

Status of the Natural Gas Distribution System

February 9, 2023

Overview

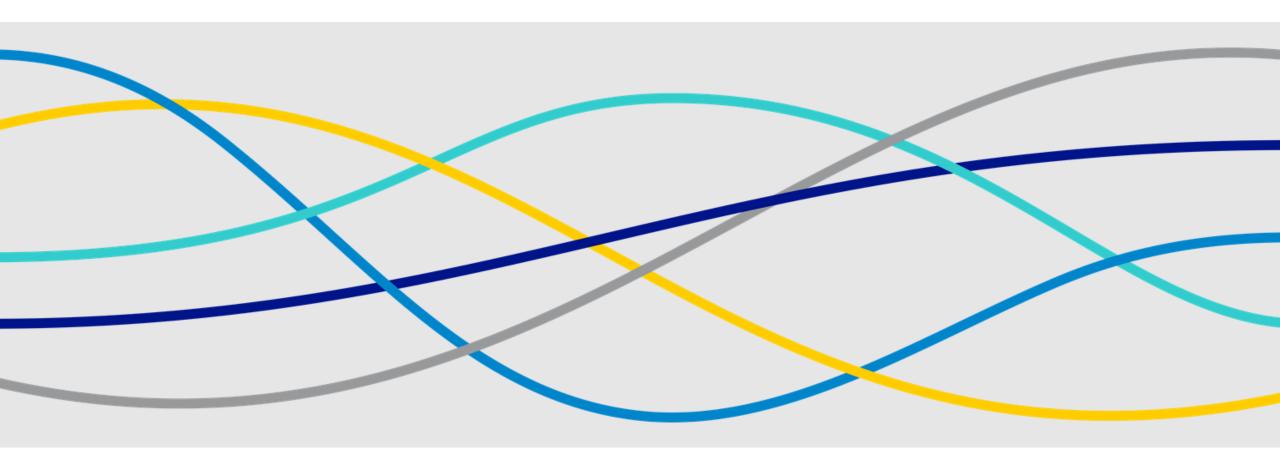


Objective: Status of the Natural Gas Distribution System

Content:

- Overview of Energy Consumption
- RIE Natural Gas Distribution System
- RIE Natural Gas Service Area
- RIE Natural Gas Demand and Gas Supply Resources



