

9.0 ENERGY

9.1 Introduction

This chapter includes a summary of existing conditions regarding current energy utilities, systems, usage, and renewable energy in Cranston. Energy, within the context of this chapter, refers to utility services which generate electricity, transmit, distribute, and meter energy usage. The existing conditions summary is intended to help develop meaningful actions that support and sustain adequate energy service, emergency back-up energy, and identify potential opportunities for the creation of renewable energy. Adequate energy services are a crucial component of everyday City functions to sustain essential facilities and services, economic activities, school system, and food supply systems. Energy service is also an essential aspect of emergency preparedness and responses as utilities are impacted by extreme weather events. Extreme weather events often cause service disruptions including extreme temperatures that cause outages due to brownouts. By understanding current energy usage, the City can better predict future needs and prepare for potential vulnerabilities. Comprehensive planning can help municipalities assess their energy expenditures to pinpoint ways to reduce spending, enhance access and redundancy, and meet net zero emissions goals.

9.2 Existing Conditions

The production and continuous supply of energy is critical for sustaining everyday activities. Understanding existing conditions as they relate to energy production and supply will help the City develop meaningful actions to support and sustain adequate energy service, enhance energy efficiency, and identify potential opportunities for the creation of renewable energy.

The Rhode Island Comprehensive Planning Handbook describes energy as: “three sectors - electricity, heating and cooling, and transportation - and the resources used to create the energy for those sectors.” Within the context of comprehensive planning, those sectors can be described as follows.

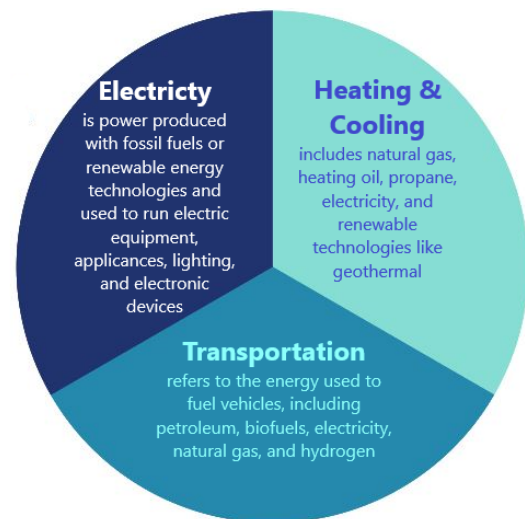


Figure 9-1. The three sectors of energy

- Electricity is power produced with fossil fuels, nuclear energy, hydro power or renewable energy technologies and used to run electric equipment, appliances, lighting, and electronic devices.
- Heating and Cooling includes natural gas, heating oil, propane, electricity, and renewable technologies, like geothermal, solar energy, wind energy.
- Transportation refers to the energy used to fuel vehicles, including petroleum, biofuels, electricity, natural gas, and hydrogen.

9.2.1 Energy Supply & Use

Rhode Island is a part of the New England power system managed by ISO New England that distributes power to Electric Distribution Companies (EDC)¹. The major electric company in Cranston is Rhode Island Energy, the largest EDC in Rhode Island, which is owned by PPL Corp. National Grid was purchased by PPL Corp in June of 2023, ending their twenty-three-year reign as the largest EDC in the state. However, customers can also buy electricity from Pascoag Utility District, and Block Island Power Company in certain areas of the state. The Central Power Plant is located at 11 Power Road.

According to the U.S. Energy Information Administration, the residential sector has the highest energy usage in Rhode Island (2022).

