

CITY COUNCIL COMMUNICATION



MEETING DATE: April 9, 2024

ITEM NUMBER: 12.A

SECOND READING:

{{customfields.ResoOrdNumber}}

TYPE OF ITEM: General Business

PRESENTED BY:

Darrell Hahn, Electric Services, darrell.hahn@longmontcolorado.gov

Susan Bartlett, Electric Services, susan.bartlett@longmontcolorado.gov

Hannah Mulroy, Electric Services, hannah.mulroy@longmontcolorado.gov

Raven Martin, Business Enablement, raven.martin@longmontcolorado.gov

SUBJECT/AGENDA TITLE:

Review of proposed updates to Section 14.32 relating to Distributed Energy Resource Interconnection Standards, Solar Electric Rates, and the Renewable Power Purchase Program Rate

EXECUTIVE SUMMARY:

Given the rising public interest in solar, distributed energy resources (DERs), EV charging, and beneficial building electrification, city staff has identified areas in Longmont's municipal code that could benefit from standardizing, clarifying, or simplifying current language as well as policies that address increased adoption of these technologies. The intent in updating these items is to improve City processes and support Council priorities by enabling more local renewable resources and adapting to emerging technologies. Improvements in these areas are stepping-stones for reaching the City's transition to a 100% renewable electric supply by 2030.

Staff has reviewed the following and has provided specific recommendations throughout this communication, topic by topic:

- DER interconnection policies
- Solar energy rates
- Renewable Power Purchase Program (RPPP) rate and revenue disposition

In August 2023, staff presented to Council the results of, and recommendations from, the 2024-2025 electric rate study and informed Council they were reviewing solar credit rates and would return with the results of that study at a future date. On February 9, 2024, staff brought a high-level overview of DERs, and the topics outlined above to the Council Retreat including a proposed timeline to return for further discussion in March/April. Taking these conversations into consideration, staff's review of these topics has culminated with recommended updates for Council's consideration and discussion. At a later date, staff will bring forward proposed ordinances based on robust public engagement and seek Council direction; any ordinances adopted would not take effect until January 1, 2025.

COUNCIL OPTIONS: Information Only

RECOMMENDED OPTIONS: N/A

FISCAL IMPACT & FUND SOURCE FOR RECOMMENDED ACTION:

BACKGROUND AND ISSUE ANALYSIS:

Platte River Power Authority (PRPA), the City's wholesale electric power provider, presented concepts from its 2024 Integrated Resource Plan (IRP) process to Council in October 2023. PRPA's presentation outlined the priorities for developing a power supply portfolio that meets the forecasted energy needs of its owner communities while planning for an energy resource mix that supports our clean energy transition goals. PRPA's current and proposed energy portfolio addresses regulatory requirements while considering the foundational requirements of reliability, environmental responsibility, and financial sustainability.

While PRPA's power supply portfolio drives a significant portion of the City's ability to reach its 100% renewable electric supply by 2030 goal, the draft 2024 IRP anticipates that fully achieving this goal must include and be augmented by a combination of owner community initiatives. As outlined by PRPA's presentation(s) on its draft 2024 IRP, it is intended the city will collaborate closely with the other owner communities to promote and integrate distributed energy resources (DERs), primarily dispatchable DERs, such as energy storage, EV charging, smart thermostats, and other emerging technologies.

To prepare for a future with much higher levels of DER adoption within our community, staff has reviewed sections of the municipal code to make recommendations on changes to modernize standards with an eye on how they affect interest in and development of local renewable resources, integration of DERs into the electric grid, and beneficial building and transportation electrification adoption and deployment. Specifically, staff has analyzed current interconnection policies, the credit rate paid for net excess solar energy returned to the grid, and the rate paid by customers participating in the RPPP and has prepared recommended changes for Council's consideration and discussion.

Interconnection Policies

Staff has identified that the City's current interconnection policies for DERs on the distribution grid require modernization to better reflect the increasing adoption of DERs and to offer provisions for new construction/ownership, beneficial building and transportation electrification, and future demand response programming.

As part of staff's review of current standards, the following concerns in current code were identified:

- 1) Solar generation is limited to a maximum of 120% of the customer's past annual average energy consumption, limiting the size of solar installations in a manner that is not reflective of evolving utility industry standards.
- 2) No provisions exist for new construction, new ownership, or increased electric load related to beneficial building and/or transportation electrification, which creates a case-by-case review and interconnection and permitting delays.
- 3) Standards do not address energy storage technologies, a growing sector that plays into the City's DER program and grid management strategies.
- 4) There are no requirements for engineering studies to determine impacts to, and/or required mitigating upgrades of, the distribution grid to accommodate the installation of a DER based on system size, location, or other factors.
- 5) Current code and standards lack industry standard communications/data protocols to communicate with distribution and transmission grid management software(s) and future virtual power plant (VPP) operations.