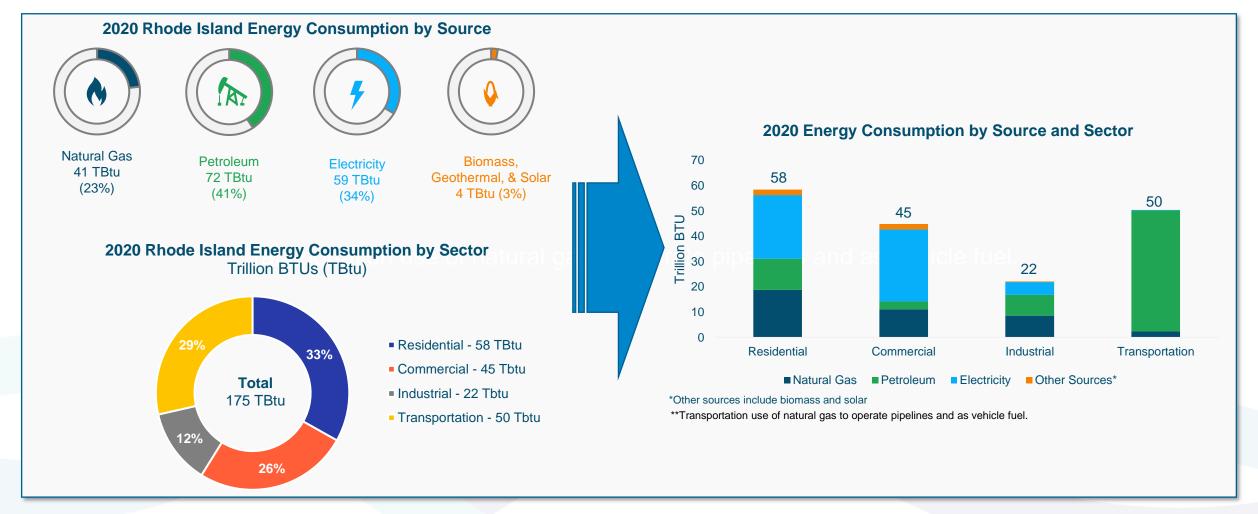


Overview of Energy Consumption

Statewide End-Use Energy Consumption



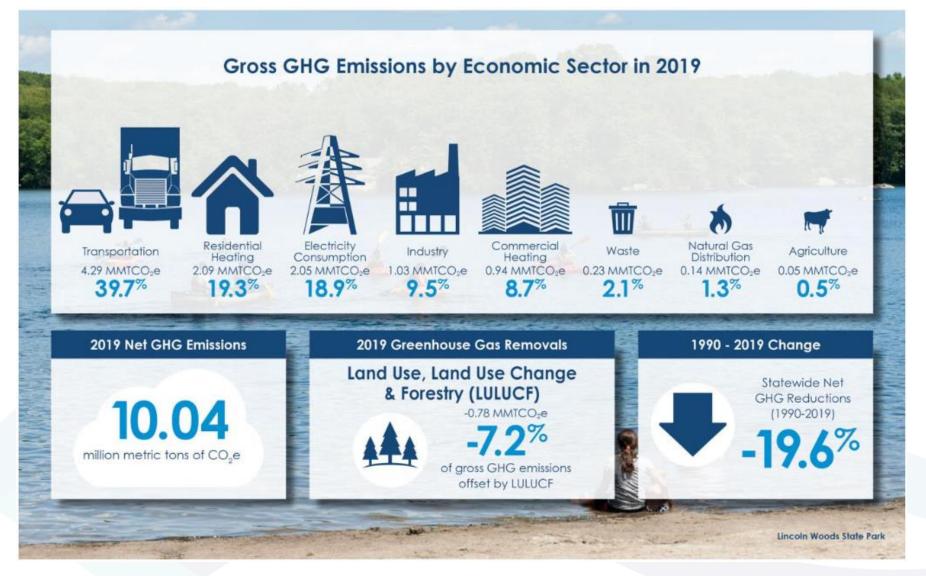
• Rhode Island consumed approximately 175 trillion British thermal units (TBtu) of energy in 2020, which represents approximately 0.2% of the total 92,862 TBtu of U.S. energy consumption



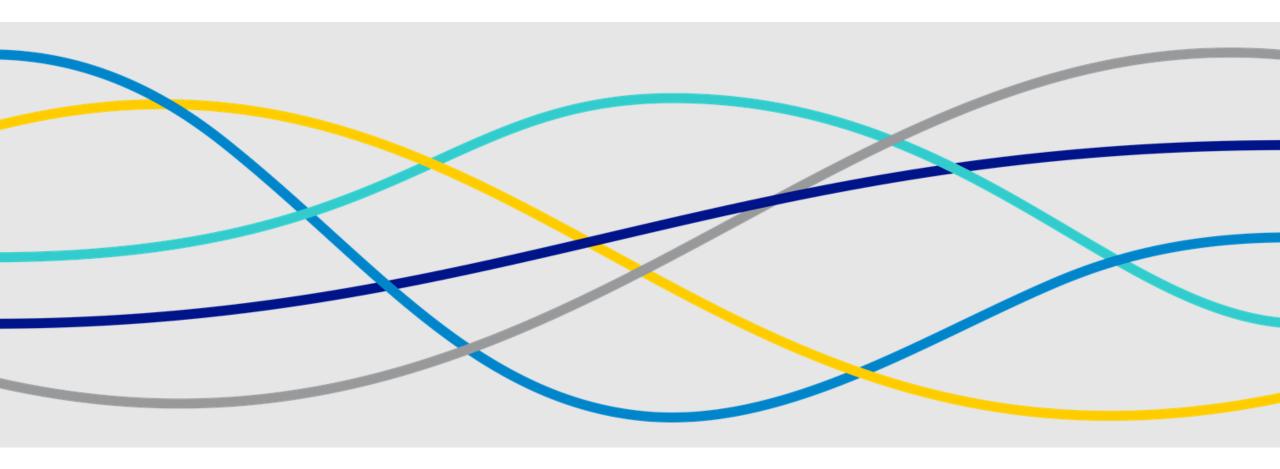
Economy-wide Emissions



Rhode Island emitted approximately 0.2% of the total 6,571.73 MMTCO2e of greenhouse gas emissions in the U.S. in 2019





