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FORT COLLINS ENERGY POLICY

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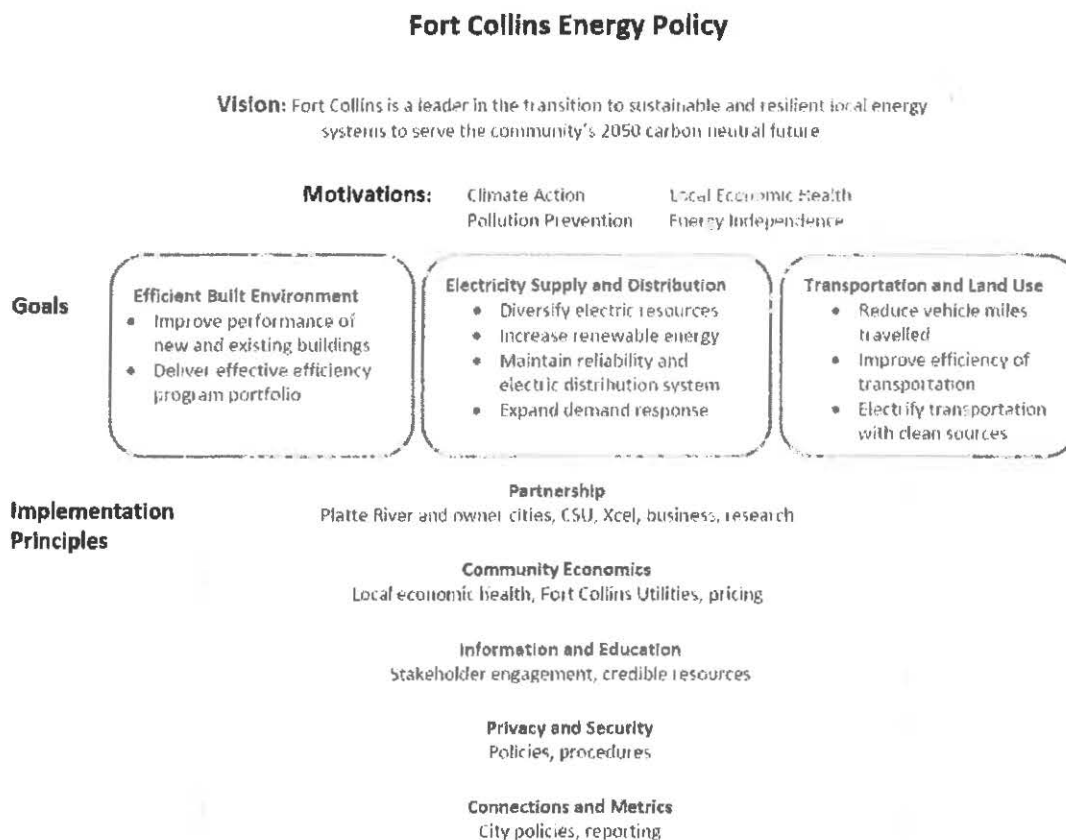
OVERVIEW

The City of Fort Collins' *Energy Policy* reflects our community's values of reliability, safety, affordability, greenhouse gas (GHG) emissions reduction, pollution prevention and energy independence. The policy provides goals for the prioritization of decision making, programs and services related to the quantity of use and the sources of energy for electricity, thermal end-uses and transportation.

The *Energy Policy* uses a systems approach to energy production and consumption, as well as triple bottom line metrics (economy, society and environment), to guide City government in the development of plans promoting policy outcomes for residents, businesses and other organizations. The City also has a role in the demonstration of policy initiatives through leading by example.

BACKGROUND

The City's first energy policy was the *2003 Electric Energy Supply Policy*. In 2009, it was revised and renamed the *Energy Policy*. This update reflects a more comprehensive approach for energy issues and includes electricity, heating and transportation fuels, and the interactions between them. The following graphic shows the relationships among the sections of this document.



VISION AND MOTIVATIONS

VISION

Fort Collins is a leader in the transition to sustainable and resilient local energy systems to serve the community's 2050 carbon neutral future.

