Data Dictionary

RMI

August 26, 2022

1 Overview

1.1 General overview

The RMI Utility Transition Hub Data Download is a collection of publicly available data, organized and used to calculate key metrics that describe the US utility transition.

This data dictionary describes each data file in detail, including definitions, units, data sources, and methodology.

For downloadable data, visit https://utilitytransitionhub.rmi.org/data-download/.

For interactive data visualizations, visit https://utilitytransitionhub.rmi.org/portal/.

For analyses and insights, visit https://utilitytransitionhub.rmi.org/insights/.

1.2 Scope

Utilities coverage: all current FERC Form 1 respondents. This includes 402 total companies

- 101 vertically integrated utilities
- 42 restructured utilities
- 106 wires-only utilities
- 3 municipal utilities
- 65 cooperative utilities
- 62 independent power producers
- 23 other (or defunct) utilities.

Geographical coverage: United States

Temporal coverage: 2005-2020 for historical data, and emission target projections to 2050

Temporal resolution: annual data

1.3 Limitations to scope

This data set is not comprehensive of all utilities in the United States. If aggregating data to parent companies, values will be the sum of their regulated subsidiaries, not actual total values for the parent company.

1.4 Description of data files

assets_earnings_investments	Detailed breakdown of utility assets in electric rate base, earnings on these assets, and annual investments (capital additions) by technology.
customers_sales	Number of customers, MWh electricity sales, and revenues by customer type.
debt_equity_returns	Rate base, equity, debt, returns, earnings, interest expense, tax expense, and the rates of return used for earnings and revenue calculations.
emissions_targets	CO_2 emissions and projections, as well as electricity generation and projections and comparison to RMI's 1.5C decarbonization pathway for the US electricity sector.
employees	Number of employees that work at large power plants, by technology, for each utility.
expenditure_bills_burden	Expenditure, average residential customer energy bill, and average residential customer energy burden for each utility by technology and customer group.
expenditure_bills_burden_detail	Expenditure, average residential customer energy bill, and average residential customer energy burden for each utility by technology and customer group. Broken down into additional components and details compared to expenditure_bills_burden, leading a large file size (575 MB) that cannot be opened in Excel.
housing_units_income	Number of housing units and income by customer group for each utility.
net_plant_balance	Original cost, accumulated depreciation, and remaining net plant balance of electric plants in service, by FERC classification.
operations_emissions_by_fuel	Generation, fuel consumption, and emissions of CO_2, NO_x, and SO_x for each generator owned by each utility, and for power purchased by each utility. Within each generator and for purchased power, fuel consumption is differentiated by fuel type.
operations_emissions_by_tech	Capacity, generation, capacity factor, fuel consumption, and emissions of CO_2, NO_x, and SO_x for each generator owned by each utility, and for power purchased by each utility. Each generator is identified by a single technology.
revenue_by_tech	Revenues for each utility, by technology and component, for each utility.
state_policies	Policy data shown on the "Policy & Regulations" dashboard of the Utility Transition Hub Portal, by state. Includes status of securitization, market indexing, and fuel pass through policies.
state_targets	Greenhouse gas (GHG) and renewable portfolio standard (RPS) data by state, including baseline, interim, and final target years.
utility_information	Utility identifiers such as name, ID numbers from various sources, and utility type. Includes connections from operating companies to parent companies.
utility_state_map	A list of states that each utility operates in, including capacity owned in state, capacity operated in state, and energy sales in state.

1.5 Planned Additions

(1) Health impacts of fossil fuel consumption by plant and utility.

(2) Projections of capacity, generation, and emissions based on IRP data.

(3) Plant-level financial data.

1.6 Contact

For inquiries or suggestions, please contact utilitytransitionhub@rmi.org

2 Data sources

Data Source	Link
FERC Form 1	https://www.ferc.gov/industries-data/electric/general-information/electric-industry-forms/form-1-electric-utility-annual
PUDL	https://catalystcoop-pudl.readthedocs.io/en/latest/intro.html
EIA860	https://www.eia.gov/electricity/data/eia860/
EIA923	https://www.eia.gov/electricity/data/eia923/
EIA861	https://www.eia.gov/electricity/data/eia861/
EIA176	https://www.eia.gov/naturalgas/ngqs/
EIA SEDS	https://www.eia.gov/state/seds/seds-data-complete.php?sid=US
SEPA Utility Carbon Reduction Tracker	https://sepapower.org/utility-transformation-challenge/utility-carbon-reduction-tracker/
DSIRE	https://www.dsireusa.org/
Yahoo! Finance	https://finance.yahoo.com/
Ballotpedia	https://ballotpedia.org/Main_Page
EPA AMPD	https://ampd.epa.gov/ampd/
DOE LEAD Tool	https://www.energy.gov/eere/slsc/maps/lead-tool
Census SAIPE	https://www.census.gov/programs-surveys/saipe.html
GLEIF	https://www.gleif.org/en/
rate case data	various
IRPs	various
C2ES	https://www.c2es.org/
NCSL	https://www.ncsl.org/
NREL	https://www.nrel.gov/
US Climate Alliance	http://www.usclimatealliance.org/
State legislation	various