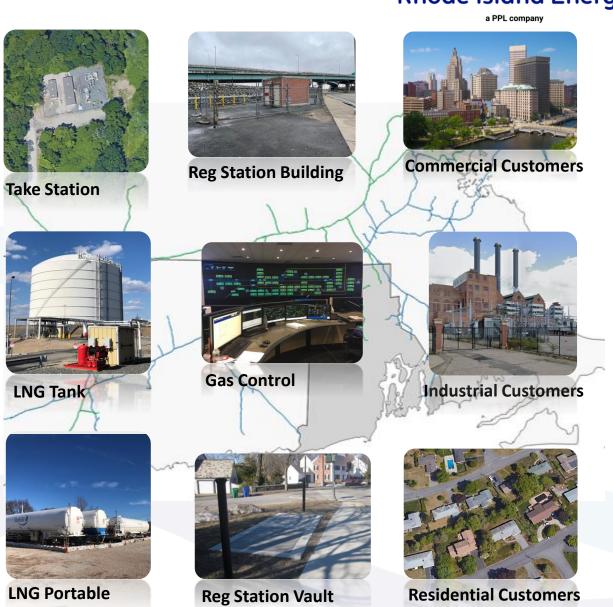


RIE Natural Gas Distribution System

Summary of RIE

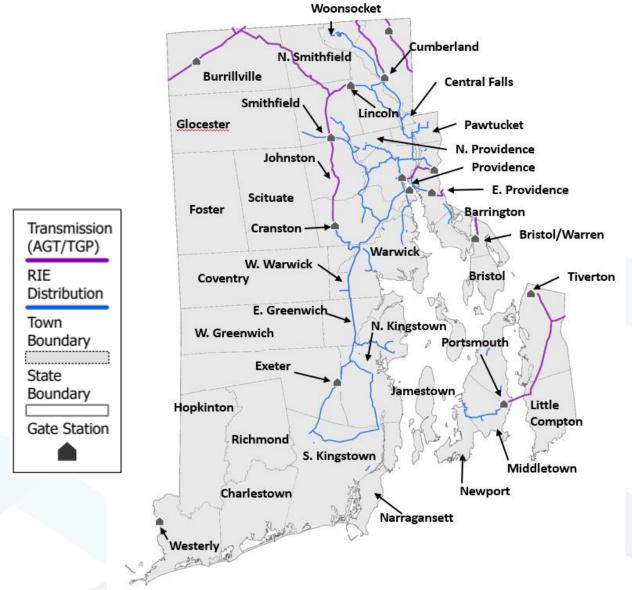


Gas Customers	273,000		
Annual Gas Deliveries (Bcf)	39.67		
Distribution Main (miles)	3,227		
Gate Stations	15		
Gas Regulation Facilities	190		
LNG Storage	1		
LNG Storage Capacity (Bcf)	0.19		
Portable LNG	2		



Map of RIE Distribution System





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Gas Infrastructure, Safety, and Reliability (ISR) Plan



- Under the ISR Plan, RIE has decreased its inventory of cast iron and unprotected steel mains through proactive main replacement and other programs
- Replacement Rate: ~60-65 miles of mains per year



Data sources and years reviewed:

- bocket No. 5210: FY2023 Gas Infrastructure, Safety, and Reliability Plan, at p.13 & 15
 - Docket No. 5210: FY2023 Gas Infrastructure, Safety, and Reliability Plan, Section 2: Gas Capital Investment Plan, at p.13