Updating municipal code would provide additional flexibility to customers looking to adopt solar and/or energy storage, help staff process permits efficiently, promote building and transportation electrification adoption, and address emerging trends, all while protecting the distribution grid.

Staff recommends amending the ordinance as follows:

- 1) Increase maximum allowable generation to a system size of 12kW or 200% of average annual consumption, whichever is greater, to better align with local utility standards and to define a standard system size of 12kW (system size needed to serve the annual electric consumption of a typical Longmont residential customer).
- 2) Establish a standard 6 kWh of generation per sq. ft. of floor area for new construction, new ownership, or adoption of electrification measures to better align with local utility standards of per square foot calculations and, in practice, to be used for unique circumstances in which the 12kW standard system size is insufficient for the anticipated electric load.
- 3) Include other DERs (e.g., battery storage, bi-directional EV charging, etc.) to capture any resource that could backfeed into the grid without intending to be inclusive of all DER technologies.
- 4) Create a *City of Longmont Distributed Energy Resource Interconnection Standards* document to establish standards for generation and energy storage, system interconnections, and system engineering studies.
- 5) Establish communications/data protocols based on industry standards (e.g., IEEE 2030.5), to require communication between grid management software and future DERs integration into virtual power plant (VPP) operations.

Value Stacking Energy Solutions

As part of a multi-pronged approach to achieving energy savings and peak load reduction in furtherance of our 100% renewable by 2030 goal, staff has explored ways to enable distributed solar generation while also identifying opportunities to incentivize energy storage when possible. Best practice research indicates that the proper valuation of net excess energy coming from solar is a good first step in encouraging customers to also adopt storage since every kWh produced and/or stored and consumed on-site reduces electric bills by the equivalent of a kWh at retail value.

Staff recommends customers take a value-stacked approach to energy in their home or business, always starting with energy efficiency and weatherization, which reduces the solar and/or energy storage system size needed as well as the up-front costs of installations but also recognizing there are pros and cons to each step of the energy journey:

Energy Efficiency Pros:

- 1) Permanently reduces consumption/operating costs
- 2) Enables smaller solar (and storage) installation
- 3) Supported by existing incentive programs

Energy Efficiency Cons:

- 1) Up-front cost of upgrades

Solar Only Pros:

- 1) Reduces customer electric costs
- 2) Provides local environmental benefits
- 3) Reduces transmission and distribution line losses

Solar Only Cons:

- 1) Doesn't produce when dark or cloudy
- 2) Requires LPC provide capacity for full load
- 3) Produces when other solar also producing (less value)
- 4) Backfed (extra) electricity may cause strain on the grid

Solar + Storage Pros:

- 1) Same pros as solar only plus more
- 2) Stores excess generation instead of backfeeding to grid
- 3) Discharge can reduce customer and system peak
- 4) Provides resilience during outages
- 5) Creates virtual power plant opportunity

Solar + Storage Cons:

- 1) High upfront costs
- 2) More operational complexity than solar only

Solar Rates

Credit Rate for Net Metering

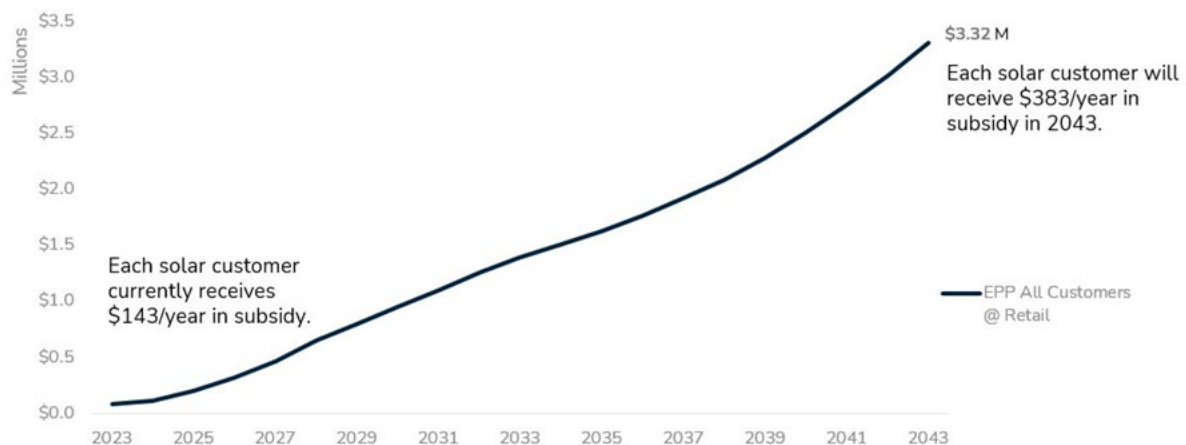
Currently, the City credits solar customers for their excess energy production at the RGEN retail energy rate. This means that solar customers are credited the same rate for the surplus electricity they generate and sell back to the City as the rate they pay to purchase electricity from the City. Furthermore, all solar energy produced and self-consumed on site is valued at retail as the customer is purchasing less energy from the grid at the per kWh retail rate. In 2022, the last year for which there is complete data, the City paid a premium of just over \$64,000 to customers for net metering credits beyond what the City could have spent instead to purchase that power directly from PRPA at the wholesale rate. The money to pay this credit comes out of the electric fund, meaning all electric customers are subsidizing the credit payments to these solar customers for their excess energy production.