3 assets_earnings_investments

Data field		Definition	Units	Data Source	Methodology
parent_name		Name of ultimate parent company		RMI	
utility_name		Name of utility		RMI	
respondent_id		Utility ID from FERC		FERC Form 1	
year		Reporting year		FERC Form 1	
asset	**sub_asset**				
steam		FERC classification of "Steam" electric generating plants. This is occasionally reported differently for individual utilities, but typically includes "Conventional Steam Coal" and "Natural Gas Steam Turbine" technologies.		RMI	Asset values for these categories are remaining net plant balance for plants in service, calculated as original cost (historical capital investment) from the "Electric Plant in Service" table minus accumulated depreciation from the "Accumulated Provision for Depreciation of Electric Utility Plant" table in FERC Form 1.
nuclear		FERC classification of "Nuclear" electric generating plants.		RMI	
hydro		FERC classification of "Conventional Hydroelectric" and "Hydroelectric Pumped Storage" electric generating plants.		RMI	
renewables		RMI refinement of FERC classification of "Other" electric generating plants. This category includes wind, solar, geothermal, and waste (municipal solid waste, landfill gas, waste biomass) plants.		RMI	Asset values for this category are remaining net plant balance for plants in service, calculated as original cost (historical capital investment) minus accumulated depreciation. Original cost values are taken from plant-level tables in FERC form 1. Accumulated depreciation values are estimated. RMI assumed that in 2004, accumulated depreciation = 0. Then depreciation in each year is calculated as original_cost * depreciation_rate, with depreciation_rate assumed to be a single constant value for each technology.
other_fossil		RMI refinement of FERC classification of "Other" electric generating plants. This category includes several types of gas plants (combined cycle, combustion turbine, internal combustion) all plants that use petroleum liquids for fuel, and other fossil fuel plants not included in the "steam" category.		RMI	Asset values for the FERC classification of "Other" plants are calculated as original cost (historical capital investment) from the "Electric Plant in Service" table minus accumulated depreciation from the "Accumulated Provision for Depreciation of Electric Utility Plant" table in FERC Form 1. Then, "other_fossil" = "Other" - "renewables"
transmission		FERC classification of "Transmission" plant.		RMI	Asset values for this category are remaining net plant balance for plants in service, calculated as original cost (historical capital investment) from the "Electric Plant in Service" table minus accumulated depreciation from the "Accumulated Provision for Depreciation of Electric Utility Plant" table in FERC Form 1.
distribution		FERC classification of "Distribution" plant.		RMI	
other	AROs	Asset retirement obligations		RMI	
other	construction_work _in_progress	Construction work in progress		RMI	This category includes electric plants under construction but not yet classified under a FERC classification.
other	distribution_arc	Asset retirement costs for distribution plant.		RMI	
other	electric_plant_held _for_future_use	Electric plant held for future use, technology not specified in FERC		RMI	
other	electric_plant _leased_to_others	Electric plant leased to others, technology not specified in FERC		RMI	
other	experimental_plant	Experimental electric plant, technology not specified in FERC		RMI	
other	general_plant	FERC classification of "General" electric plant.		RMI	
other	general_plant_arc	Asset retirement costs for "General" electric plant.		RMI	
other	hydro_arc	Asset retirement costs for "Conventional Hydroelectric" and "Hydroelectric Pumped Storage" electric generating plants.		RMI	
other	intangible_plant	FERC classification of "Intangible" plant.		RMI	
other	net_ADIT	Net Accumulated Deferred Income Tax		RMI	
other	net_regulatory _assets	Net regulatory assets		RMI	Sum of regulatory assets and regulatory liabilities
other	net_working_capital	Net working capital - current assets that are expected to be available or due within a year, and that are included in rate base and utility earnings.		RMI	Sum of "current & accrued assets" and "current and accrued liabilities" from the balance sheet, excluding accounts receivable and payable from associated companies, interest and dividends receivable, interest accrued, dividends declared, matured long-term debt and matured interest.
other	nuclear_arc	Asset retirement costs for nuclear electric power generation plants.**		RMI	
other	other_deferred _debits_and_credits	Other deferred debits and credits on the balance sheet		RMI	

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Table 1 - continued from previous page

Data field		Definition	Units	Data Source	Methodology
other	other_electric_plant	Other electric plant		RMI	
other	other_fossil_arc	Asset retirement costs for "other fossil" power generation plants.**		RMI	
other	other_noncurrent _liabilities	Other noncurrent liabilities on the balance sheet		RMI	
other	regional _transmission_and _market_operation	FERC classification of "Regional Transmission and Market Operation" plant.		RMI	
other	renewables_arc	Asset retirement costs for renewable energy power plants.**		RMI	
other	steam_arc	Asset retirement costs for steam electric power generation plants.**		RMI	
other	transmission_arc	Asset retirement costs for steam electric power generation plants.**		RMI	
asset_value		Asset value	$	FERC Form 1, RMI	RMI combined the balance sheet and balance sheet detail tables from FERC Form 1 to obtain a detailed breakdown of the balance sheet. RMI then performed a line-by-line assessment of what is or is not included in electric utility rate base, and grouped each line of the balance sheet into asset and sub_asset categories. Values are end of year values.
earnings_value		Earnings in the given year on the asset	$	FERC Form 1, RMI	earnings_value = asset_value*equity_ratio*ROE (see debt_equity table for equity_ratio and ROE)
investment_value		Investments (capital expenditure) in the given year on the asset.	$	FERC Form 1, RMI	Directly from the "additions" field in the FERC Form 1 "Electric Plant in Service" table (thus applicable only to electric plants in service)

* A detailed description of FERC accounts is available here.

** We include asset retirement costs as a positive component of electric rate base. These ARCs are mostly offset by AROs, which are negative components of electric rate base. Both ARCs and AROs are included in the "other" asset category.

4 customers_sales

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Reporting year		FERC Form 1	
customer_type	Type of customer		FERC Form 1	
customer_type_rmi	Type of customer, as grouped by RMI and as displayed in the Portal		RMI	
customers	Number of customer accounts (i.e. number of meters)		FERC Form 1	
sales	Energy sold	MWh	FERC Form 1	
revenues	Revenues from electricity sales	$	FERC Form 1	