Mains and Services by Material

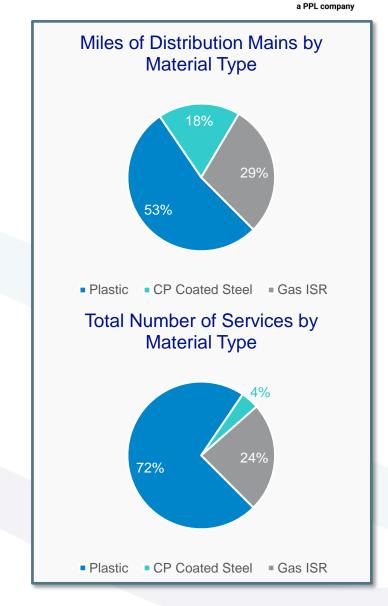
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Mains by Material

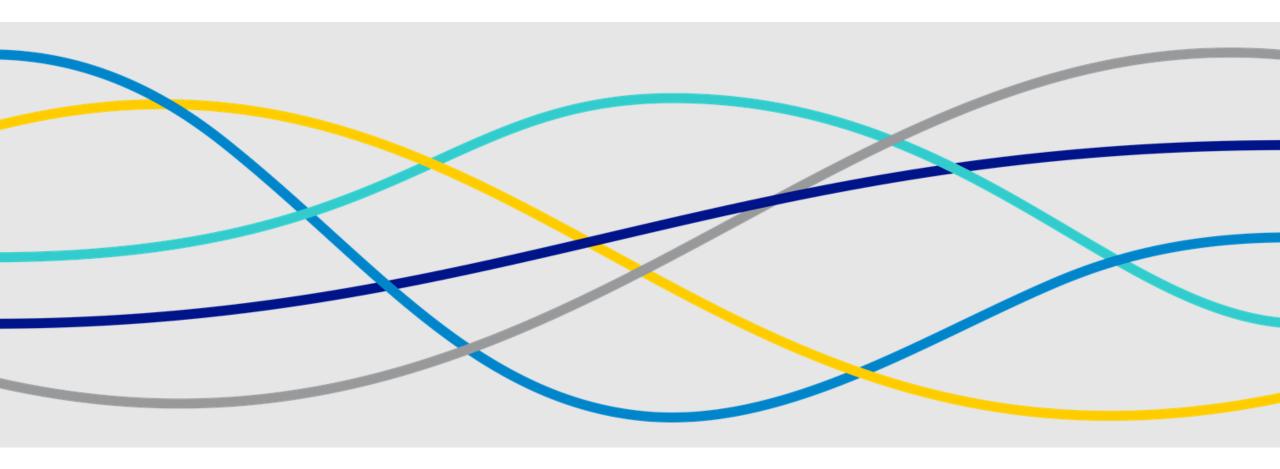
- Approximately half of all distribution mains consist of plastic materials
- Approximately 29% of all distribution mains consist of Gas ISR targeted materials, of which cast iron represents the largest proportion

Services by Material

- Approximately 72% of all services consist of plastic materials
- Approximately 24% of all services consist of Gas ISR targeted materials







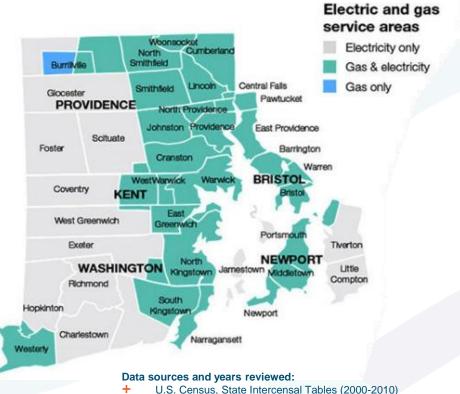
RIE Natural Gas Service Area

Service Area: Gas & Electric Customers



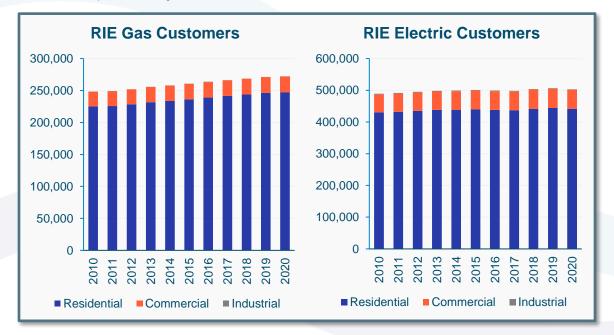
- RIE provides electricity service to most of the state, and natural gas service to parts of the state
- Natural gas customer growth (0.9%) has been faster than overall state population growth (0.4%), reflecting fuel conversion activity

