

TOWN OF LYONS BOARD OF TRUSTEES MEETING  
VIRTUAL MEETING  
LYONS TOWN HALL, 432 5TH AVENUE, LYONS, COLORADO

ZOOM LINK

<https://us02web.zoom.us/j/83797216219?pwd=OWJlY0VSS3FjbGE2UEhiME10OHJRZz09>

Meeting ID: 837 9721 6219

Passcode: 608454

Dial by your location:

+1 312 626 6799

Meeting ID: 837 9721 6219

DRAFT AGENDA  
TUESDAY, FEBRUARY 16, 2021

5:30 pm – 6:50 pm WORKSHOP  
UEB – Net Metering Policy & Grants for Renewable Energy Projects

7:00 PM BOARD OF TRUSTEES REGULAR MEETING

I. WORKSHOP

I.1. Net Metering Policy

Documents:

[20210216 NET METERING SUBSIDIES.PDF](#)

I.2. Grants For Renewable Energy Projects

Documents:

[GRANTS FOR RENEWABLE ENERGY PROJECTS.PDF](#)

“The Town of Lyons will not discriminate against qualified individuals with disabilities on the basis of disability in its services, programs, or activities. Persons needing accommodations or special assistance should contact the Town at [hr@townoflyons.com](mailto:hr@townoflyons.com) as soon as possible, but no later than 72 hours before the scheduled event.”

# Lyons Net Metering Subsidies

February 16, 2020

Jim Kerr, Chair  
Utilities and Engineering Board (UEB)

# Disclosure Statement

- I installed solar on my Lyons home in 2014 and benefit from the Net Metering program
- The projected Lyons solar production is based on the hourly solar generation produced by my rooftop solar installation
- Note that the “nameplate to electricity production ratio” was also verified for my system using the NREL PVWatts calculator
- Actual solar electricity generation of other installations will vary, but not significantly over all

# Lyons Net Metering Policy

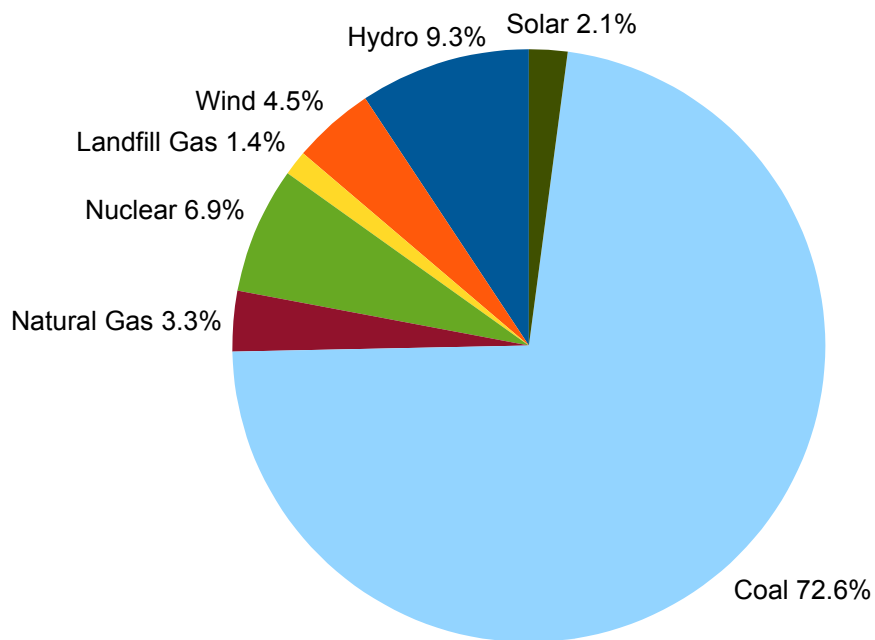
- Implemented in Feb 2013
- Credits excess solar electricity produced each month. Excess kilowatt hours (kWhs) at the end of the calendar year are reimbursed at the Town's wholesale rate
- Not governed by the Colorado Public Utilities Commission
- Policy is on a month to month basis that can be changed with 30 days notification
- On Oct 19, 2020 the BOT directed staff to revise the “Net Metering Contract” such that it is obvious that any new installations would not necessarily be grandfathered into the current policy. The “Customer-Owned Generation Interconnection Agreement” was updated in Nov 2020