5 debt_equity_returns

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Reporting year		FERC Form 1	
rate_base_actual	Actual rate base (value of capital assets that the utility is allowed to earn a rate of return on)	$	FERC Form 1, RMI	= sum of all assets from “assets_earnings” data
equity_actual	Actual value of assets owned by shareholders at end of year	$	FERC Form 1	Total Proprietary Capital from FERC balance sheet
debt_actual	Total long-term debt at end of year	$	FERC Form 1	Total Long-Term Debt from FERC balance sheet
equity_ratio_actual	Ratio of equity:(equity+debt) at end of year		FERC Form 1, RMI	= equity_actual / (equity_actual + debt_actual)
returns_actual	Returns on rate base	$	FERC Form 1, RMI	net_electric_operating_income directly from FERC income statement
earnings_actual	Shareholder earnings	$	FERC Form 1, RMI	= returns_actual - interest_actual
interest_actual	Interest expense to serve debt	$	FERC Form 1, RMI	= net_interest_expenses * asset_fraction_electric net_interest_expenses directly from FERC income statement asset_fraction_electric calculated as utility_plant_electric / utility_plant_total from FERC Summary of Utility Plant table
fed_tax_expense _actual	Federal tax expense	$	FERC Form 1	Sum of taxes on utility operating income and other income and deductions (FERC accounts 409.1 and 409.2)
pre_tax_net _income_actual	Pre-tax net income	$	FERC Form 1	Sum all components of net income, excluding extraordinary items and tax
ROR_actual	Rate of return on rate base		FERC Form 1, RMI	= returns_actual / rate_base_actual
ROE_actual	Rate of return on equity		FERC Form 1, RMI	= earnings_actual / (rate_base_actual * equity_ratio_actual)
interest_rate_actual	Interest rate		FERC Form 1, RMI	= interest_actual / debt_actual
equity_ratio	Ratio of equity:(equity+debt) used in the RMI Utility Transition Hub Portal		FERC Form 1, rate case data, RMI	use equity ratio from most recent completed rate case when available, and fill in missing data with equity_ratio_actual
ROR	Rate of return on rate base used in the RMI Utility Transition Hub Portal		FERC Form 1, rate case data, RMI	use ROR from most recent completed rate case when available, and fill in with national median ROR when rate case data not available
ROE	Rate of return on equity used in the RMI Utility Transition Hub Portal		FERC Form 1, rate case data, RMI	use ROE from most recent completed rate case when available, and fill in with national median ROE when rate case data not available
interest_rate	Interest rate used in the RMI Utility Transition Hub Portal		FERC Form 1, rate case data, RMI	use interest rate from most recent completed rate case when available, and fill in with national median interest rate when rate case data not available
effective_fed_tax_rate	Effective federal income tax rate		FERC Form 1, RMI	= fed_tax_expense_actual / pre_tax_net_income_actual
equity_authorized	Value of assets owned by shareholders, estimated based on RMI bottoms-up estimate of rate base and equity ratio primarily from rate case data.	$	FERC Form 1, rate case data, RMI	= rate_base_actual * equity_ratio
debt_authorized	Total long-term debt at end of year, estimated based on RMI bottoms-up estimate of rate base and equity ratio primarily from rate case data.	$	FERC Form 1, rate case data, RMI	= rate_base_actual - equity_authorized
returns_authorized	Returns on rate base, estimated based on RMI bottoms-up estimate of rate base and rate of return primarily from rate case data.	$	FERC Form 1, rate case data, RMI	= rate_base_actual * ROR
earnings_authorized	Shareholder earnings, estimated based on RMI bottoms-up estimate of rate base and equity ratio and rate of return on equity primarily from rate case data.	$	FERC Form 1, rate case data, RMI	= rate_base_actual * equity_ratio * ROE
interest_authorized	Interest expense to serve debt, estimated based on RMI bottoms-up estimate of rate base and equity ratio and rates of return from rate case data.	$	FERC Form 1, rate case data, RMI	= returns_authorized - earnings_authorized
interest_rate_authorized	Interest rate, estimated based on RMI bottoms-up estimate of rate base and equity ratio and rates of return from rate case data.		FERC Form 1, rate case data, RMI	= interest_authorized / debt_authorized

RMI applied rates of return from rate case data starting in the year after the rate case completion date, and continuing until the next rate case would go into effect.

All values in debt_equity_returns are either end of year values or values that apply to the entire year.

6 emissions_targets

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Year		FERC Form 1	
target_type	Identifies an emissions target as being "Voluntary", "Mandatory" or "All".		RMI	"All" represents the most aggressive target within a given year.
state	State that a utility owns plants in		EIA 860	
CO2_historical	Historical scope 1 CO_2 emissions from fossil fuel combustion at each utility's owned power plants.	MMT	EIA860, EIA923, EPA AMPD	Fuel consumption from EIA923 (in MMBTU), allocated to each generator in EIA860 (with ownership fractions for each generator from EIA860), multiplied by an emissions factor (metric tons CO_2 per MMBTU) from EPA based on fuel type code, aggregated to each utility.
CO2_target	Projected Scope 1 emissions based on publicly stated targets	MMT	EIA860, EIA923, EPA AMPD, SEPA Utility Carbon Reduction Tracker, RMI	Projected emissions in target years are calculated based on CO2_historical in the baseline year, multiplied by the fraction of emissions specified by the public target in each target year. Where a baseline year is not specified, we use 2020 as the baseline year. Because fuel consumption data from EIA is incomplete in 2000, when a baseline year of 2000 or earlier is specified, we calculate an approximate emissions baseline value using information from the utility's corporate website.
CO2_target_all_years	Historical Scope 1 emissions & Projected emissions based on publicly stated targets	MMT	EIA860, EIA923, EPA AMPD, SEPA Utility Carbon Reduction Tracker	CO2_historical, CO2_target with linear interpolation between target years.
CO2_1point5C	Projected Scope 1 emissions if the utility follows the US national-level electricity emissions trajectory from RMI's 1.5C decarbonization analysis.	MMT	EIA860, EIA923, EPA AMPD, RMI	RMI's 1.5C decarbonization analysis and methodology are available here. In this dataset, we take RMI's US national-level electricity emissions trajectory compared to 2020 levels, and scale the trajectory to each utility based on its 2020 emissions.
generation_historical	Historical net electricity generation from each utility's owned power plants	TWh	EIA860, EIA923	Net electricity generation from EIA923, allocated to each generator in EIA860 (with ownership fractions for each generator from EIA860), aggregated to each utility.
generation_projected	Net electricity generation projected to future years	TWh	EIA860, EIA923, IRPs	= generation(2020)*(1+load_cagr)^(year-2020) load_cagr is the compound annual growth rate of the utility's electricity demand, taken from each utility's IRP or assumed to be zero if an IRP was not available.
generation_1point5C	Projected net electricity generation if the utility follows the US national-level net electricity generation trajectory from RMI's 1.5C decarbonization analysis.	TWh	EIA860, EIA923, RMI	RMI's 1.5C decarbonization analysis and methodology are available here. In this dataset, we take RMI's US national-level electricity net generation compared to 2020 levels, and scale the trajectory to each utility based on its 2020 emissions.
CO2_intensity _historical	Historical CO_2 emissions intensity of electricity generation from each utility's owned power plants	metric tons/MWh	EIA860, EIA923, EPA AMPD	= CO2_historical/generation_historical
CO2_intensity_target	Projected CO_2 emissions intensity based on publicly stated emissions targets and projected generation from IRPs (only target years)	metric tons/MWh	EIA860, EIA923, EPA AMPD, IRPs, SEPA Utility Carbon Reduction Tracker	= CO2_target/generation_projected
CO2_intensity_target_all_years	Historical Scope 1 CO_2 emissions intensity & Projected Scope 1 CO_2 emissions intensity based on publicly stated emissions targets and projected generation from IRPs (all years)	metric tons/MWh	EIA860, EIA923, EPA AMPD, IRPs, SEPA Utility Carbon Reduction Tracker, RMI	= CO2_historical/generation_historical, = CO2_target_all_years/generation_projected
CO2_intensity_1point5C	Projected CO_2 emissions intensity if the utility follows the US national-level emissions and net electricity generation trajectories from RMI's 1.5C decarbonization analysis.	metric tons/MWh	EIA860, EIA923, EPA AMPD, RMI	= CO2_1point5C/generation_1point5C

The RMI Utility Transition Hub Portal also has functionality to normalize each company's historical and target emissions or emissions intensity to 2020 values, which allows for a more even visual comparison between company targets.