Rhode Island Energy Service Areas



	Rhode Island	U.S. Total
2020 Total Gas Customers	272,500	77 million
CAGR* (2010 – 2020)	0.9%	1.6%
2020 Total Electric Customers	503,000	157 million
CAGR* (2010 – 2020)	0.3%	0.8%
2020 Total Population	1.1 million	331 million
CAGR* (2010 – 2020)	0.4%	0.7%

^{*} CAGR = compound annual growth rate



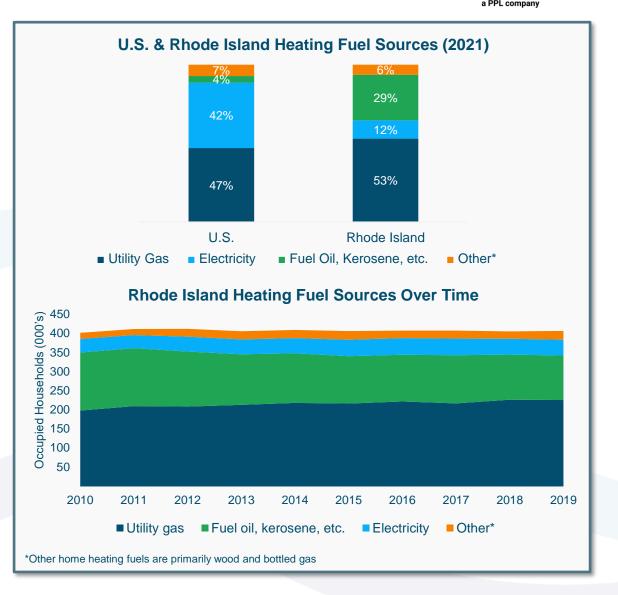
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U.S. Census, State Population Totals (2020)

Service Area: Home Heating Fuel

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- Natural gas has the highest market share for home heating needs in Rhode Island, consistent with the rest of U.S.
- The second most common fuel for home heating needs in Rhode Island is fuel oil (29%), which is in contrast with the rest of U.S. where electricity is a more common fuel for home heating (42%)
- Since 2010, the proportion of homes heated by natural gas has grown in Rhode Island



Data sources and years reviewed:

U.S. Census, Decennial Census (2000)

U.S. Census, American Community Survey, 1-Year Estimates (2010-2021)

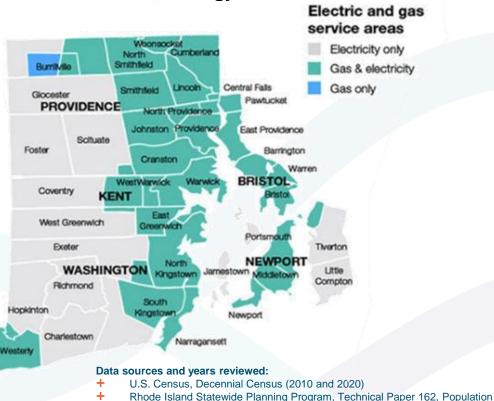
Service Area: Home Heating Fuel by County



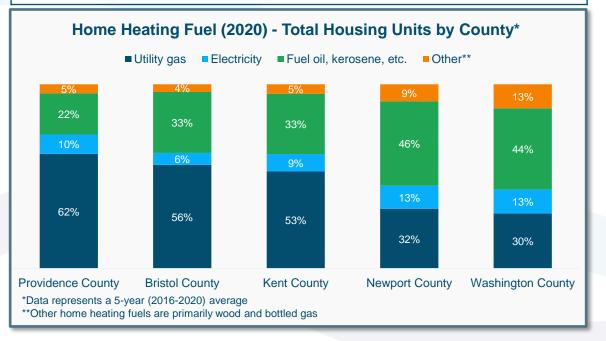
PPL company

- Natural gas has the highest market share for heating homes in Providence, Bristol, and Kent counties
- Households in Newport and Washington counties primarily use fuel oil for home heating (~44% and ~46%, respectively)

