

EMPIRE ELECTRIC ASSOCIATION

Echoes of the Empire

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BASKING IN THE SUN – EEA’S GROWING SOLAR DISTRIBUTED GENERATION SUPPLY

BY ANDY CARTER MEMBER ENGAGEMENT MANAGER

Step outside in southwestern Colorado on a cloudless summer day and one thing is certain: You will literally feel the power from the sun that a growing number of Empire Electric Association consumer-members are harnessing to power their homes, farms and businesses. As of May 2020, EEA has connected a total of 258 net metered services with a maximum output of 3.25 megawatts of alternating current (MW AC). That is 8% of our retail peak demand!

A net metered service is how EEA describes the relationship it has with a consumer-member who interconnects electric generation behind the electric meter EEA delivers power to. Most of the renewable generation on EEA’s system is solar photovoltaic, or solar panels. A net meter measures the electricity that EEA delivers to the consumer-member when they are using more power than their system is generating, and it also measures the amount of electricity that EEA receives back on the grid when the consumer-member is producing more power than they are using.



ANDY CARTER

The first solar generator to interconnect via a net meter was Battle Rock Charter School in August 2006. This system was installed as a partnership between EEA and Battle Rock Charter School and consists of two pole-mounted arrays with a maximum output of 2.8 kilowatts (kW AC). The largest net metered service on EEA’s grid was just interconnected in March 2020 and belongs to the Ute Mountain Ute tribe. This array is a community solar project benefiting tribal members and has a maximum output of 960 kW AC.

The majority of EEA’s net metered systems are for residences and average 5.9 kW AC maximum output with an estimated



 Battle Rock Charter School Photovoltaic Array



Ute Mountain Ute Community Photovoltaic Array

average annual output of 9,800 kilowatt hours (kWh). Small commercial systems average 8.9 kW AC maximum output with an estimated average annual output of 15,700 kWh.

Growth of net metered systems has been steady with the largest number of systems being installed in 2018. So far in 2020, EEA has interconnected 20 systems including the Ute Mountain Ute community array for a total maximum output of 1,166 kW AC. Interconnection applications in process indicate that 2020 will add approximately the same number of systems EEA added in 2018 and 2019.

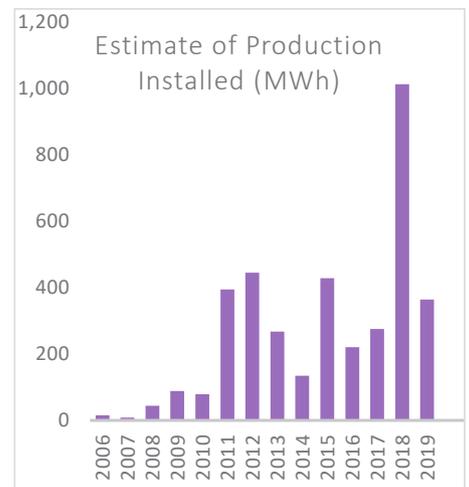
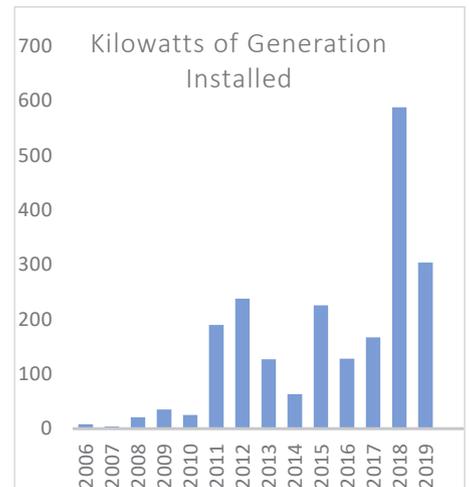
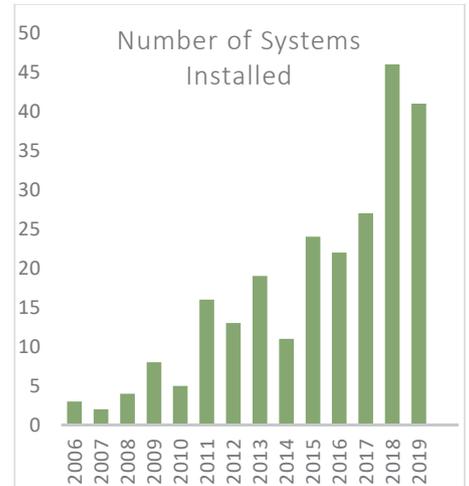
Net metered generation is sometimes referred to as distributed generation, or DG, because instead of one extremely large generator supplying all the power to a distribution system, DG has several smaller generators that supply power at different points. Some of the advantages of DG are reduced transmission losses and potential reduction in the size and cost of the distribution system if the DG on the circuit is limited to existing conductor capacity. And in rural areas like southwestern Colorado, DG can help provide voltage support on long circuits when it is producing at the same time load is high.

There are disadvantages to DG as well. These include power quality impacts on consumer-members connected close to

the DG interconnection, incompatibility with distribution system protective devices when power flows in reverse, and additional administrative costs associated with managing the interconnection process while reducing revenues. DG is also limited to the capacity of the existing infrastructure and it can be costly to upgrade system capacity to accept more DG on a circuit.