The RMI Utility Transition Hub Portal includes a calculated metric of total projected emissions from 2020-2030 above the 1.5 C trajectory (which can be viewed as either a total emissions value in MMT, or as a %). This metric is used as a measure of how climate-aligned each utility or parent company is.

7 employees

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Reporting year		FERC Form 1	
technology	Technology		FERC Form 1	
steam	FERC classification of "Steam" electric generating plants. This is occasionally reported differently for individual utilities, but typically includes "Conventional Steam Coal" and "Natural Gas Steam Turbine" technologies.			RMI mapped the "plant_type" field in FERC plant-level tables to FERC classification
nuclear	FERC classification of "Nuclear" electric generating plants.			RMI mapped the "plant_type" field in FERC plant-level tables to FERC classification
hydro	FERC classification of "Conventional Hydroelectric" and "Hydroelectric Pumped Storage" electric generating plants.			RMI mapped the "plant_type" field in FERC plant-level tables to FERC classification
other_fossil	RMI refinement of FERC classification of "Other" electric generating plants. This category includes several types of gas plants (combined cycle, combustion turbine, internal combustion) all plants that use petroleum liquids for fuel, and other fossil fuel plants not included in the "steam" category.			RMI mapped the "plant_type" field in FERC plant-level tables to FERC classification
renewables	RMI refinement of FERC classification of "Other" electric generating plants. This category includes wind, solar, geothermal, and waste (municipal solid waste, landfill gas, waste biomass) plants.			RMI mapped the "plant_type" field in FERC plant-level tables to FERC classification
employees	Number of employees		FERC Form 1	

8 expenditure_bills_burden

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Reporting year		FERC Form 1	
percent_AMI	Fraction of Area Median Income. 100%+ includes all households with income above the area (county) median.		DOE LEAD Tool	
ownership	Classification of home ownership for the selected housing units ("owner" or "renter")		DOE LEAD Tool	
electricity_gas_other	Whether the technology corresponds to "Electricity," "Gas," or "Other Fuel" utility expenses		RMI	
technology	RMI's groupings of technologies		RMI	
steam	FERC classification of "Steam" electric generating plants. This is occasionally reported differently for individual utilities, but typically includes "Conventional Steam Coal" and "Natural Gas Steam Turbine" technologies.		RMI	
other_fossil	RMI refinement of FERC classification of "Other" electric generating plants. This category includes several types of gas plants (combined cycle, combustion turbine, internal combustion) all plants that use petroleum liquids for fuel, and other fossil fuel plants not included in the "steam" category.		RMI	Expenditures for the FERC classification of "Other" plants are taken directly from FERC tables or calculated as described in the "component" methodology below. Then, "other_fossil" = "Other" - "renewables"
nuclear	FERC classification of "Nuclear" electric generating plants.		RMI	
hydro	FERC classification of "Hydraulic" electric generating plants.		RMI	
renewables	RMI refinement of FERC classification of "Other" electric generating plants. This category includes wind, solar, geothermal, and waste (municipal solid waste, landfill gas, waste biomass) plants.		RMI	Expenditures for this category are based on estimates of depreciation and operation & maintenance expenses from plant-level tables in FERC form 1, and returns using capital balances from the assets_earnings table.
transmission	FERC classification of "Transmission" plant.		RMI	
distribution	FERC classification of "Distribution" plant.		RMI	
purchased_power	Purchased power		RMI	
other	Other physical and non-physical assets, including asset retirement obligations, tax assets, regulatory assets, construction work in progress, and other categories described on the assets_earnings tab.		RMI	
adjustment	Balancing item that accounts for the difference between RMI's revenue requirement estimate and actual customer bills.		RMI	
Gas	Expenditures for gas utility service.		RMI	
Other Fuels	Other household energy expenditures, including propane, fuel, and other fuels.		RMI	
expenditure	Annual expenditure for a utility residential customer group on a technology/component.	$	DOE LEAD Tool, EIA861, EIA176, EIA SEDS, FERC Form 1, RMI	Expenditures by county and household group from DOE LEAD Tool, connected to counties within a utility service territory from EIA861. Expenditures for all household groups scaled such that the sum of expenditures equals total residential customer revenues from EIA861. Expenditures multiplied by the fractional impact of each technology & component on customer bills, based on RMI's revenue requirement calculation using FERC Form 1 (results given in the revenue_by_tech table).
bill	Average (mean) monthly energy bill for residential customers	$/month/customer	FERC Form 1, EIA861, EIA176, EIA SEDS, RMI	= expenditure/housing_units/12
burden	Average (mean) annual fraction of income spent on energy bills for residential customers	fraction of income	FERC Form 1, EIA861, EIA176, EIA SEDS, RMI	= expenditure/income

To aggregate bill or burden to multiple utilities (e.g. a parent company or region), (1) aggregate the values in expenditure_bills_burden to that level, (2) aggregate housing_units_income to the same level, (3) combine the two data files, (4) calculate bill and burden using the equations above in the methodology column for each metric.