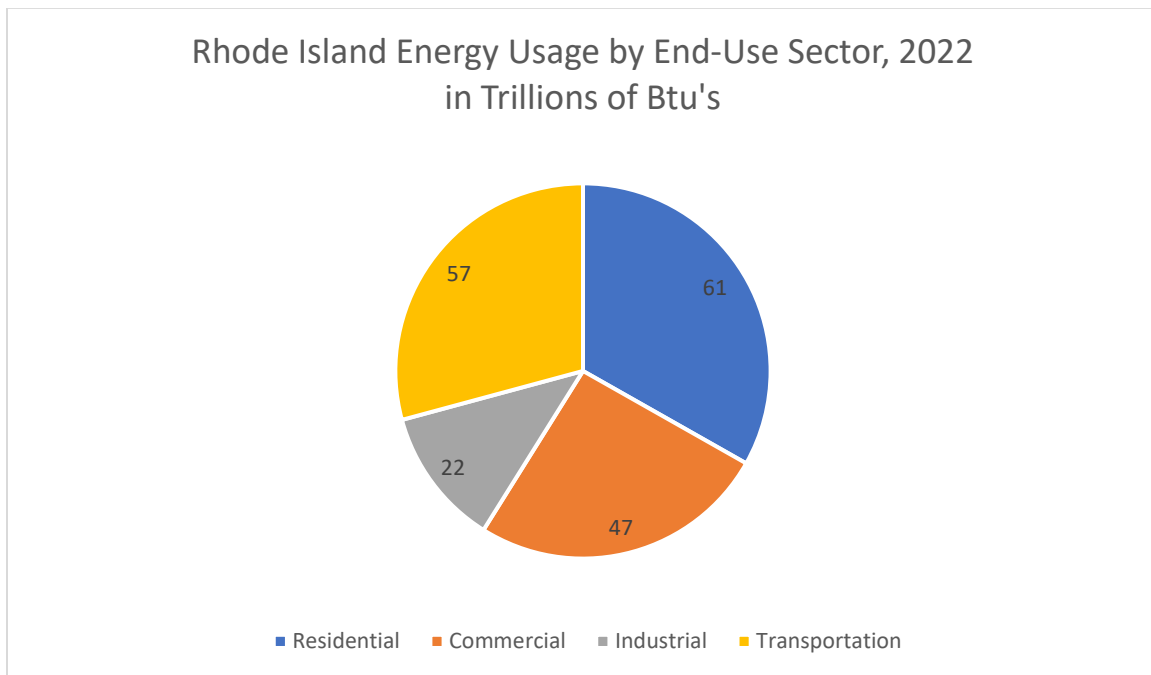


Figure 9-2. Rhode Island Energy Usage by End-Use Sector, 2022
Source: Energy Information Administration, State Profile and Energy Estimates

In June of 2022, the General Assembly passed historic legislation requiring that one hundred percent of electricity sold to Rhode Island consumers, with the exception of consumers of Block Island Power Company or Pascoag Utility District, shall originate from renewable energy by 2033. Renewable energy resources are defined by the state's Renewable Energy Standard (RIGL § 39-26-5) as the following:

1. Direct solar radiation
2. The wind
3. Movement or the latent heat of the ocean
4. The heat of the earth
5. Small hydro facilities
6. Biomass facilities using eligible biomass fuels and maintaining compliance with current air permits

¹ <https://energy.ri.gov/sites/g/files/xkgbur741/files/documents/renewable/The-Road-to-100-Percent-Renewable-Electricity---Brattle-04Feb2021.pdf>

7. Fuel cells using the renewable resources referenced above in this section

To help achieve this goal, the Rhode Island Department of Environmental Management completed a statewide greenhouse gas (GHG) emissions inventory for the years 1990-2019². The 2019 inventory found that the majority of GHG emissions in the state were from the transportation sector (39.7%), followed by the residential heating sector (19.3%) and the electricity sector (18.9%). “GHG emissions inventories published by RIDEM provide the foundational information needed to develop and implement the Act on Climate’s emission reduction mandates.” Cranston has completed recent actions that support this mandate. An update to the emissions inventory will be published in December 2025.

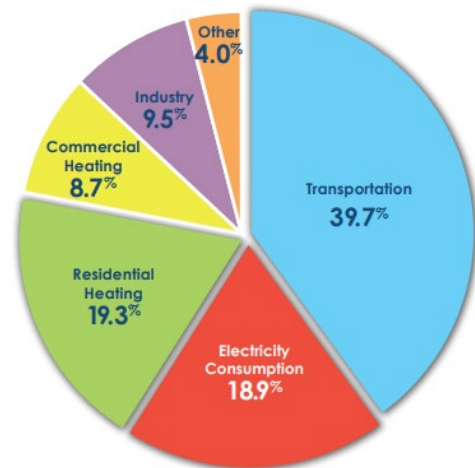


Figure 9-3. Rhode Island Emissions by Sector
Source: 2019 GHG Inventory

9.2.2 Energy Efficiency

Cranston is taking steps to conserve energy and use energy more efficiently. These steps will help reduce municipal energy expenditures and mitigate carbon emissions.

City’s 2012 Comprehensive Plan recognized the importance of being strategic regarding energy production and consumption, and adopting energy conservation standards as a long-term means of lowering energy costs for the City. Strategies related to energy efficiency included the following:

1. Establish and maintain a Facilities Maintenance Fund for roadway pavement repairs and upgrades, including sidewalks, street trees, signs, snow plowing and improving energy efficiency in public buildings.
2. Promote a ‘green’ building program for all new construction: consider a LEED-type program to analyze energy efficiency and sustainability.
3. Create and continuously fund Ongoing Capital Programs for pavement maintenance, energy conservation and street signage.