# Lyons Net Metering Installations

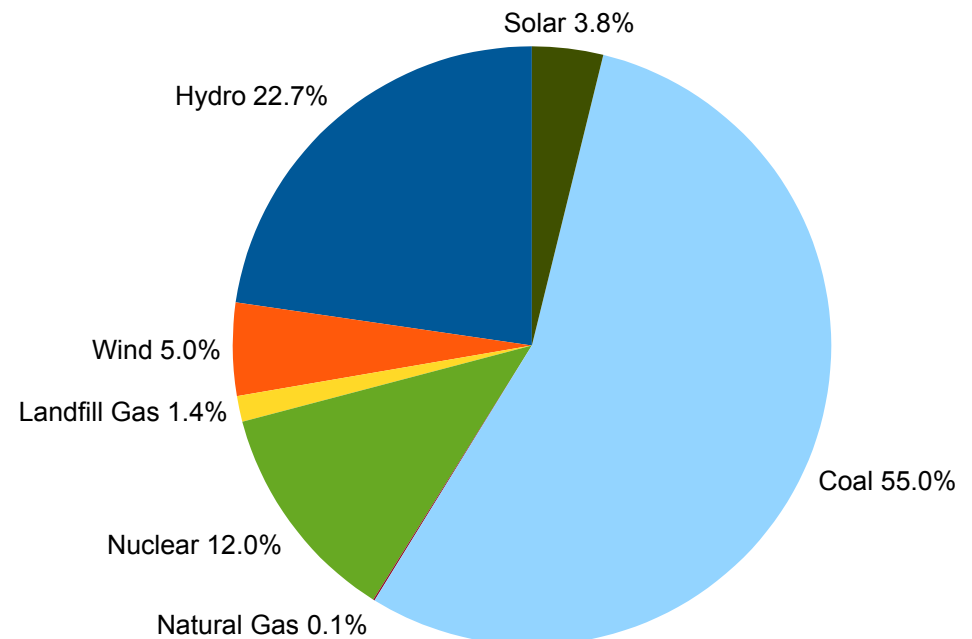
- Installations as of Dec 2020: 52
- Nameplate as of Dec 2020: 309 KW
- Projected Annual Production 2021: 493,749 kWhs
- Average Nameplate: 6 KW
- Average Annual Production: 9,495 kWhs
- Lyons Purchased Electric 2019 from the Municipal Energy Association of Nebraska (MEAN): 12,435,506 kWh
- Lyons Solar Percentage as of Dec 2020: 3.8%