Rhode Island Energy Service Areas



County	2020 Population	2040 Estimate	2010-2020 CAGR*	2021-2040 CAGR*	Density (people/sq. mile)
Providence	660,700	635,900	0.5%	-0.2%	1,600
Bristol	50,800	48,400	0.2%	-0.3%	2,100
Kent	170,400	179,600	0.3%	0.3%	1,000
Newport	85,600	74,800	0.3%	-0.7%	800
Washington	129,800	131,400	0.2%	0.1%	400
Total	1,097,300	1,070,100	0.4%	-0.1%	1,100



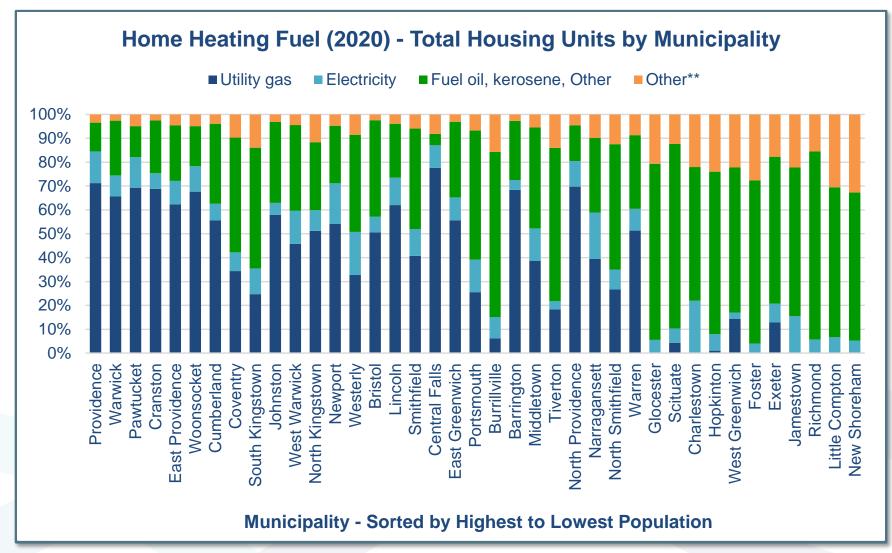
Projects 2010-2040

U.S. Census, Quick Facts: Rhode Island (2022)

U.S. Census, American Community Survey, 5-Year Estimates (2020)