State Wide Energy Efficiency Efforts

- State Office of Energy Resources (OER)

The [State of Rhode Island Office of Energy Resources](#) is the state’s hub for resources related to energy efficiency and renewable energy: “The Rhode Island Office of Energy Resources’ (OER) mission is to lead the state toward a clean, affordable, reliable, and equitable energy future. OER develops policies and programs that respond to the state’s evolving energy needs, while advancing environmental sustainability, energy security, and a vibrant clean energy economy. OER is committed to working with public- and private-sector stakeholders to ensure that all Rhode Islanders have access to cost-effective, resilient, and sustainable energy solutions.”

- Rhode Island Energy Efficiency Program

Cranston residents have access to Rhode Island Energy Efficiency, a state program that provides residents with no or low-cost energy saving measures. Rhode Island Energy offers

² <https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-12/ridem-ghg-inventory-2019.pdf>

many energy efficiency rebates, incentives, and services to help Rhode Island residents, businesses, and institutions manage their energy usage. These programs are funded by an energy efficiency charge on all customers' gas and electric bills, in accordance with Rhode Island law.

- **Rhode Island Efficient Buildings Fund (RIEBF)**

The RIEBF is a revolving loan fund with low-interest loans for energy efficiency and renewable energy projects in which the annual energy savings achieved exceeds the annual debt service. This funding program is jointly administered by Rhode Island Infrastructure Bank (RIIB) and OER.

- **Mayor's Emergency Fuel Program**

While the Mayor's Emergency Fuel Program helps continuity of critical services to those in dire situations. The Department of Community Development offers a one-time annual delivery of 100 gallons of oil or propane for emergency situations only. Oil tank must be below $\frac{1}{4}$ of a tank and meet household eligibility requirements.

9.2.3 *Renewable Energy*

Cranston is taking steps to enable the production of renewable energy, which enhances energy resilience and redundancy and reduces carbon emissions outputs. Many of these actions are initiated by the State's OER, but available to residents, businesses, and community-based organizations.

Solar Facility Along Pawtuxet River

Revity Energy is leasing a parcel from the Pawtuxet River Authority and Watershed Council to build a 0.4-megawatt solar development. The project funds are coming from the State's Renewable Energy Growth Program. The project received Master Plan approval from the City Plan Commission in July 2023.

Clean Heat Rhode Island

Clean Heat Rhode Island is a heat pump program for households, small to mid-sized businesses, and non-profit organizations. The program offers incentives for the installation of high efficiency heat pumps. The Clean Heat program is the largest energy rebate program for constituents offered by OER. According to the State Energy Commission (Figure 3), thermal emissions account for nearly one-third of Rhode Island's greenhouse gas emissions. Heat pumps are a mechanism for heating and cooling buildings.

Property Assessed Clean Energy (PACE)

PACE is a financing program that allows property owners to repay the costs of energy efficiency or renewable energy projects in conjunction with property tax payments.

9.2.4 *Energy & Land Development*

Solar Ordinance

In 2020, the City adopted a solar ordinance to help regulate solar energy systems (SESS) by providing standards for application requirements. These standards will help ensure that solar development is limited to certain locations, properly sited in relationship to project type and scale, and that the developments limit adverse impacts on scenic, natural, and historic resources. Additionally, the guidelines in the ordinance ensure that solar developments include screening or other measures to reduce the visual impact on the surrounding areas.

9.2.5 Transportation

The transportation sector plays a significant role in the City's energy consumption and overall environmental impact. There is an inherent link between transportation choices, energy consumption, and environmental impact. Although Cranston's transportation currently hinges heavily on personal vehicle use, there are many opportunities to improve public transit, increase non-motorized transport infrastructure, and adopt alternative energy sources for transportation throughout the City. Those opportunities would aid in the reduction of vehicle miles traveled, improving fuel efficiency, and reducing greenhouse gas emissions; both meeting the State's goals as outlined in the "State Guide Plan Element: Energy 2035" and improve the quality of life for the City's residents.

Car Usage & Commuting Trends

Most residents rely on cars for daily travel, which significantly contributes to the City's energy usage and emissions. This heavy reliance on cars has led to traffic congestion in some areas of the City, especially during peak hours, which in turn affects both fuel efficiency and emissions.

Public Transit

Public transit, when fully utilized and supported, is well known to be a more fuel-efficient method of transportation than cars. Cranston is served by the Rhode Island Public Transit Authority, (RIPTA) which provides bus services throughout the City. There is much potential to enhance these services to make them a more attractive alternative to driving for many of the City's residents.

