

Renewable Energy and Energy Resilience for Nevada County

The United Nations Intergovernmental Panel on Climate Change recently released the most comprehensive climate change report ever on the state of Earth's climate and how human activities affect it. Here are some of the key findings noted:

- Earth has warmed nearly 2 degrees Fahrenheit since the Industrial Revolution began
- All global warming is due to human activities
- Sea-level rise and glacier melt are now virtually irreversible
- Escape from human-caused climate change is no longer possible
- Climate change is now affecting every continent, region and ocean on Earth
- Carbon dioxide levels today are higher and rising faster than at any time in at least the past two million years
- Extreme weather events are more frequent as a result of the climate crisis

The report states that to stabilize the climate, carbon emissions must reach net zero much sooner than 2050. Near term goals should cut carbon emissions by a minimum of 50% by 2030. This can be accomplished only by dethroning oil, coal, and gas as the central energy sources powering the global economy

California and Clean, Renewable Energy

California's Senate Bill 100 expanded California's clean electricity goals to 60% renewable electricity by 2030 and 100% renewable and carbon neutrality by 2045. To achieve carbon neutrality, an organization must purchase carbon offsets that result in carbon reductions. This offsets fossil fuels, but does not eliminate them.

The California Energy Commission (CEC) on August 11 adopted energy efficiency standards to reduce GHG emissions for newly constructed and renovated buildings that stakeholders say are the country's first statewide building code that strongly incentivizes all-electric construction.

California Power Mix

The main source of electricity in Nevada County is from PG&E, whose source is less than 50% renewable. So how does the County transition to 100% renewable electricity?

Energy Action Plans

Nevada City, Grass Valley and Nevada County all have adopted Energy Action Plans that call for citizen voluntary actions to meet their goals, with only the California Building Standards forcing mandatory actions. These plans stress dollar savings from reduced electricity and gas use in addition to reducing GHG emissions. The focus is on rooftop solar, building retrofitting and new homes meeting state standards. Working groups help by designing information for the general public of available aids to help meet goals.

Unfortunately there is little help available to determine if the goals will have been met. And the plans, if successful, are still a long way from meeting the U.S. and California climate timelines.

There are hurdles to meeting these goals:

- All buildings are not situated to be able to use solar.
- Many building units are leased and don't pay for electricity separately
- New CPUC rate requirements being considered would make it too costly to purchase new solar panels. A proposed fixed charge per month of up to \$85 would offset any rate advantage that solar has.

- Building retrofitting for energy efficiency is very important but can be too costly for most families and businesses.
- New building code requires homes to be electric-ready, with dedicated 240-volt outlets but as of now, natural gas is still allowed.

A solar farm to offset city electricity use has been proposed for Nevada City Old Airport site, but without a buyer of the energy and the problem of PG&E connection costs for the solar farm has stalled this option.

So how do we overcome these participation hurdles to reach renewable energy goals? The best option is to join a Community Choice Aggregation.

Community Choice Aggregation

A community alternative to engage all its citizens is to form or join a Community Choice Aggregation or CCA. In 2021 182 cities and counties in California are members of 23 CCAs.

So what are Community Choice Aggregations?

They are local, not-for-profit, public agencies in California, that allow cities, counties, and some special districts, to sum up the buying power of individual customers within their areas in order to secure energy supply for its customers. These contracts can include local solar or wind farms and hydropower to reach renewable goals of their communities.

Why are CCA's So Desirable?

- Operation decisions are made by local elected officials
- As non-profits, CCAs offer stable, cheaper electricity rates
- Revenues stay at home and support local economies
- Rapid switch to cleaner power supply and significant GHG reductions

- A captive market where all customers in the area are automatically enrolled in the CCA.
- Customers do have an individual opt-out provision.
- CCAs will have funds available for energy efficiency and innovative energy programs like energy storage and EV charging stations

Once established, CCAs become the default service provider of the power mix delivered to the customers in its area. In a CCA service territory, PG&E usually continues to own and maintain the transmission and distribution infrastructure, metering, and billing. CCA electric generation charges appear as a new section of customer bill replacing PG&E's generation charge; all other PG&E charges remain the same.

Communities do not have to hold a referendum to start or join a CCA. Local elected officials authorize participation in a CCA by a simple majority vote on a local Ordinance or Resolution. Each community has representation on a Board of Directors that makes CCA decisions. The California Public Utility Commission certifies the CCA Plan and oversees the utility/CCA relationship.