# Lyons Electric Resource Mix

## 2016



## 2020

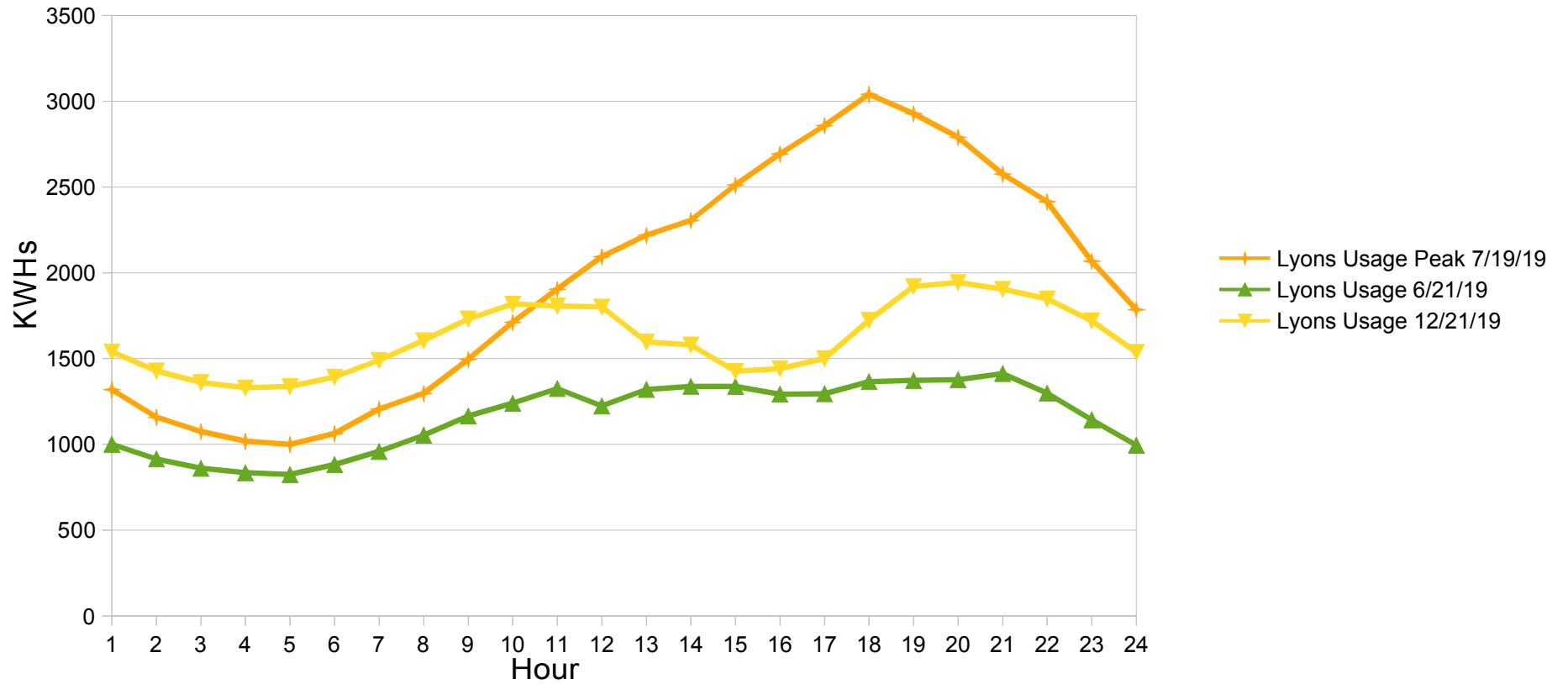


- MEAN's goal is to be carbon neutral by 2050

# Lyons Cost to Achieve 100% Carbon Free

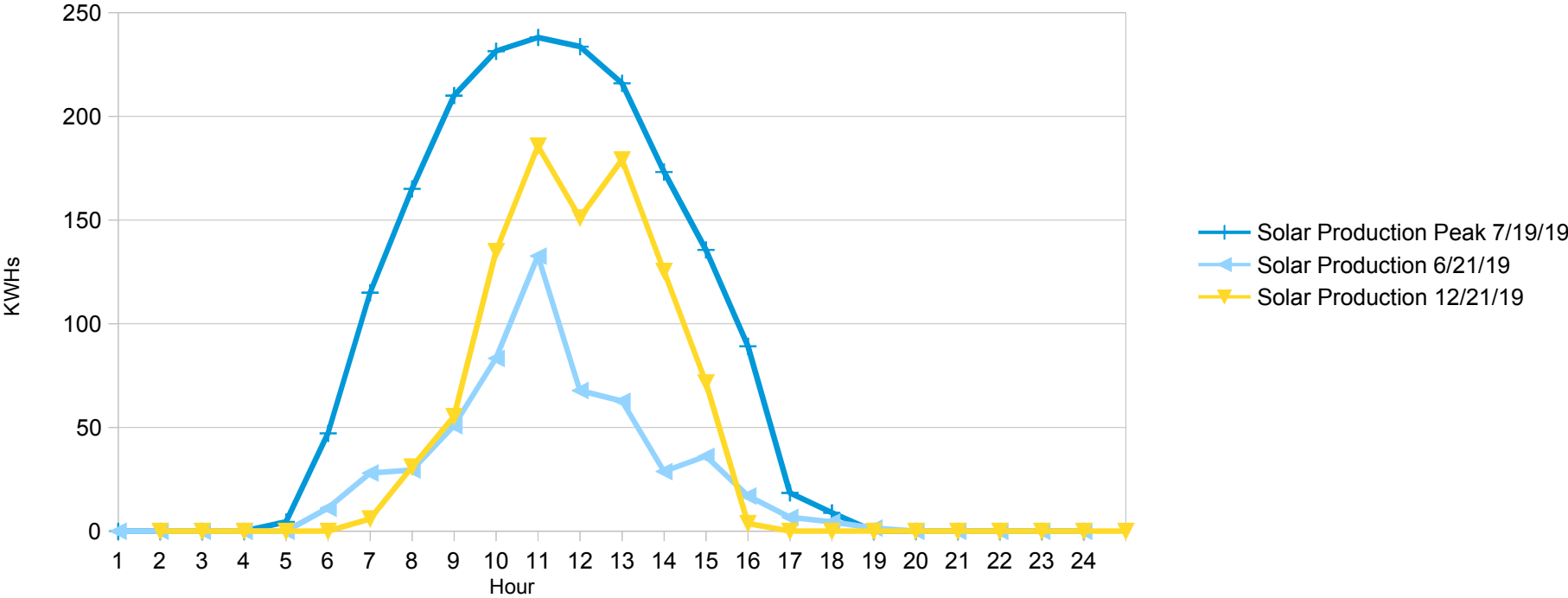
- MEAN Wind Power Rate: \$0.043 per kWh
- MEAN Base Rate: \$0.03825 per kWh
- MEAN Net Wind Rate: \$0.00475 per kWh
- MEAN Carbon Energy Purchases 2019: 7,088,238
- Additional Annual Cost for Lyons to be 100% Carbon Free by purchasing wind: \$33,699
- Both Aspen and Glenwood Springs have gone 100% carbon free by purchasing additional wind from MEAN
- Additional MEAN renewables will likely not be available for at least another couple years