Road Network & Infrastructure

Cranston's road network mainly caters to vehicular traffic. While there are bike lanes and sidewalks in certain areas, they are not spread across the City, highlighting a need for potentially more non-vehicle-friendly infrastructure.

Walking & Cycling

The City has been making improvements in accommodating cyclists and pedestrians, but the infrastructure still falls short of creating a fully accessible, City-wide network for non-motorized travel.

Energy Sources for Transportation

The predominant energy source for transportation is currently fossil fuels. Alternative energy sources, like electricity or biofuels, are not yet widely used.

Electric Vehicles (EVs)

Electric vehicle usage and the availability of EV charging stations is gradually increasing throughout the state and in Cranston; however, the availability of EV charging stations is still limited, indicating early stages of EV adoption in the City.

The State Guide Plan Element for energy policy, *Energy 2035*, was adopted by the State Planning Council in 2015. The *Energy 2035* guide provides strategies pertaining to energy efficiency that could be applied in Cranston. Specifically, there are two strategies listed relating to electric vehicles: 1. reduce vehicle miles traveled and 2. improve fuel efficiency and reduce vehicle emissions. To reduce the amount of vehicle miles traveled, practices that could be expanded for Cranston include Transit-Oriented Development (TOD), improving public transit, improving pedestrian and bicycle infrastructure, traffic calming measures, parking policies, remote work and flexible hours policies, and education and outreach. To improve fuel efficiency and reduce vehicle emissions practices that could be expanded for Cranston include reduction of vehicle miles traveled, smart traffic

management such as smart signaling systems for traffic, promoting fuel economy and efficient driving habits through outreach and educational programming, fleet efficiency, EV infrastructure, and sustainability community initiatives.

9.3 Current Measures, Policies, and Regulations:

- **Solar Energy Regulations:** Cranston has passed comprehensive solar regulations. The Planning Department and City Plan Commission rewrote the City's solar regulations following a 270-day solar moratorium. ³
- **Zoning and Land Use Policies:** The City has been developing clearer zoning and land use policies specific to renewable energy projects, particularly focusing on large-scale solar installations. This is in response to conflicts arising from the use of forested or conservation areas for solar farms.
- **Environmental Protection:** Cranston has shown concern for environmental protection in relation to energy projects, particularly those near sensitive areas like the Pawtuxet River promoting City's effort to balance renewable energy development with environmental conservation.
- **Alignment with State Policies:** As part of Rhode Island, Cranston is subject to State-level energy policies and regulations, including:
 - The Renewable Energy Standard, which requires 100% of Rhode Island's electricity demand to originate from renewable energy by 2033.
 - The Act on Climate (2021), which establishes binding emissions targets leading to net-zero emissions for the state by 2050.
 - The Resilient Rhode Island Act (2014), which established the Executive Climate Change Coordinating Council.
- **Energy Efficiency:** Cranston likely participates in state-level energy efficiency programs, as Rhode Island law requires utility providers to invest in all cost-effective energy efficiency before acquiring additional supply.

Areas for Improvement:

- **Consumer Protection:** The City could implement stronger consumer protection measures and education programs for residents considering solar installations, given the rapid growth of the solar industry in Rhode Island.
- **Infrastructure Planning:** Cranston should assess its electrical infrastructure to ensure it can support increased renewable energy adoption and plan for necessary upgrades.
- **Waste Management:** The City could develop policies and regulations for the future disposal and recycling of solar panels and other renewable energy equipment.
- **Energy Storage:** Cranston could consider developing policies to encourage energy storage systems, aligning with recent state-level initiatives like the Energy Storage Systems Act.
- **Transportation Electrification:** The City could develop policies to support the transition to electric vehicles and the necessary charging infrastructure.

³ Staff Memo for Ordinance #8-19-07 Entitled "Zoning" (Solar Energy Systems) Ordinance & 8-19-08 Entitled "Zoning" (Schedule of Uses). 2019. To City Planning Commission. From Joshua Berry, MURP, AICP - Senior Planner / Administrative Officer.

- **Building Energy Codes:** Cranston could consider adopting more stringent building energy codes to improve energy efficiency in new constructions and major renovations.

9.4 Challenges & Opportunities

Energy is a relatively new focus area for comprehensive plans. Cranston's 2012 plan did not specifically address energy issues. Specifically renewable energy has taken the focus as a primary challenge and opportunity but other challenges and opportunities around energy present themselves and are summarized below.