MOTIVATIONS

The *Energy Policy* seeks to:

- Maintain or improve the reliability of energy delivery
- Promote energy affordability and safety for residents, businesses and institutions
- Support reductions of the community's GHG emissions from energy use in accordance with the *Climate Action Plan (CAP) Framework* (March 2015) – the current community GHG goals are a reduction of 20 percent from 2005 levels by 2020, 80 percent by 2030 and carbon neutral by 2050
- Reduce the emission of criteria pollutants
- Reduce the environmental damage caused by energy extraction and production
- Leverage the role of Fort Collins Utilities Light & Power as the community's municipally owned utility
- Retain more of our community's energy expenditures in the local economy
- Foster local economic opportunity in energy efficiency, production and operation
- Leverage opportunities to coordinate integrated planning for energy and water supply and demands
- Increase our community's resilience to potential energy and climate related disruptions
- Maintain compliance with and leverage the potential benefits of local, regional, state and national regulatory frameworks, which impact energy production and use (e.g., carbon, fuel standards, ozone)
- Make Fort Collins an energy leader that can serve as a model for other communities

The Energy Policy also recognizes Fort Collins greenhouse gas emission responsibilities through its ownership in Platte River Power Authority (Platte River). As a local action agency, generation and transmission authority, Platte River operates electricity generation facilities on behalf of the member-owner cities of Fort Collins, Loveland, Longmont and Estes Park. These facilities include fossil fuel resources (coal and natural gas), as well as non-carbon resources (hydro, wind and solar). Fort Collins, as a member-owner of Platte River, is responsible for an ownership allocation of the associated carbon emissions. As of 2014 the share was 47 percent.

FORT COLLINS ENERGY CHARACTERIZATION

As a framework for understanding the challenges facing the envisioned transition of the community's energy systems, the following charts illustrate the diversity of Fort Collins energy sources and end use sectors in both primary energy and greenhouse gas metrics. Electricity is the largest single energy use source of GHG emissions, followed by transportation fuels and natural gas used for heating and industrial processes. By sector, residential emissions are followed by industrial and commercial, respectively, but ground travel is higher than any of the building sectors based on 2014 data.

POLICY OBJECTIVES

BUILT ENVIRONMENT

The building sector is Fort Collins' top energy consumer and contributor to greenhouse gas emissions. Efficiency measures are generally the lowest cost resource available, compared to traditional or renewable supply-side choices. For new construction, building right the first time locks in energy savings and offers benefits for decades to come. By reducing the overall demand for energy, efficiency also makes all supply-side options more feasible and cost effective. As the carbon intensity of the electricity supply reduces over time, electrification of heat and process loads from natural gas becomes an additional strategy for reducing emissions from the built environment.

IMPROVE PERFORMANCE OF NEW BUILDINGS

- Adopt and enforce current International Energy Conservation Codes (IECC) within one year of issuance, with local amendments, advancing efficiency, indoor environmental quality, installed performance and readiness for building-scale renewable energy and demand response.
- Promote building energy performance through above-code standards with market and incentive approaches.

IMPROVE PERFORMANCE OF EXISTING BUILDINGS AND PROCESS ENERGY USE

- Support the reduction of natural gas use in the community through efficiency programs, information resources, and partnerships with other organizations to achieve targets in alignment with the CAP.
- Support the continuous energy use reduction in all building types and industrial processes through verifiable and cost-effective efficiency and conservation programs. As a percentage of community electricity use, achieve incremental annual electric portfolio savings of efficiency and conservation program savings of:¹

Year	Savings Target – %
2015	1.5
2016	1.75
2017	1.75
2018	2.0
2019	2.0
2020	2.5

¹ Incremental is defined as "new" savings achieved in a given year; maintaining existing behavioral program savings counts towards the total community annual results, but not towards the incremental target. In 2013 and 2014, incremental portfolio savings was 1.5% and total portfolio savings was 2.2%. The reference basis of the annual percentage energy use savings target is the average of community electric energy use for three years (including the target year). Cost effectiveness is to be calculated on the overall program portfolio using the Program Administrator Test, where utility incentive and administration costs for lifetime energy savings is less than the blended electricity supply price (or natural gas unit price where applicable).

ELECTRICITY SUPPLY AND DISTRIBUTION

Design and maintain an electricity distribution infrastructure to facilitate a diverse, efficient, economical, reliable, clean and secure transition to higher levels of renewable energy sources, both distributed and utility scale. This energy system includes infrastructure at the customer, local distribution and regional generation and transmission scale. The infrastructure also must deploy communication and control technology to manage the balance of distributed supply resources and customer demand. Since both the community waste stream and energy resources contribute to the community's greenhouse gas emissions, waste-to-energy may become a viable resource in the future. Fort Collins should seek opportunities to include electricity storage, as it is expected to become a transformational component of the electricity supply system.