Service Area: Home Heating Fuel by Municipality

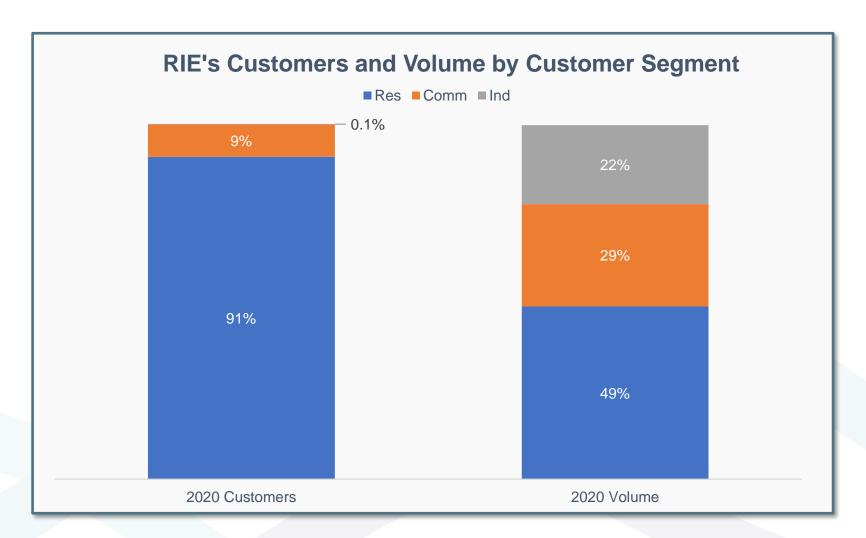




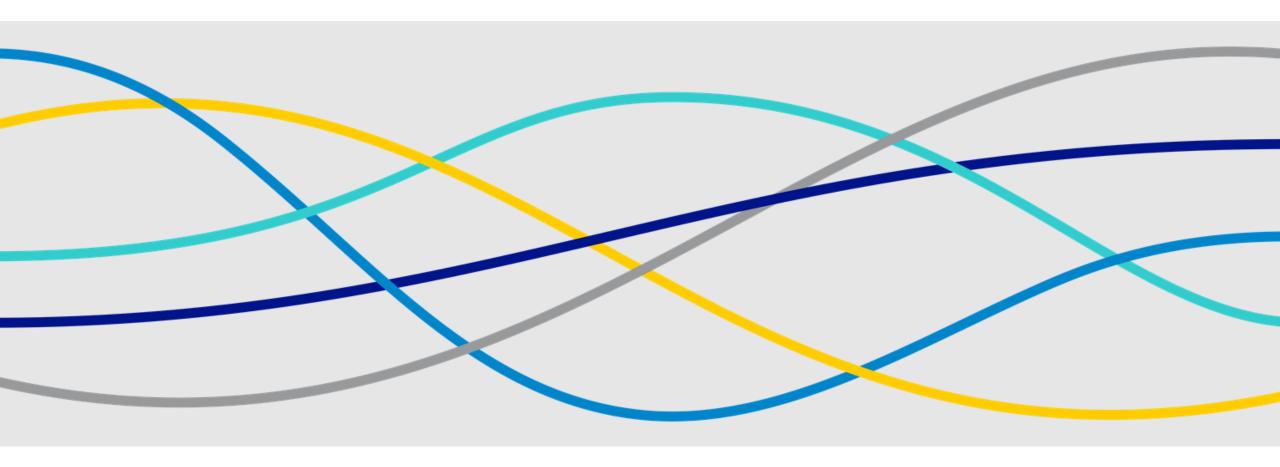
U.S. Census, American Community Survey, 5-Year Estimates (2020)