9.4.1 Challenges

- **Solar Industry Growth and Regulation:** The rapid growth of the solar industry in Rhode Island, including Cranston, has led to challenges in regulation and consumer protection. There is a need for improved oversight and education to prevent misleading sales practices and ensure consumers understand the costs and benefits of solar installations.⁴
- **Land Use Conflicts:** The development of large-scale solar projects has created conflicts with land use, particularly regarding the use of forested or conservation areas for solar farms.
- **Environmental Concerns:** There are concerns about the environmental impact of solar installations, particularly those near sensitive areas like the Pawtuxet River. The City needs to balance renewable energy development with environmental protection.⁵
- **Infrastructure Updates:** As more residents and businesses adopt solar energy and electric vehicles there may be a need to upgrade electrical infrastructure to accommodate the increased distributed generation and increased demand for electricity respectively.
- **Waste Management:** With the growing number of solar installations, the City should plan for the future disposal and recycling of solar panels to prevent potential hazardous waste issues.
- **Renewable Energy Systems and Future Needs:** While specific data for Cranston is not available, the growth of solar installations in Rhode Island suggests that renewable energy systems are increasing their contribution to meeting future energy needs. Rhode Island Energy reported about 4,400 new solar installations in 2022, up from 1,800 in 2018. According to the U.S. Energy Information Administration, solar energy contributed 11 percent of the state's total electric generation in 2022. The City could assess whether this growth is sufficient to meet future energy consumption needs and align with state renewable energy goals.

9.4.2 Opportunities

Cranston has several strengths and opportunities it can capitalize on to advance its energy sector:

- **Leveraging State Programs:** Cranston can take advantage of Rhode Island's ambitious renewable energy goals and associated programs. The state aims to achieve 100% renewable electricity by 2033, the most aggressive timeline in the nation.⁶ The City can:
 - Review the participation in state-level incentive programs for renewable energy adoption

⁴ WPRI.com - "Growing solar industry causes headaches for some in RI" (2023)

⁵ ecoRI News - "Cranston Planning Commission Gives Solar Project Along Pawtuxet River the OK" (2023)

⁶ State of Rhode Island General Assembly. (2024). Rilegislature.gov.

<https://www.rilegislature.gov/pressrelease/layouts/15/ril.pressrelease.inputform/DisplayForm.aspx?ID=372733&List=c8baae31-3c10-431c-8dcd-9dbbe21ce3e9>

- Review the possibility of aligning local policies with the state's Renewable Energy Standard
- Seek state funding and technical assistance for clean energy projects
- Diverse Land Use for Varied Energy Strategies: Cranston's mix of urban, suburban, and rural areas provides opportunities for diverse renewable energy implementations:
 - Residential, commercial, and industrial areas have the potential for rooftop solar installations, energy efficiency upgrades, and potential microgrid development
- Community Solar Potential: Given Cranston's varied demographics, community solar projects could be particularly beneficial:
 - Provide clean energy access to residents who can't install their own solar panels
 - Utilize available land or large rooftops for shared solar installations
 - Partner with local businesses or institutions to host community solar projects
- Energy Efficiency in Municipal Buildings: Cranston can lead by example by:
 - Conducting energy audits of City-owned buildings
 - Perform cost/benefit analysis of implementing energy-efficient retrofits
 - Perform cost/benefit analysis of installing renewable energy systems on municipal properties
- Transportation Electrification: As a suburban City with commuter traffic, Cranston can
 - Expand electric vehicle (EV) charging infrastructure
 - Transition municipal fleet to EVs
 - Encourage businesses to install EV charging stations
- Workforce Development: Cranston can capitalize on the growing clean energy sector by:
 - Partnering with local educational institutions for renewable energy job training programs
 - Attracting clean energy businesses to boost local employment
 - Review the possibility of offering incentives for green job creation
- Resilience Through Microgrids: Given Rhode Island's coastal vulnerability, Cranston can enhance its energy resilience by:
 - Identifying critical facilities for potential microgrid development
 - Exploring partnerships with utility companies for microgrid implementation
 - Review the possibility of integrating energy storage systems to support grid stability
- Innovative Financing Mechanisms: Cranston can explore:
 - Property Assessed Clean Energy (PACE) financing for commercial properties
 - Green municipal bonds to fund clean energy projects
 - Partnerships with local financial institutions for preferential lending for clean energy initiatives

By capitalizing on these opportunities, Cranston can position itself as a leader in sustainable energy development, enhancing its environmental profile while potentially attracting green businesses and creating local jobs in the clean energy sector.