ELECTRIC SUPPLY RESOURCES

The following Fort Collins objectives support resource diversity and increasing amounts of renewable energy sources²:

- Increase the diversity of the electricity supply by reducing the percentage contribution of coal-derived electricity to less than 60 percent by 2020
- Increase the overall amount of renewable energy to a minimum of 20 percent by 2020
- Increase the amount of distributed renewable energy to provide a minimum of 2 percent of community electricity requirements by 2020³
- Seek opportunities for local distributed generation resources such as combined heat and power and biomass in alignment with the *CAP Framework*
- Coordinate with Platte River to achieve a 20 percent reduction in greenhouse gas emissions by 2020

RELIABILITY

Demonstrate the high reliability of the Fort Collins electric system by maintaining annual reliability metrics of:

- Average System Availability Index (ASAI) greater than 99.9956 percent
- Customer Average Interruption Index (CAIDI) less than 45 minutes
- System Average Interruption Frequency Index (SAIFI) less than 0.66

ELECTRIC DISTRIBUTION

² Qualifying renewable resources as defined by the Colorado Renewable Energy Standard: "Renewable energy resources" are biomass (plant matter, animal waste, methane from landfills and wastewater treatment), solar, geothermal, wind and new hydro with a nameplate rating of 10 megawatts (MW) or less.

³ Distributed renewable generation as defined by the Colorado Renewable Energy Standard: Retail distributed generation is, by definition, customer-sited (behind the meter) and also subject to an annual onsite energy consumption net metering cap of 120 percent. Wholesale or non-customer sited, distributed generation is defined as any renewable electric resource less than 30MW in nameplate capacity that is not retail distributed generation.

The electric distribution system is a key asset in the long-term vision of the *Energy Policy*, supported by the following objectives:

- Complete the *Electric Distribution Asset Management* plan by the end of 2016. The distribution system plan should include addressing proposed distributed generation and demand response targets.
- Increase the available peak dispatch capacity of the demand response system to 5 percent of annual peak loads by 2020.
- Develop plans for demand response integration with Platte River and the other cities to improve and understand demand response values as a system resource. Review the demand response capacity targets on an annual basis with regards to system value and pricing.
- Develop distribution modeling capabilities to support the asset management plans and grid modernization for distributed resource management.
- Participate in research, development and demonstration efforts to remain at the forefront of emerging technologies and holistic innovative solutions.

TRANSPORTATION AND LAND USE

Transportation is vital to our community, enabling us to move from where we live to where we work, learn, shop, recreate, and play. Fort Collins' transportation is fueled almost entirely by gasoline and diesel, accounting for over half of our city's total energy expenses, over 40 percent of total energy consumption, significant amounts of local air pollutants (NO_x, SO_x, and particulates) and 28 percent of GHG emissions.

The City's land use and transportation policies are established by *City Plan*, the *Land Use Code* and the *Transportation Master Plan*. These plan documents strive to foster and sustain a "connected community" that maintains high levels of mobility, while reducing the environmental, social and economic costs of our transportation systems. Since transportation demand and the feasibility of walking, cycling and public transit are determined by the mix, layout and density of land uses, as well as population size, the City should continue enhancing its system of integrated land use and transportation planning.

In order to responsibly manage energy resources, improve air quality and reduce GHG impacts associated with transportation and land use, this *Energy Policy* encourages an emphasis on the following objectives:

- Reduce total vehicle miles travelled (VMT), while maintaining mobility options, with a goal to reduce VMT by 10 percent (below 2005 levels) by 2020
- Reduce fossil fuel use per VMT

In support of these objectives, the *Energy Policy* recommends:

- Development of VMT annual estimation techniques which support the objectives of City transportation and energy policies prior to the next revision of the *Transportation Master Plan*

DEVELOPMENT, REDEVELOPMENT AND PARKING

Fort Collins is expected to substantially grow in population over the timeframe of the *Energy Policy*. "Smart growth" refers to transportation and land use planning that emphasizes urban density, mixed-use residential, commercial and recreational areas, multimodal transportation systems and pedestrian and bicycle-friendly streets. It is expected that Fort Collins residents will choose to drive less if the places where they live, work, learn and play are accessible in ways other than by automobile. The *City Plan* and *Transportation Master Plan* contain many smart growth policies that advance the objectives identified by this *Energy Policy*. With Fort Collins anticipated growth, greater emphasis on smart growth is essential to

The duties and functions of the Energy Board shall be:

1. To advise the City Council and staff regarding the development and implementation of the City's energy policy;
2. To advise the City Council and staff in developing City policies that encourage the incorporation of energy conservation and efficiency, carbon emissions reduction, and renewable energy into the development and provision of City utility services, the design and construction of City transportation projects, and the way in which the City impacts the overall built environment within the City;
3. To advise the City Council and staff regarding the alignment of energy programs and policies with City, rate-payer and community values and service delivery expectations;
4. To advise the City Council and staff regarding the recommendations for improvements to City energy systems;
5. To coordinate with other City boards and commissions regarding energy issues;
6. To advise the City Council and staff regarding budgetary, rate-making and operational matters related to the electric utility;
7. To annually review and provide advice to City Council and staff on the City's Legislative Policy Agenda regarding energy and energy-related carbon issues; and
8. To perform such other duties and functions and have such other powers as may be provided by ordinance of the City Council.