As equity is a primary goal in rate construction, staff projected the subsidy over a 20-year horizon under the current credit rate structure with projected growth in solar adoption to determine the magnitude of the subsidy over this time. Because the amount of subsidy grows faster than the customer base paying into the fund, the amount of subsidy paid per person increases substantially each year for the 20-year time frame.

The graph below is a 20-year projection of the excess purchased power (EPP) credit payment, which is based on the difference between the current credit rate and the wholesale rate. Currently, all solar customers are credited at the retail rate. This graph demonstrates that at the current rate, the total EPP credit payment would be \$3.32M in 2043. Without any changes to the current rate structure, all customers will subsidize solar customers by \$3.32M in 2043 alone, with subsidies increasing to that amount over the 20-year period. Payments to solar customers above the wholesale rate reduce the revenue collected by the utility and, therefore, reduce the funds available for projects or operating costs that work toward achieving the City's renewable energy goal.

Excess Purchased Power (EPP) Annual Expense Projections 2023-2043

Without any changes to the current rate structure, ratepayers will subsidize solar customers by \$3.32M in 2043



Note: Staff has aligned solar generation forecasts with PRPA DER forecast load growth data along with local historical net solar energy generation data to review appropriate solar rates for customers

To understand the long-term impacts of these subsidies on ratepayers, staff analyzed multiple credit rate scenarios (shown in the graph below), including a Value of Solar (VoS) rate and a legacy rate.

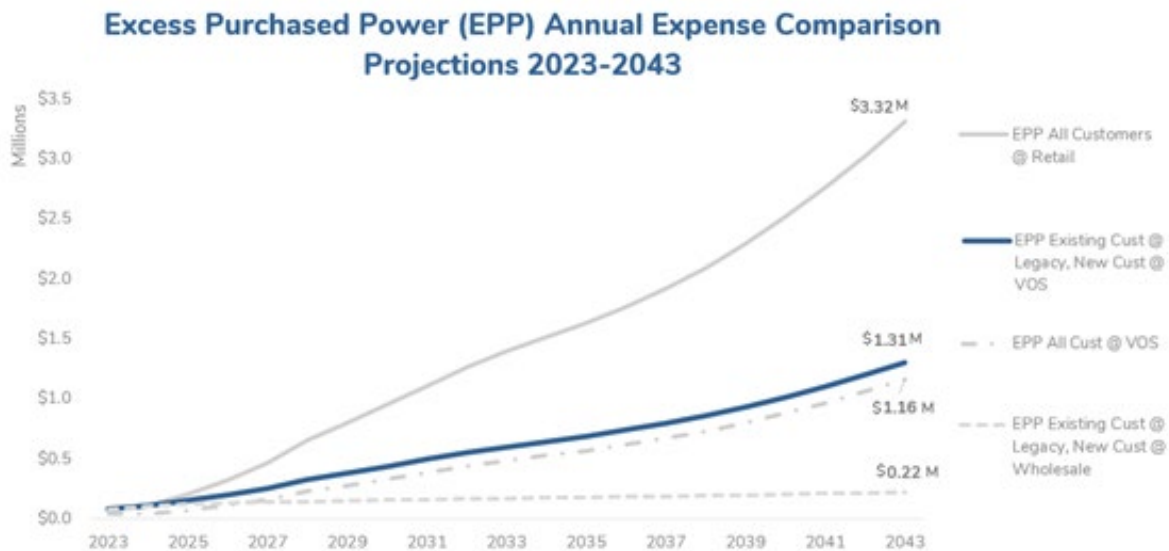
The VoS rate includes a premium over wholesale of 3% for line losses (this accounts for inefficiencies in transmitting and delivering energy across wires from PRPA to customers) and 15% for positive environmental impacts, such as avoided particulates in the atmosphere and reduced fugitive methane. These factors are based on a review of best practices from the National Renewable Energy Lab (NREL), the State of Minnesota (VoS), the Sacramento Municipal Utility District (SMUD) (VoS), and Austin Energy (VoS). The applied VoS rate is calculated to be 18% above the wholesale energy rate paid to PRPA, which is less than the retail rate.