# Lyons Usage kWhs

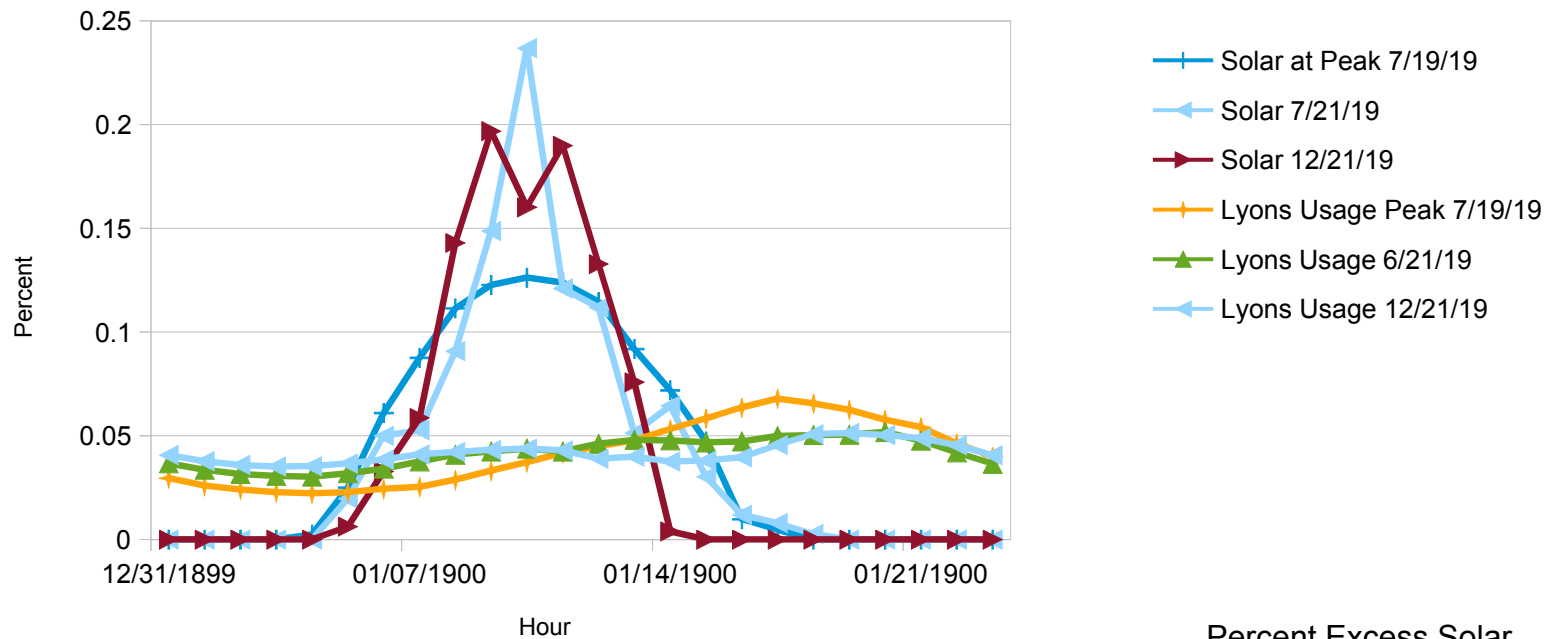




# Projected Lyons Solar Production kWhs



# Lyons Percent Energy Usage and Solar Production



	Percent Excess Solar
Solar Peak 7/19/19	58%
Solar 6/21/19	54%
Solar 12/21/19	67%

# Net Metering Subsidy

- Lyons Residential Rate: \$0.1275 per kWh
- MEAN Wind Power Rate: \$0.043 per kWh
- Net Metering Renewable Subsidy: \$0.0845 per kWh
- Solar Nameplate 2020: 309 KW
- Annual Solar kWhs 2020: 493,749 kWhs
- Annual Loss Revenue Rooftop vs MEAN renewable is \$41,722
- Recall from slide 6 the annual cost for Lyons to be 100% carbon free is \$33,699
- If Lyons used MEAN renewable energy purchases like Aspen and Glenwood Springs instead of Net Metering, Lyons would already be at 100% renewable

# Net Metering Subsidy - Continued

- As shown in slide 9, the Lyons Solar Net Metering customers generally use less than half of their generated electricity