RIE Customers and Volumes





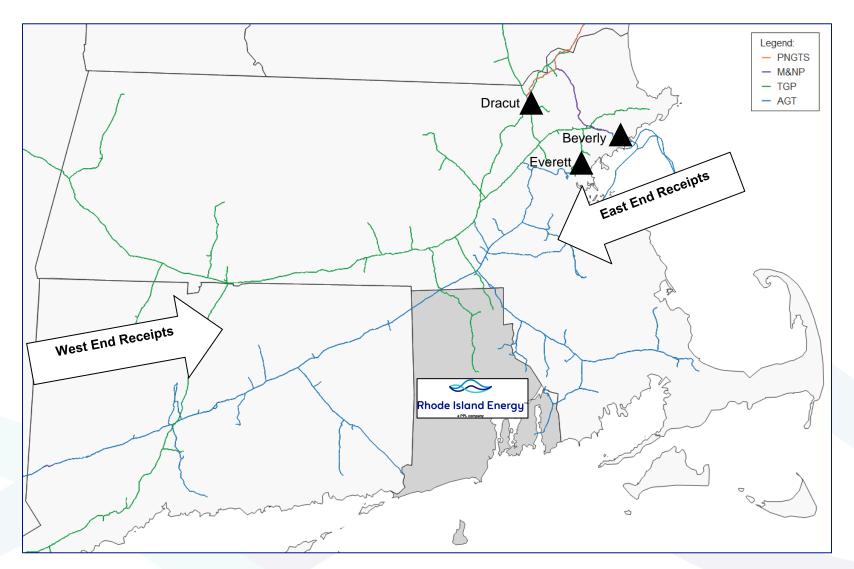




RIE Natural Gas Demand and Gas Supply Resources

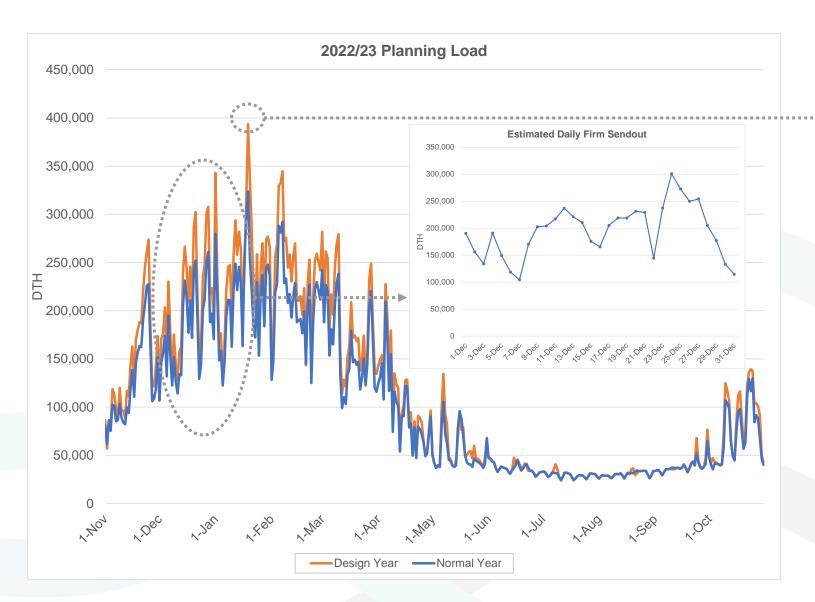
Regional Market Environment



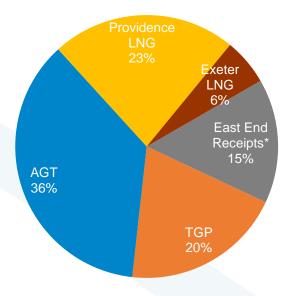


Forecasted Demand and Gas Supply Portfolio



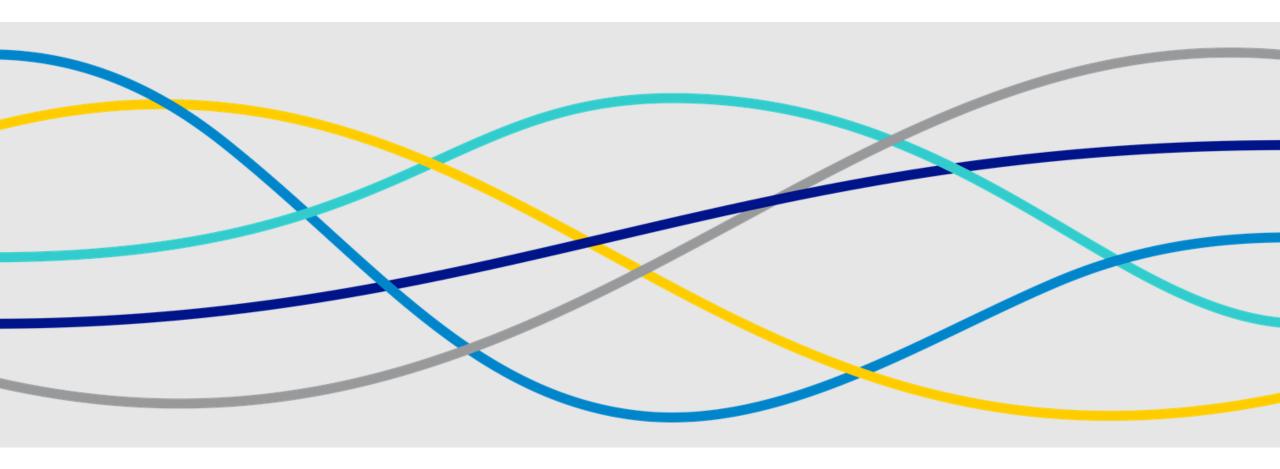


Design Day - Gas Supply Portfolio



* Note: East End receipts includes capacity originating at Dracut, Beverly, and Everett





Thank you