Implementing a 20-year legacy rate for existing solar customers preserves the economic model used when they invested in their systems and means that for the next 20 years the legacy credit rate will adjust to match the retail rate. Other utilities, such as the Town of Lyons, CO, have enacted similar legacy rates for existing solar customers.

The following graph displays four EPP scenarios:

1. All solar customers remain at current retail rate (status quo).
2. Existing solar customers remain at the 20-year legacy rate and new solar customers are credited at a VoS rate.

3. All solar customers are credited at a VoS rate.
4. Existing solar customers remain at a 20-year legacy rate and new solar customers are credited at a wholesale rate.



Note: Staff has aligned solar generation forecasts with PRPA DER forecast load growth data along with local historical net solar energy generation data to review appropriate solar rates for customers.

Staff recommends implementing the following (highlighted by the blue line in the chart above):

- 1) A legacy credit rate to last for a 20-year period for existing solar customers that matches the solar retail rate
- 2) A VoS credit rate for new solar customers

Renewable Power Purchase Program (RPPP)

In addition to reviewing solar energy credit rates, staff evaluated the premium paid by RPPP participants to ensure it accurately reflects the current cost of renewable resources coming from PRPA. As a result of the rate study, staff proposes to make the rate more affordable, reducing it by 60% from \$.0312 to \$0.01217 based on PRPA current costs of procuring renewable energy (plus line losses and/or other administrative expenses). As part of the regular rate process, the RPPP will continue to be evaluated in future years. In addition to evaluating the cost for program participants, staff is working to invest revenue more directly from this program into local flexible and renewable energy projects, including a recent partnership with Longmont Housing Authority (LHA) to install solar at a low-income senior facility in the City.

Public Engagement Plan

As a part of the interconnection standard and solar energy credit update process, staff has drafted a robust public engagement and educational plan involving a spectrum of stakeholder engagements

Stakeholder Engagement:

- City-Licensed Solar Installers
- Applicants in the solar permitting process
- Solar and/or electrical trade associations
- Current RPPP Participants
- Sustainability Coalition
- Sustainability Advisory Board (SAB)
- Equitable Climate Action Team (ECAT)
- Neighborhood Group Leaders Association (NGLA)
- Sustainable Resilient Longmont (SRL)
- Blog post(s), social media, City Talk, Newspaper Articles/Interviews, Sustainability Newsletter

In addition to stakeholder engagement, staff has already developed a DERS “Cheat Sheet” for Council, is working to develop a Frequently Asked Questions (FAQs) piece for media and the public and plans to conduct internal staff education in relevant departments (LPC, Building, Planning, Inspectors, etc.).

Other initiatives and resources

Other initiatives that City staff is undertaking in support of the City’s climate action goals include advanced metering infrastructure, promotion of beneficial building electrification combined with energy efficiency and weatherization, a planned installation of a 5 MW energy storage system at a city-owned substation, and incentive programs that encourage efficiency and electrification in partnership with PRPA and the other three owner communities.

More information about the City’s current solar interconnection standards and permitting processes can be found here:

<https://www.longmontcolorado.gov/departments/departments-e-m/longmont-power-communications/electric-service/renewable-energy/solar-energy>

More information about the City’s efforts to increase electrification, including energy efficiency improvements, tax credits, and rebates, can be found at



<https://www.longmontcolorado.gov/departments/departments-e-m/longmont-power-communications/electric-service/building-electrification>.

More information about the City's transportation electrification goals can be found in the Carbon Free Transportation Roadmap here:

https://indicators.longmontcolorado.gov/transportation?_gl=1*zh6oi7*_gcl_au*NTMxNTU4NjU5LjE3MDEzNzE1Mzg.&_ga=2.113365447.1137372412.1708443928-814568227.1681312968

ATTACHMENTS:

None