Local sources of power for a CCA could include an old city airport solar farm, NID hydropower, and municipal solar power.

CCA alternatives for Nevada County and its cities to consider include:

Join an existing CCA

Pioneer Energy is a partnership between the cities of Placer County, Placer County and El Dorado county and Placerville.

Butte Choice Energy is currently being organized for Butte County and Chico.

Valley Clean Energy is the electric generation provider for Davis, Woodland, Winters and unincorporated Yolo County. To meet the California goals it means that we must join a CCA that has a goal of 100% clean, renewable energy.

Or Remain with PG&E

PG&E would still be responsible for the power supply and meeting the RPS standards, such as 60% renewable by 2030.

Next Steps for Nevada County include:

- Form a citizen CCA committee
- Committee and municipal representatives to meet with existing CCAs to determine feasibility of joining them
- Set up CCA workshops and public meetings to get public input
- Make a decision on CCA participation

Participating in a CCA would solve the problem of all community members being able to participate in saving money while helping reach 100% renewable energy for the community.

But what about energy resilience needed to respond to PG&E shutoffs and other emergencies?

Energy Resilience

Energy resilience is ensuring a citizen or business or community to have a reliable, regular supply of energy and contingency measures in place in the event of a power failure.

Resilience issues include power surges, weather, natural disasters, accidents and equipment failure. Many people have turned to diesel or gas generators for backup, but this add to carbon emissions.

With future goals for electric cars, all-electric new houses, and retrofitted homes with electricity replacing gas appliances and heating, the California Energy Grid will have to supply more power. This can come from new, large Utility generation plants alone or supplemented by distributed energy resources (DER).

A distributed energy resource (DER) is a small-scale unit of power generation that operates locally and is connected to a larger power grid at the distribution level.

DERs include solar panels, backup storage, micro and macro grids, electric vehicles and automatic controllable loads, such as HVAC systems and electric water heaters.

Interestingly, energy efficiency from retrofitting is considered a DER because it reduces the need for energy from a distant source.

Making full use of distributed energy resources will lower the costs needed to meet the California goal of carbon neutrality by 2045.

These DER's help to be a resilient supply of energy, but what can be done for power outages?

The Value of Storage

Energy storage technologies have the capacity to benefit each segment of the power system:

- Keep critical equipment online during power disruptions
- Reduce utility bills and generate revenue
- Reliable backup power during severe weather and other blackouts
- Reduce utility bills and generate revenue

Solar plus Storage

Energy resilience has been the primary driver for residential solar + storage projects, as nearly all solar systems shutdown when a grid outage occurs.

Time of day demand related utility charges have been a driving force for storage adoption among commercial properties. While solar can intermittently reduce demand for electricity from the power grid during the day, only storage can reliably provide electricity during specific periods of peak energy demand.

Batteries can be charged from the grid to provide hours or even days of backup power, depending on the size of the battery system relative to the electrical loads being supported by it.

One solution for backup storage for PG&E outages is lithium ion battery power stations. Their sole use is to power devices and appliances during shutoffs. No gas, no fumes, just plug and play. Recharge from portable solar panel or car battery

Rise Gold Mine

I would be remiss not to mention the impact of the proposed Rise Mine.

The February 2020 Rise Gold mining air quality report stated that the electricity consumption would be approximately 50,000 megawatt-hours per year.

This projected yearly mine electricity usage is greater than the yearly amount of Nevada County electricity for non-residential use.

The mine output of 50,000 mWh would equal the electricity use of 5,575 households.

When you look at the estimated jobs created by mining, literally ANY OTHER INDUSTRY OUT OF 19 OTHERS WOULD BE

BETTER...for either total direct jobs, total indirect jobs, or total locally induced 'downstream' jobs.

The Rise Gold electricity use would make the Nevada County Energy Action Plan's electricity savings objectives impossible to meet as well as double current non-residential emissions.

Finally, the Project will not help with water efficiency, or reduce water use for the county. It instead increases county water use substantially, counter to the EAP goal of reducing water use countywide and encouraging smart efficient use of precious water resources.

In conclusion

Each of you can help meet the climate challenge:

- Contact me at rivenes@sbcglobal.net to volunteer to work on the energy action plans or pursuing Community Choice Aggregation.
- Go to www.MineWatchNC.org to find out how you can help Stop the Mine.
- Go to <https://www.mynevadacounty.com/3055/Energy-Efficiency> for energy efficiency information.