9 expenditure_bills_burden_detail

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Reporting year		FERC Form 1	
percent_AMI	Fraction of Area Median Income. 100%+ includes all households with income above the area (county) median.		DOE LEAD Tool	
ownership	Classification of home ownership for the selected housing units (“owner” or “renter”)		DOE LEAD Tool	
electricity_gas_other	Whether the technology corresponds to “Electricity,” “Gas,” or “Other Fuel” utility expenses		RMI	
technology	RMI’s groupings of technologies		RMI	
steam	FERC classification of “Steam” electric generating plants. This is occasionally reported differently for individual utilities, but typically includes “Conventional Steam Coal” and “Natural Gas Steam Turbine” technologies.		RMI	
other_fossil	RMI refinement of FERC classification of “Other” electric generating plants. This category includes several types of gas plants (combined cycle, combustion turbine, internal combustion) all plants that use petroleum liquids for fuel, and other fossil fuel plants not included in the “steam” category.		RMI	Expenditures for the FERC classification of “Other” plants are taken directly from FERC tables or calculated as described in the “component” methodology below. Then, “other_fossil” = “Other” - “renewables”
nuclear	FERC classification of “Nuclear” electric generating plants.		RMI	
hydro	FERC classification of “Hydraulic” electric generating plants.		RMI	
renewables	RMI refinement of FERC classification of “Other” electric generating plants. This category includes wind, solar, geothermal, and waste (municipal solid waste, landfill gas, waste biomass) plants.		RMI	Expenditures for this category are based on estimates of depreciation and operation & maintenance expenses from plant-level tables in FERC form 1, and returns using capital balances from the assets_earnings table.
transmission	FERC classification of “Transmission” plant.		RMI	
distribution	FERC classification of “Distribution” plant.		RMI	
purchased_power	Purchased power		RMI	
other	Other physical and non-physical assets, including asset retirement obligations, tax assets, regulatory assets, construction work in progress, and other categories described on the assets_earnings tab.		RMI	
adjustment	Balancing item that accounts for the difference between RMI’s revenue requirement estimate and actual customer bills.		RMI	
Gas	Expenditures for gas utility service.		RMI	
Other Fuels	Other household energy expenditures, including propane, fuel, and other fuels.		RMI	
component	RMI’s categorization of revenue sub components based on the following groupings:		RMI	
depreciation_expense	Depreciation expense		RMI	
depreciation_expense_for_asset_retirement_costs	Depreciation expense for asset retirement costs		RMI	
fuel_expenses	Fuel expenses		RMI	
maintenance_expenses	Maintenance expenses		RMI	
non_fuel_operation_expenses	Non fuel operation expenses		RMI	
purchased_power	Purchased power		RMI	
returns	Total returns on capital, including both interest expenses and shareholder returns		RMI	= asset_value * ROR_grossed_up asset_value from assets_earnings table, with corresponding technology and asset ROR_grossed_up = ROE/(1-blended_tax_rate)*equity_ratio + ROR - ROE*equity_ratio blended_tax_rate = federal_tax_rate + state_tax_rate*(1-federal_tax_rate) state_tax_rate calculated as a weighted average of state tax rates, based on revenues in each state ROE and ROR from assets_earnings table

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Table 5 - continued from previous page

Data field	Definition	Units	Data Source	Methodology
PTC	Production tax credit		RMI	= electricity generation from wind * PTC rate *-1 electricity generation from wind taken from operations_emissions_by_tech table applicable only in the renewables technology
detail	Additional level of detail of revenue within each technology/component		FERC Form 1, RMI	
expenditure	Annual expenditure for a utility residential customer group on a technology/component.	$	DOE LEAD Tool, EIA861, EIA176, EIA SEDS, FERC Form 1, RMI	Expenditures by county and household group from DOE LEAD Tool, connected to counties within a utility service territory from EIA861. Expenditures for all household groups scaled such that the sum of expenditures equals total residential customer revenues from EIA861. Expenditures multiplied by the fractional impact of each technology & component on customer bills, based on RMI's revenue requirement calculation using FERC Form 1 (results given in the revenue_by_tech table).
bill	Average (mean) monthly energy bill for residential customers	$/month /customer	FERC Form 1, EIA861, EIA176, EIA SEDS, RMI	= expenditure/housing_units/12
burden	Average (mean) annual fraction of income spent on energy bills for residential customers	fraction of income	FERC Form 1, EIA861, EIA176, EIA SEDS, RMI	= expenditure/income

To aggregate bill or burden to multiple utilities (e.g. a parent company or region), (1) aggregate the values in expenditure_bills_burden to that level, (2) aggregate housing_units_income to the same level, (3) combine the two data files, (4) calculate bill and burden using the equations above in the methodology column for each metric.

10 housing_units_income

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company			
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Year			
percent_AMI	Fraction of Area Median Income. 100%+ includes all households with income above the area (county) median.		DOE LEAD Tool	
ownership	Classification of home ownership for the selected housing units (“owner” or “renter”)		DOE LEAD Tool	
housing_units	Number of occupied housing units (or households), adjusted to match number of utility customers.		DOE LEAD Tool, EIA861, RMI	Number of housing units from DOE LEAD Tool by county in 2018, connected to counties served by the utility from EIA861 in 2018, scaled uniformly across all counties to match the total number of utility customers in 2018 from EIA861. To extrapolate to other years, number of housing units from DOE LEAD Tool scaled to the number of customers in each year from EIA861.
income	Total annual income for the group of housing units	$/year	DOE LEAD Tool, US Census SAIPE	Income from DOE LEAD Tool by county in 2018, connected to counties served by the utility from EIA861 in 2018. To extrapolate to other years, income from DOE LEAD Tool scaled based on county-level median income from US Census SAIPE.

To aggregate bill or burden to multiple utilities (i.e. a parent company or region), (1) aggregate the values in expenditure_bills_burden to that level, (2) aggregate housing_units_income to the same level, (3) combine the two data files, (4) calculate bill and burden using the equations above in the methodology column for each metric.

11 net_plant_balance

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Reporting year		FERC Form 1	
FERC_class	FERC technology classification, modified by RMI		FERC Form 1, RMI	All FERC classifications come directly from FERC, except for “other_fossil” and “renewables”, which are estimated components of the “other production plant” FERC classification. RMI used the “electric plant in service” and “accumulated provision for depreciation of electric utility plant” tables for the non-modified FERC classifications. To estimate original cost and accumulated depreciation of “renewables,” RMI used plant-level FERC data tables. To estimate accumulated depreciation of “renewables,” RMI tracked changes to original cost over time, and estimated additions to accumulated depreciation based on depreciation rates.
original_cost	Cumulative historical investment in plant components still in service.		FERC Form 1, RMI	
accum_depr	Accumulated depreciation of plant components still in service.		FERC Form 1, RMI	RMI estimated accumulated depreciation of asset retirement costs based on tracking historical changes to asset retirement costs and adding accumulated depreciation in each year based on depreciation rates. Then, RMI subtracted this estimate of accumulated depreciation of asset retirement costs from total accumulated depreciation to estimate accumulated depreciation of plant in service.
net_plant_balance	Remaining net plant balance of plant components still in service		FERC Form 1, RMI	= original_cost - accum_depr
ARC	Asset retirement costs		FERC Form 1, RMI	
ARC_accum_depr	Accumulated depreciation of asset retirement costs		FERC Form 1, RMI	RMI estimated accumulated depreciation of asset retirement costs based on tracking historical changes to asset retirement costs and adding accumulated depreciation in each year based on depreciation rates
net_ARC	Net remaining asset retirement costs		FERC Form 1, RMI	= ARC - ARC_accum_depr

This table includes all “electric plant in service” components, which is not comprehensive of a utility’s entire balance sheet. For the total balance sheet, see assets_earnings.