- If the Net Metering Policy is changed to only pay out at the MEAN wind rate for excess generated electricity, the current annual subsidy, assuming 50% excess generation, is \$20,861
- The annual 50% subsidy for a home with average nameplate 6 KW solar and annual 8,800 kWhs: \$400
- Net Metering subsidies are equivalent to Lyons committing to Power Purchase Agreements (PPAs) at the retail rate for 10-20 years depending on how long we grandfather in Net Metering
- Over a 20 year period the Net Metering subsidy amounts to over \$8,000 for an average installation

# Net Metering Subsidy - Continued

- With the current installation of Electric Smart Meters, it is anticipated that Lyons rate structure will be updated to account for time of use similar to Fort Collins and Longmont
- Time of use electricity billing incentivizes energy conservation during peak hours
- With a time of use electric rate structure change, the solar subsidy would be further reduced

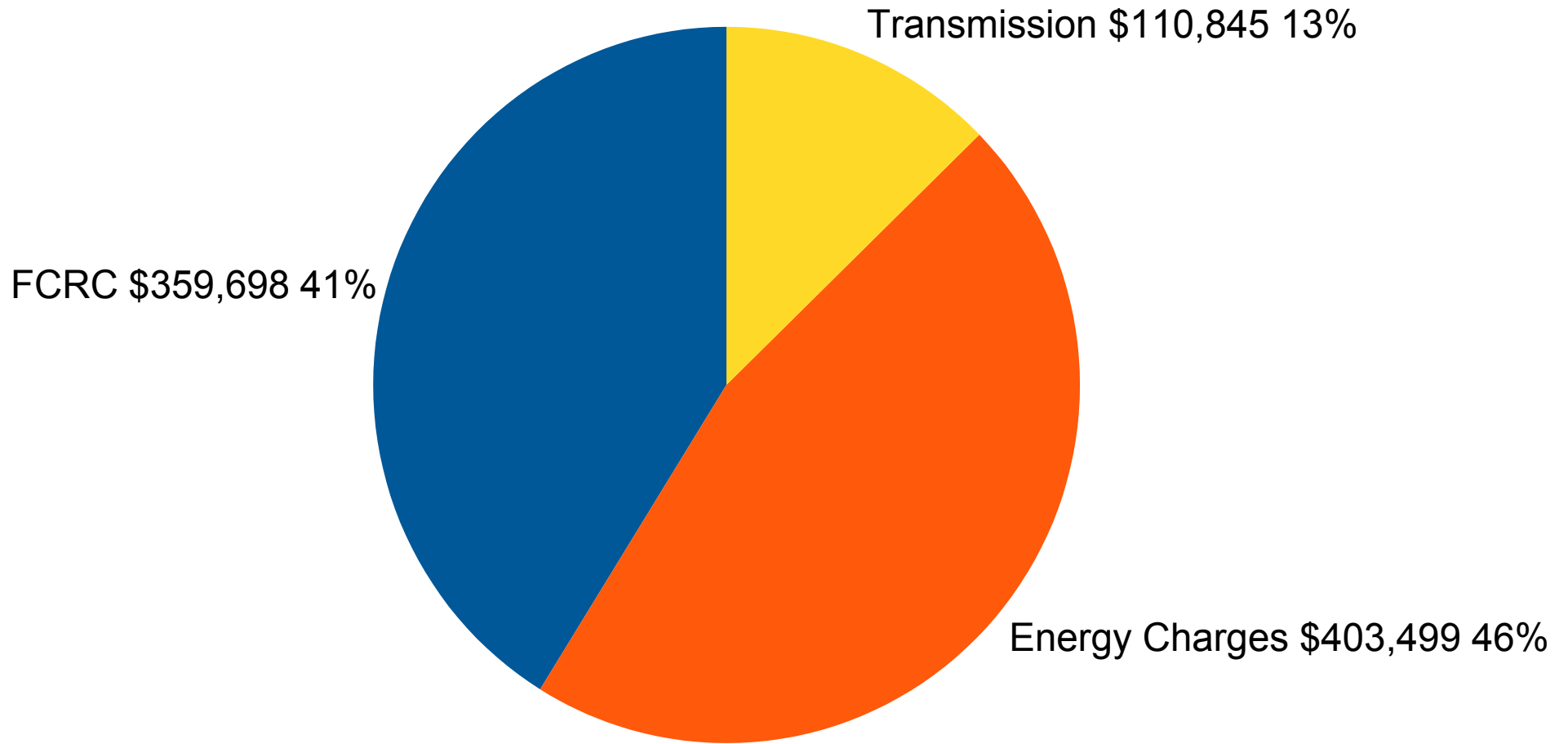
# Lyons Solar Production During Monthly Peak Hour 2019