Recommended Qualifications: Visionary and innovative thinkers regarding the community's energy future as it relates to the Plan Fort Collins goals for a sustainable community, the Fort Collins Climate Action Plan, Energy Policy, and Green Building Program.

2017 Energy Board Work Plan Purpose: Per the Bylaws of the Energy Board, "The board shall adopt an annual statement of goals and objectives in a work plan..." The purpose of the work plan is to advise City Council in the management of the City's energy policies that support Plan Fort Collins, Climate Action Plan, Energy Policy, and the City's Codes related to the built environment for charting the City's energy future.

Energy Policy Goals:

1. **Efficient Built Environment**
 - Improve performance of new and existing buildings
 - Deliver effective efficiency program portfolio
2. **Electricity Supply and Distribution**
 - Diversify electric resources
 - Increase renewable energy
 - Maintain reliability and electric distribution system
 - Expand demand response
2. **Transportation and Land Use**
 - Reduce vehicle miles travelled
 - Improve efficiency of transportation
 - Electrify transportation with clean sources

Work Plan - By Theme

Preparing Light & Power for the Future Fort Collins seeks to deploy high levels of solar photovoltaic (PV) and other distributed electric generation as well as promote the adoption of electric vehicles (EVs). These new generation sources and loads soon will challenge our electric distribution system in ways for which it was not designed. The solutions will involve distributed

demand response, distributed generation control, distributed storage, and rate structures to incentivize efficient use of these resources.

The Energy Board desires that Ft. Collins Utilities determine the solar PV capacity of our community's roofs, the magnitude and timing of the load that will be presented by charging electric vehicles, how automatic demand response and distributed storage might be configured to economically match this PV generation to the new EV and traditional loads, and to propose the accompanying rate structures. We would also like to see Utilities make proposals for the underlying system models, instrumentation, and control systems needed to make this work. The Energy Board will review these studies and plans and recommend to City Council ordinances proposed by Utilities staff or that ordinances will be drafted to reliably and economically integrate these new sources and loads.

Protecting Light & Power Assets & Customers Light & Power owns and operates an expensive electrical distribution system that is showing signs of deterioration. The Energy Board desires that Light & Power review current procedures and make recommendations to maintain the reliability of the distribution system operation and to sustainably manage their physical assets. As its system evolves into a "smart grid", Light & Power is handling an increasing amount of system and customer data and control signaling. The Energy Board wants assurance that Fort Collins Utilities Light & Power is taking adequate measures to assure the physical and cyber security of the electric distribution system and the privacy of customer information. The Energy Board will review these reports and recommend to City Council new actions that might be needed to further protect Light & Power assets and customers. In light of a changing electric power industry, the Energy Board will study and make recommendations for the development of a sustainable business plan for Light & Power. Implementing Fort Collins' energy and climate goals involves city organizations beyond its municipal electric utility.

The Energy Board desires City Staff to develop plans that the Board could recommend to City Council, to:

1. Accelerate energy efficiency programs since efficiency is the least expensive and fastest way to meet our city's goals.
2. Prepare comments to the Colorado Department of Public Health and Environment regarding proposed Colorado rules for the Clean Power Plan if that plan is still pertinent.
3. Include energy consumption considerations in the upcoming revision of the Transportation Master Plan including the incorporation of energy metrics into the land use planning process.
4. Address the impact of land use policies on energy consumption and production including an examination of the feasibility of energy districts whereby neighboring properties can share energy, both electrical and thermal, as well as energy assets such as electricity and heat storage and geothermal exchange loops.

Expanding the Energy Board's Charter The Energy Board also seeks an ordinance by City Council to expand the Energy Board's duties and functions to:

1. Engage in educational activities, in collaboration with City staff and external organizations, to build broader community support for City policies concerning sustainable energy, energy conservation, and climate change.
2. Collaborate with other regional similar boards and commissions regarding energy issues

Ongoing Responsibilities

1. Review electric utility rate proposals and energy services programs or projects and provide recommendations to City Council. 2. Review and provide advice to City Council and staff on the City's Legislative Policy Agenda related to energy issues. 3. Receive presentations from Platte River Power Authority on their Resource Planning and provide feedback to City Council and staff to ensure alignment with the Energy Policy goals