12 operations_emissions_by_fuel

Data field	Definition	Units	Data Source	Methodology
year	Reporting year		EIA 860, EIA 923	
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
plant_id_eia	Plant ID from EIA (aka ORISPL)		EIA 860	
plant_name_eia	Plant name from EIA		EIA 860	
generator_id	Generator ID from EIA		EIA 860	
state	State that the plant is located in		EIA 860	
city	City that the plant is located in		EIA 860	
county	County that the plant is located in		EIA 860	
latitude	Latitude		EIA 860	
longitude	Longitude		EIA 860	
balancing_authority_code_eia	Code for Balancing Authority that the plant is located in		EIA 860	
balancing_authority_name_eia	Name of Balancing Authority that the plant is located in		EIA 860	
iso_rto_code	Code for Independent System Operator (ISO) or Regional Transmission Operator (RTO) that the plant is connected to			
nerc_region	NERC region that the plant is located in		EIA 860	
owned_or_total	A filter used in the RMI Utility Transition Hub Portal. “Owned” lines are utility-owned power plants. “Total” lines include Purchased Power, Energy Efficiency, and Demand Response.		RMI	
operational_status_code	Operating status from EIA (end of year)		EIA 860	
BU	Backup		EIA 860	
CN	Cancelled		EIA 860	
IP	Indefinitely postponed		EIA 860	
L	Regulatory approvals pending		EIA 860	
OA	Out of Service, expected to return to service in next year		EIA 860	
OP	Operating		EIA 860	
OS	Out of Service		EIA 860	
OT	Other		EIA 860	
P	Planned		EIA 860	
RE	Retired		EIA 860	
SB	Standby		EIA 860	
T	Regulatory approvals received		EIA 860	
TS	Construction complete, not yet in operation		EIA 860	
U	Under construction, <50% complete		EIA 860	
V	Under construction, >50% complete		EIA 860	
operating_month	Month that the generator began operating		EIA 860	
operating_year	Year that the generator began operating		EIA 860	
retirement_month	Month that the generator retired		EIA 860	
retirement_year	Year that the generator retired		EIA 860	
energy_source	Source of energy. Options include Net Generation (generation from owned power plants), Wholesale Power Purchases, Net Exchanges, Net Wheeled Power, Transmission by Others Losses, Energy Efficiency, and Demand Response.		EIA 861	
technology_eia	Technology description from EIA		EIA 860	
technology_rmi	Technology description from RMI		RMI	technology_rmi is a more coarse technology grouping than technology_eia, used to connect EIA and FERC datasets.
energy_source_code	Energy Source Code (describes fuel type)		EIA 923	
AB	Agricultural By-Products		EIA 923	
ANT	Anthracite Coal		EIA 923	
BFG	Blast Furnace Gas		EIA 923	
BIT	Bituminous Coal		EIA 923	

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Table 6 - continued from previous page

Data field	Definition	Units	Data Source	Methodology
BLQ	Black Liquor		EIA 923	
CBL	Blended Coal		EIA 923	
DFO	Distillate Fuel Oil		EIA 923	
GEO	Geothermal		EIA 923	
JF	Jet Fuel		EIA 923	
KER	Kerosene		EIA 923	
LFG	Landfill Gas		EIA 923	
LIG	Lignite Coal		EIA 923	
MSB	Biogenic Municipal Solid Waste		EIA 923	
MSN	Non-biogenic Municipal Solid Waste		EIA 923	
MSW	Municipal Solid Waste		EIA 923	
MWH	Electricity used for energy storage		EIA 923	
NG	Natural Gas		EIA 923	
NUC	Nuclear		EIA 923	
OBG	Other Biomass Gas		EIA 923	
OBL	Other Biomass Liquids		EIA 923	
OBS	Other Biomass Solids		EIA 923	
OG	Other Gas		EIA 923	
OTH	Other Fuel		EIA 923	
PC	Petroleum Coke		EIA 923	
PG	Propane Gas		EIA 923	
PUR	Purchased Steam		EIA 923	
RC	Refined Coal		EIA 923	
RFO	Residual Fuel Oil		EIA 923	
SC	Coal-based Synfuel		EIA 923	
SGC	Synthesis Gas Derived from Coal		EIA 923	
SGP	Synthesis Gas Derived from Petroleum Coke		EIA 923	
SLW	Sludge Waste		EIA 923	
SUB	Subbituminous Coal		EIA 923	
SUN	Solar		EIA 923	
TDF	Tire-Derived Fuel		EIA 923	
WAT	Water		EIA 923	
WC	Waste Coal		EIA 923	
WDL	Wood Waste Liquids		EIA 923	
WDS	Wood/Wood Waste Solids		EIA 923	
WH	Waste Heat		EIA 923	
WND	Wind		EIA 923	
WO	Waste Oil		EIA 923	
COAL	Coal		EIA 923	
OIL	Oil		EIA 923	
BIO	Biomass		EIA 923	
fuel_type_category	Fuel Type Category, determined by RMI groupings for display in the Utility Transition Hub Portal		RMI	
net_generation	Net generation	TWh	EIA 860, EIA 923	Generation from EIA923, allocated to each generator in EIA860 based on a priority of: (a) net generation from EIA923 generator-level data (b) net generation from EIA923 prime mover/fuel type data, allocated to all generators with the same prime mover and fuel type based on capacity then multiplied by ownership fraction of each generator by utility.
fuel_consumed	Energy content of fuel consumed	MMBtu	EIA 860, EIA 923	Fuel consumption from EIA923, allocated to each generator in EIA860 based on a priority of: (a) net generation from EIA923 generator-level data (b) net generation from EIA923 prime mover/fuel type data, allocated to all generators with the same prime mover and fuel type based on capacity then multiplied by ownership fraction of each generator by utility.

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Table 6 - continued from previous page

Data field	Definition	Units	Data Source	Methodology
emissions_co2	Emissions of carbon dioxide from fossil fuel combustion	MMT	EIA 860, EIA 923, EPA AMPD	= fuel_consumed [MMBtu] * emissions_factor [MMT of CO_2/MMBtu] emissions_factor specific to each fuel_type_code
emissions_nox	Emissions of nitrous oxides from fossil fuel combustion	metric tons	EIA 860, EIA 923, EPA AMPD	plant-level NO_x emissions, allocated to each generator based on capacity, then multiplied by ownership fraction of each generator by utility.
emissions_sox	Emissions of sulphur oxides from fossil fuel combustion	metric tons	EIA 860, EIA 923, EPA AMPD	plant-level SO_x emissions, allocated to each generator based on capacity, then multiplied by ownership fraction of each generator by utility.