<b>Date</b>	<b>Hour</b>	<b>Lyons Peak kWhs</b>	<b>Solar at Peak kWhs</b>	<b>Percent Lyons Solar at Peak</b>
Thursday January 24, 2019	8pm	1,896	0	0%
Thursday February 7, 2019	9pm	2,251	0	0%
Monday March 4, 2019	9pm	2,076	0	0%
Wednesday April 10, 2019	9pm	1,681	0	0%
Thursday May 9, 2019	10pm	1,590	0	0%
Saturday June 29, 2019	7pm	2,375	11.38	0.48%
Friday July 19, 2019	7pm	2,830	9.76	0.34%
Tuesday August 20, 2019	6pm	2,699	24.39	0.90%
Thursday September 5, 2019	4pm	2,396	20.33	0.85%
Tuesday October 29, 2019	8pm	1,986	0	0%
Wednesday November 27, 2019	8pm	1,991	0	0%
Monday December 9, 2019	8pm	2,015	0	0%

# Lyon Peak Hours

- Lyons high peak 2019 during peak solar production hours: 2,189 kWh on 9/2/2019 at 1pm
- Lyons nameplate residential solar installations: 309 kWhs
- Percent nameplate solar of high peak demand during peak solar production hours: 12%
- Lyons low peak during high summer solar generation: 987 kWhs 6/10/19 1pm
- Percent nameplate solar during lowest peak hour: 24%
- Once Lyons reaches 16% solar penetration, more energy will likely be produced than consumed during the lowest usage peak hours. At this point solar production will need to be curtailed since Lyons is not authorized to distribute excess electricity to the outside grid

# MEAN Billed Amounts 2019





# Electric Overhead

- Lyons currently receives residential revenues from:
  - Monthly Base Fee: \$13
  - Electric Rate: \$0.1275 per kWh
  - Roughly 10% of revenue is from Base Fees
- Most of Lyons operating revenue is received from the markup on electric rates
- Example of costs not adequately recovered from Lyons solar customers:
  - Staff
  - Maintenance
  - Transmission
  - Peak Demand Infrastructure

# Frequently Asked Questions

- Shouldn't Lyons continue to subsidize solar installation since local generation is more resilient?
  - Local solar is not more resilient than remote wind generation unless there is battery storage
  - Without battery storage, local solar installations stop working with power outages
  - Without battery storage, there is no incentive to purchase backup batteries as the Town infrastructure becomes the free battery
  - With battery storage customers do not need Net Metering to offset their energy use
- Why not just change the electric rate structure?
  - Just changing the rate structure does not eliminate the subsidy
  - Fort Collins Non-Peak charge of \$.0719 per kWh is still 67 percent greater than MEAN's renewable wind rate of \$.043 per kWh.