The steady growth of DG on EEA's distribution system has so far had only marginal impacts on the overall distribution system. EEA has one circuit fed from the East Cortez Substation that is at capacity for DG. Colorado Public Utilities Commission rules regulating electric utilities' small generation interconnection procedures state "aggregated generation, including the proposed small generating facility, on the line section shall not exceed 15% of the line section's annual peak load" (4 CCR 723-3 3667 c.II.A.ii). As the number of DG interconnections grows, several more circuits on EEA's distribution system are approaching allowable capacity. If a circuit is at capacity, it may still be possible to interconnect more DG, but a System Impact Study must be completed at the member's expense to determine if the proposed generator will have any adverse impacts. The study can be expensive and may determine that, in order to interconnect, the consumer-member may have to pay for

EEA Net Meter Growth



distribution system upgrades to allow the interconnection.

It is important to involve EEA early in the process if you are thinking of adding renewable generation to your service. Even if your circuit is not constrained, there are

requirements that must be met to preserve safety, reliability and power quality for your neighbors. This may include a transformer upgrade or a separate transformer, a conductor upsize or a change to system protection, which the consumer-member is responsible for. Once you have discussed adding DG to your service with your installer and have accurate sizing and location information, an initial interconnection evaluation is provided free to EEA consumer-members and will help you make an informed decision before you commit to an installation.

The power industry in America is changing at a rapid pace and continued requests for DG are just a part of that equation. New energy storage technologies as well as the adoption of electric vehicles present challenges for everyone involved in the power business. EEA is working to balance the need to safely maintain its current system reliability in a cost-effective way while building in the ability to meet the future needs of co-op consumer-members. EEA looks forward to continuing our partnership with you and being your local energy experts.

My Co-op Calendar

August 14 –

EEA's board meeting begins at 8:30 a.m. at its headquarters in Cortez. The agenda is posted 10 days in advance of the meeting at eea.coop. Consumer-members are reminded that public comment is heard at the beginning of the meeting. Meeting restrictions due to health concerns may require the meeting to be held remotely.

August 25 –

National Park Service Founders Day. On this day in 1916, President Woodrow Wilson signed The Organic Act of 1916 establishing the National Park Service. Take some time to visit one of Colorado's four national parks.

WHY IS MY POWER OUT ?

A storm or a squirrel may be to blame

 Safe Electricity.org



When the power goes out, we work hard to resume service as quickly and safely as possible.

Here are some common reasons the power goes out:



STORMS:

Mother Nature can interfere with power delivery.



TREES AND VEGETATION:

This is why we work so hard to keep power lines clear.



ANIMALS:

Curious animals can cause damage, especially squirrels.



ACCIDENTS: Run-ins with a utility pole or other equipment can cause an outage.



PUBLIC DAMAGE: Unsafe digging, equipment or line damage, vandalism or theft can all interfere.



OVERLOAD: This happens when demand spikes, like on a hot summer day.



EQUIPMENT ISSUES: We maintain and inspect equipment regularly, but sometimes malfunctions occur.

Thank you for your patience during outages.

Thinking About Installing Solar?

BY ANDY CARTER MEMBER ENGAGEMENT MANAGER

Solar net metering installations are steadily growing in our area, so we put together this list of things to consider before you sign a contract to install one.

IS SOLAR GENERATION A GOOD FIT FOR ME?

- Why do I want solar generation? (Investment? Energy independence? Carbon footprint reduction?)
- Does my location have good solar exposure?
- Is there anything that would shade the location I want to install my panels?
- Is my roof structure in good shape and will it carry the weight (including winter snow load), or do I have land for a ground mount?

HOW DO I CHOOSE AN INSTALLER?

- How long have they been in business and are they licensed to do business in my state?
- Can they provide references for recent installations?
- Are their installers North American Board of Certified Energy Practitioners certified?
- Do they have a licensed electrician

and engineer on staff, or do they hire one when required?

- Will their employees do the installation, or do they hire subcontractors?
- Are they bonded and insured?

WHAT KIND OF SYSTEM DO I NEED?

- How will they determine the size system I need?
- Will the system meet all my electricity needs?
- What kind of equipment do they install and what is the warranty?
- Do they offer an installation warranty?
- What will it cost and what is the payback time?
- How long will it take and when can they start?
- Will they take care of the application and permitting process?
- Will I need a utility service upgrade?

WHAT CAN I EXPECT AFTER THE INSTALLATION IS DONE?

- Will they provide safety and operation training for my family?



▲ Solar net metering installations are growing in EEA's service territory and there is research that needs to be done before investing in a solar generation system for your home.

- Will I be able to monitor system performance?
- Who do I call if there are problems?
- What will my monthly electric bill be now and in the future if rates change?

Installing a solar generation system is a long-term investment. EEA wants to help you make the right choice. Call the energy management advisor at 970-564-4444 for more details or check out www.eea.coop!

Co-op Photo Contest Winner August 2020

A Summer Day >
by Melody Hurst