13 operations_emissions_by_tech

Data field	Definition	Units	Data Source	Methodology
year	Reporting year		FERC Form 1	
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
plant_id_eia	Plant ID from EIA (aka ORISPL)		EIA 860	
plant_name_eia	Plant name from EIA		EIA 860	
generator_id	Generator ID from EIA		EIA 860	
state	State that the plant is located in		EIA 860	
city	City that the plant is located in		EIA 860	
county	County that the plant is located in		EIA 860	
latitude	Latitude		EIA 860	
longitude	Longitude		EIA 860	
balancing_authority_code_eia	Code for Balancing Authority that the plant is located in		EIA 860	
balancing_authority_name_eia	Name of Balancing Authority that the plant is located in		EIA 860	
iso_rto_code	Code for Independent System Operator (ISO) or Regional Transmission Operator (RTO) that the plant is connected to			
nerc_region	NERC region that the plant is located in		EIA 860	
operational_status_code	Operating status from EIA (end of year)		EIA 860	RMI considers “OP”, “SB”, and “BU” to be operating statuses for end-of-year capacity in the Utility Transition Hub Portal.
BU	Backup		EIA 860	
CN	Cancelled		EIA 860	
IP	Indefinitely postponed		EIA 860	
L	Regulatory approvals pending		EIA 860	
OA	Out of Service, expected to return to service in next year		EIA 860	
OP	Operating		EIA 860	
OS	Out of Service		EIA 860	
OT	Other		EIA 860	
P	Planned		EIA 860	
RE	Retired		EIA 860	
SB	Standby		EIA 860	
T	Regulatory approvals received		EIA 860	
TS	Construction complete, not yet in operation		EIA 860	
U	Under construction, <50% complete		EIA 860	
V	Under construction, >50% complete		EIA 860	
operating_month	Month that the generator began operating		EIA 860	
operating_year	Year that the generator began operating		EIA 860	
retirement_month	Month that the generator retired		EIA 860	
retirement_year	Year that the generator retired		EIA 860	
energy_source	Source of energy. Options include Net Generation (generation from owned power plants), Wholesale Power Purchases, Net Exchanges, Net Wheeled Power, Transmission by Others Losses, Energy Efficiency, and Demand Response.		EIA 861	
technology_eia	Technology description from EIA		EIA 860	
technology_rmi	Technology description from RMI		RMI	technology_RMI is a more coarse technology grouping than technology_EIA, used to connect EIA and FERC datasets.
capacity	Nameplate capacity	GW	EIA 860	Generator capacity from EIA860 generators table, multiplied by ownership fraction from EIA860 ownership table.
year_end_capacity	Nameplate capacity at end of year	GW	EIA 860	

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Data field	Definition	Units	Data Source	Methodology
net_generation	Net generation	TWh	EIA 860, EIA 923	Generation from EIA923, allocated to each generator in EIA860 based on a priority of: (a) net generation from EIA923 generator-level data (b) net generation from EIA923 prime mover/fuel type data, allocated to all generators with the same prime mover and fuel type based on capacity then multiplied by ownership fraction of each generator by utility.
potential_generation	The total potential generation of a generator, if the generator operated at its nameplate capacity at all times.	TWh	EIA 860, RMI	=capacity*number of hours in the year that the plant was online RMI assumed that generators that retire partway through a year are online until the 28th of the month in which they retire RMI assumed that generators that come online partway through a year are online starting on the first of the month in which they start operating
capacity_factor	The ratio of actual energy produced to its hypothetical maximum possible (a "utilization factor")		EIA 860, EIA 923	#NAME?
fuel_consumed	Energy content of fuel consumed	MMBTU	EIA 860, EIA 923	Fuel consumption from EIA923, allocated to each generator in EIA860 based on a priority of: (a) net generation from EIA923 generator-level data (b) net generation from EIA923 prime mover/fuel type data, allocated to all generators with the same prime mover and fuel type based on capacity then multiplied by ownership fraction of each generator by utility.
emissions_co2	Emissions of carbon dioxide from fossil fuel combustion	MMT	EIA 860, EIA 923, EPA AMPD	= fuel_consumed [MMBtu] * emissions_factor [MMT of CO_2/MMBtu] emissions_factor specific to each fuel_type_code (see operations_emissions_by_fuel for fuel_type_code)
emissions_nox	Emissions of nitrous oxides from fossil fuel combustion	metric tons	EIA 860, EPA AMPD	plant-level NO_x emissions, allocated to each generator based on capacity, then multiplied by ownership fraction of each generator by utility.
emissions_sox	Emissions of sulphur oxides from fossil fuel combustion	metric tons	EIA 860, EPA AMPD	plant-level SO_x emissions, allocated to each generator based on capacity, then multiplied by ownership fraction of each generator by utility.

If aggregating capacity online at the end of the year as we do in the Utility Transition Hub Portal, use the "year_end_capacity" field instead of the "capacity" field.

13.1 Purchased power methodology

This script performs light cleaning on Purchased Power data from FERC Form 1 respondents, calculates purchased power emissions for respondents using emissions intensity data, and outputs 2 CSVs with that information. 1 CSV is generated based on owned_generators_fuel and the other from owned_generators_tech.

The FERC Form 1 Purchased Power data has information on entities that sold electricity to FERC Form 1 respondents. We matched entities to known utilities, plants, or electricity markets, based on their names. We then take the matched purchased power data and merge it with emissions intensity data for the plant, utility or Balancing Authority.

Plant and utility emissions intensity are calculated using the owned_generators_tech and owned_generators_fuel datasets which had their CO_2 emissions derived from EIA 860 and 923 data.

When the plant's emissions intensity is known, it's value is used on the plant/technology level. If plant information is unavailable but the utility or market is known, that emissions intensity value is used. When there is no specific information available, the Balancing Authority intensity for the Balancing Authority that the FERC 1 respondent operates in is used. To calculate the emissions, purchased_net_generation is multiplied by the applicable emissions intensity.