# Quotes

"A wealth of academic research on net metering ... suggests that net metering is ineffective as an environmental policy and creates serious regressive effects. For example, compared to utility scale solar, distributed solar is an expensive means of lowering carbon emissions and can discourage other environmentally conscious choices."

"Although part of net metering's appeal is its simplicity, when rooftop solar owners net to zero, that is, when they do not pay a bill because their production equals their consumption, they do not cover the costs of maintaining the wires and transmission lines. This cost-shift is estimated to be between \$45 and \$70 per month per rooftop solar owner that nets to zero. Wealthy households therefore benefit disproportionately from this hidden subsidy because they tend to be the ones who are able to pay the high upfront cost of installing solar panels."

[Net Metering in the States](#), A primer on reforms to avoid regressive effects and encourage competition, August 1, 2018

"With the increasing deployment of solar systems in buildings in urban environments, a future scenario of high photovoltaic (PV) penetration is expected to produce impacts on the distribution grid. One of the challenges relates to the power balance at the power transformers, which might not have sufficient spare capacity to accommodate the solar electricity feed in."

"a high PV penetration scenario leads to a locally less resilient grid"

Impact of large scale PV deployment in the sizing of urban distribution transformers, Renewable Energy, Volume 119, April 2018, Pages 767-776

# Quotes - Continued

"Most electric distribution systems are not designed to accommodate widespread DG and a two-way flow of power. Common challenges include maintaining required voltage levels within regulated limits, coordinating protection system devices, and managing additional cycling—and associated wear and tear—of the voltage control equipment, especially critical for longer distribution feeder circuits in rural areas."

Distributed Generation, Greening the Grid

"The intent of the original net metering policy was to incentivize early adopters, not create huge subsidies from one group of customers to another. Now that the cost of solar systems has come down significantly, there is no need for continued large subsidies."

[Solar Energy and Net Metering](#), January 2016, Edison Electric Institute

# Direction

- Both the UEB and SFC have unanimously voted that a change to Lyons Net Metering policy is required
- The UEB further voted to change the Net Metering policy to only pay for excess energy generated at the current MEAN renewable rate and to grandfather in existing rooftop solar installations for 20 years from the date of installation
- Unless directed otherwise by the BOT, the UEB plans to draft an ordinance to update Lyons Net Metering policy within the next couple of months
- Within the next couple of years the UEB plans to recommend changes to the Lyons electric rate structure that will be possible with the installation of the new electric smart meters

## Grants for Renewable Energy Projects February 16, 2021

### Town of Lyons Solar Farm Feasibility Study Status Update

- CU Denver Feasibility Study grant was approved by the BOT on 19 Oct 2020
- Cost to Lyons is \$3000 – DOLA contributing \$2000
- The MEAN contract allows TOL to generate its own renewable energy - up to 5% of our annual usage (= ~350KW system; ~1 acre).
- DOLA grants could pay for up to 50% of the solar farm
- A solar financing organization (CollectiveSun) could save another 12% on the project cost
- Preliminary feasibility looks promising – ROI could be just 10-20 years on system fully warranted for 25 years and with a productive life span of decades beyond that

The College of Engineering, Design and Computing of the University of Colorado Denver (CU Denver) has been hired to provide a feasibility study for a solar farm in the Town of Lyons. This effort is made possible through the University Technical Assistance (UTA) Program at the Colorado Center for Community Development, CU Denver, through a grant from the Department of Local Affairs (DOLA).

#### Project tasks:

1. Generate preliminary feasibility study for solar farm – approximately 5 pages
  - a. Identify at least 3 most optimal sites
  - b. Use information from Lee Hall on site, utilities, size and cost of solar farm
  - c. Rough ROI with current information
  - d. Timeline for entire project
2. Review through Town of Lyons staff, utility company, other agencies
  - a. Provide one informational presentation
3. Address issues, incorporate comments and new information into feasibility study
  - a. Submit for Town of Lyons approval before public outreach
4. Prepare for and conduct public outreach
  - a. Draft information for Town website
  - b. Mailings, Emails, Newspaper, Social Media, etc.
  - c. Conduct 2 virtual public outreach sessions
    - c.i. Presentations
    - c.ii. Q&A, record sessions
5. Document outreach sessions, investigate issues
6. Finalize draft feasibility study including information from public outreach
  - a. Review of study by Town
  - b. One presentation on study
7. Prepare summary of work to be included in Engineering Services contract
8. Submit final feasibility study

