices. (This goal excludes DESS, which has a relatively small waste stream.)

Reportable oil spills

Oil spills include releases of lubricating oil from generating stations, leaks from transformers, or damage caused by weather or by third parties (typically because of auto accidents).

Environmental regulatory citations

The increase in the number of citations from 2018 to 2019 was due mostly to an increase in water discharge reporting and compliance issues, which have been resolved with regulatory authorities.