14 revenue_by_tech

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
year	Year			
technology	RMI's groupings of technologies		RMI	
steam	FERC classification of "Steam" electric generating plants. This is occasionally reported differently for individual utilities, but typically includes "Conventional Steam Coal" and "Natural Gas Steam Turbine" technologies.		RMI	
other_fossil	RMI refinement of FERC classification of "Other" electric generating plants. This category includes several types of gas plants (combined cycle, combustion turbine, internal combustion) all plants that use petroleum liquids for fuel, and other fossil fuel plants not included in the "steam" category.		RMI	Revenues for the FERC classification of "Other" plants are taken directly from FERC tables or calculated as described in the "component" methodology below. Then, "other_fossil" = "Other" - "renewables"
nuclear	FERC classification of "Nuclear" electric generating plants.		RMI	
hydro	FERC classification of "Hydraulic" electric generating plants.		RMI	
renewables	RMI refinement of FERC classification of "Other" electric generating plants. This category includes wind, solar, geothermal, and waste (municipal solid waste, landfill gas, waste biomass) plants.		RMI	Revenues for this category are based on estimates of depreciation and operation & maintenance expenses from plant-level tables in FERC form 1, and returns using capital balances from the assets_earnings table.
transmission	FERC classification of "Transmission" plant.		RMI	
distribution	FERC classification of "Distribution" plant.		RMI	
purchased_power	Purchased power		RMI	
other	Other physical and non-physical assets, including asset retirement obligations, tax assets, regulatory assets, construction work in progress, and other categories described on the assets_earnings tab.		RMI	
adjustment	Balancing item to account for difference between RMI's revenue requirement estimate and actual revenues collected.		RMI	Calculated as the difference between RMI's total revenue estimate without an adjustment and actual revenues collected from EIA861.
component	RMI's categorization of revenue components based on the following groupings:		RMI	
adjustment	Balancing item to account for difference between RMI's revenue requirement estimate and actual revenues collected.		RMI	Calculated as the difference between RMI's total revenue estimate without an adjustment and actual revenues collected from EIA861.
amort_&_depl_of_utility_plant	Amortization and Depletion of Utility Plant		RMI	
depreciation_expense	Depreciation expense		RMI	
depreciation_expense_for_asset_retirement_costs	Depreciation expense for asset retirement costs		RMI	
fuel_expenses	Fuel Expenses		RMI	
maintenance_expenses	Maintenance expenses		RMI	
non_fuel_operation_expenses	Operation expenses excluding fuel		RMI	
PTC	Production tax credit		RMI	Generation from wind power plants (from the operation_emissions_by_tech data file) multiplied by the production tax credit rate.
purchased_power	Purchased power expenses		RMI	
returns	Total returns on capital, including both interest expenses and shareholder returns		RMI	= asset_value * ROR_grossed_up asset_value from assets_earnings table, with corresponding revenue_component and asset ROR_grossed_up = ROE/(1-blended_tax_rate)*equity_ratio + ROR - ROE*equity_ratio blended_tax_rate = federal_tax_rate + state_tax_rate*(1-federal_tax_rate) state_tax_rate calculated as a weighted average of state tax rates, based on revenues in each state ROE and ROR from assets_earnings table
detail	Additional level of detail of revenue within each technology/component		FERC Form 1, RMI	

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Data field	Definition	Units	Data Source	Methodology
revenue_total	revenue from all customer classes	$	FERC Form 1, EIA 861, RMI	Most values taken directly from FERC Form 1 income statement and income statement detail tables (others described above). RMI estimated which lines would be included in revenue requirements; thus these values represent what revenues would have been if this year were used as a test year for a revenue requirement calculation.
revenue_residential	revenue from residential customer class	$	FERC Form 1, EIA 861, RMI	= revenue_total * revenue_residential/revenues_total revenues_residential and revenues_total from customers_sales table

15 state_policies

Data field	Definition	Units	Data Source	Methodology
state	State			
state_abbr	State Abbreviation			
securitization_policy	Status of securitization legislation for coal plant retirements.		C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation	
market_indexing_policy	Status of market indexing legislation.		C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation	
fuel_pass_through	"Passed through" means that 100% of fuel costs incurred by electric utilities are allowed to be passed on to customers in the state. "Shared" means that there is some level of cost sharing between electric utilities and customers.		Finance Lab	
governor_party	Political party that the governor belongs to.		Ballotpedia	
legislation_majority_party	Political party that controls the state legislature.		Ballotpedia	

16 state_targets

Data field	Definition	Data Source
state	State	
year	Year the target_value of the target_type applies to (e.g. 80% GHG reduction by 2050 for New Jersey)	C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation
year_type	Whether the year_type is a base, interim, or final year associated with the target	C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation
legal_standard	Whether the target was passed through executive or legislative mechanisms	C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation
enforcement_standard	Whether the target is mandatory or a non-binding goal (voluntary)	C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation
target_type	Whether the target_value refers to a greenhouse gas (GHG) reduction or a renewable portfolio standard (RPS)	C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation
target_value	The percentage reduction of GHGs or percentage of renewables required under an RPS	C2ES, NCSL, NREL, US Climate Alliance, DSIRE, state legislation

17 utility_information

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
parent_LEI	Legal Entity Identifier of the parent company		GLEIF	
parent_ticker	Ticker symbol, or stock symbol, of the stock for ultimate parent company		Yahoo! Finance	
parent_isin	International Securities Identification Number (ISIN), a code for the securities issued by the ultimate parent company		Yahoo! Finance	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
utility_id_eia	Utility Code from EIA		EIA	
utility_lei	Legal Entity Identifier of the utility		GLEIF	
entity_type_eia	Entity type from EIA		EIA 861	
utility_type_rmi	Type of utility as classified by RMI		RMI	Characterization based on entity_type from EIA861, the types of assets owned by the utility, and the business model of the utility.
first_report_year	Year in which utility began reporting to FERC Form 1		FERC Form 1	Determined by whether or not the utility reported a balance sheet in FERC Form 1
last_report_year	Year in which utility last reported to FERC Form 1		FERC Form 1	Determined by whether or not the utility reported a balance sheet in FERC Form 1
duplicate_utility_id_eia	Whether or not the utility_id_eia is a duplicate of another utility_id_eia, because the respondent is either an old company that has since merged into a new FERC respondent or the respondent has the same name as another respondent but does not report any data. This duplication is important to note when converting utility_id_eia to respondent_id; the lines where duplicate_utility_id_eia=True should be removed to avoid double-counting of a dataset.		RMI	

Relationships between utilities and parent companies were determined by RMI using company websites, and are current as of end of this dataset (2020).

18 utility_state_map

Data field	Definition	Units	Data Source	Methodology
parent_name	Name of ultimate parent company		RMI	
utility_name	Name of utility		RMI	
respondent_id	Utility ID from FERC		FERC Form 1	
state_abbr	State Abbreviation			
state	State			
capacity_owned_in_state	Total nameplate capacity of plants owned by the utility in this state.	MW	EIA860	
capacity_operated_in_state	Total nameplate capacity of plants operated by the utility in this state.	MW	EIA860	
mwh_sales_in_state	Energy sales, in MWh, to all customer types.	MWh	EIA861	