Week Number	Start Date	End Date	Task	Estimated Amount of Time	Estimated Completion Date	Actual Completion Date	Member(s) Assigned to Task	Notes
1	01/17/21	01/23/21	Get Familiar with the Project and files	7 days	01/23/21	01/23/21	All	
			Contact Heidi Brothers to help start project	7 days	01/23/21	01/23/21	Brittany	
2	01/24/21	01/30/21	Start Organizing Files and Create Teams Group	7 days	01/30/21	01/28/21	Brittany	
			First Draft of Feasibility Report	7 days	01/30/21	01/28/21	Maurico	
			Come up with 5 questions about the project	14 days	01/30/21		All	
3	01/31/21	02/06/21	Initial Client Meeting	1 day	02/05/21		Brittany	
			Look at Alternative Solar Companies	20 days	02/20/21		Kevin	
			Use USGS to get topograph data for each site	10 days	02/10/21		CJ	
4	02/07/21	02/13/21	Establishing Official Schedule for Project					
			Contact Jody Beck & Jeff Wood about public outreach					
			Learn about Contract with MEAN					
5	02/14/21	02/20/21	Lyon's Review with Lee Hall					
			Begin Public Outreach					
			Reach out to MEAN about any questions					
6	02/21/21	02/27/21	Compiling Geotechnical Reports					
			Compiling Site Info					
			2nd Draft of Feasibility Report					
7	02/28/21	03/06/21	Compiling Solar Company Estimates (if possible)					
			Address new issues from public outreach					
8	03/07/21	03/13/21	Compiling Early Public Outreach					
9	03/14/21	03/20/21	3rd Draft of Feasibility Report					
10	03/21/21	03/27/21	Feedback on 3rd Draft of Feasibility Report					
11	03/28/21	04/03/21	Public Outreach					
12	04/04/21	04/10/21	Narrow down site options and prioritize					
			Final Draft of Feasibility Report					
13	04/11/21	04/17/21	Verify info collected, compile all data, list areas of concern					
			Feedback on Final Draft of Feasibility Report					
14	04/18/21	04/24/21	Public Outreach					
15	04/25/21	05/01/21	Final Draft of Feasibility Report					
16	05/02/21	05/08/21	Final Edit of Report and Prepare Presentation					
17	05/09/21	05/15/21	Presentations					

\*\*\* This is a very basic schedule to use as a starting point, this will evolve as we learn more about the project.

## DOE Connected Communities Funding Opportunity Announcement (FOA)

The Town of Lyons has an opportunity to apply for the Department of Energy (DOE) Connected Communities FOA. Diane Dandeneau, CEO of IPower Alliance, and resident of the Town of Lyons, has put together an initial project scope that would include solar, storage, car charging, community-wide monitoring and controls, and rate study. This project could benefit Lyons by implementing these systems at little to no cost to the town, save money on energy into the future, and help the Town meet its renewable energy goals.

The first task is to submit a 5-page concept paper by February 17, 2020. If accepted by DOE, the grant team will put together the full application. There is no risk or cost to the Town of Lyons for submitting the concept paper or the full application. The UEB voted to approve submittal of the concept paper.

If the concept paper is accepted, project cost is estimated at approximately 6 million. Multiple grants will be pursued to cover all costs. This project is an add-on to the existing Solar Farm project being pursued at this time. Interested parties and supporters include IPOWERR Alliance, NREL, and Northern Colorado Clean Cities (NCCC). Diane Dandeneau and the NCCC plan to submit a UEB-approved concept paper on the behalf of the Town of Lyons.

BOT approval would be sought before submittal of the full application.

Important grant dates are as follows:

5:00pm ET 2/17/2021 - Submission Deadline for Concept Papers

5:00pm ET 3/3/2021 - Submission Deadline for Full Applications

5:00pm ET 5/4/2021 - Expected Submission Deadline for Replies to Reviewer Comments

7/1/2021 - Expected Date for EERE Selection Notifications

9/16/2021 - Expected Timeframe for Award Negotiations