

Public Power

**EXPANDING BCPUD TO INCLUDE ELECTRIC
SERVICES**

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GOVERNANCE

LEGAL PRECEDENT

Many publicly owned utilities supply electricity within their regions through local governance — managing generation or procurement, distribution, and the implementation of local energy efficiency and renewable initiatives.

Publicly owned utilities
that do not currently
include electricity can
expand to provide it.

JEFFERSON COUNTY PUBLIC UTILITY DISTRICT

●

Cause
1

The county's private power utility, Puget Sound Energy (PSE), entered into a \$7.4 billion purchase agreement with a foreign buyer, garnering bipartisan support for a shift to public power to keep control of the power system in local hands.

Many residents felt that PSE services were unreliable and expensive.

●

Challenge
2

PSE invested \$250,000 (or roughly \$30 per vote) towards a multimedia counter-campaign, that included truck-mounted billboards, robo-calls, frequent home mailings, and newspaper ads.

It escalated its local presence by bringing its top executives to community forums and created an astroturf organization led by employees of their's public relations firm.

●

Activism
3

Local organizers successfully gathered enough signatures to put public power on the ballot, where it ultimately passed among the constituency.

●

Action
4

JCPUD declared eminent domain and bought the private power utility's assets, and signed a contract with to acquire cheap hydroelectric power from the Bonneville Power Administration.

Staff with electrical power expertise were hired.

In 2013, JCPUD took over the power utility.

●

Result
5

Today, JCPUD's electric service is run smoothly.

The rates are lower.

The energy is cleaner.

The utility revenue stays in the local economy.

The people who work for the electric utility live in the community.

Bolinas may tell a similar
story in the future.

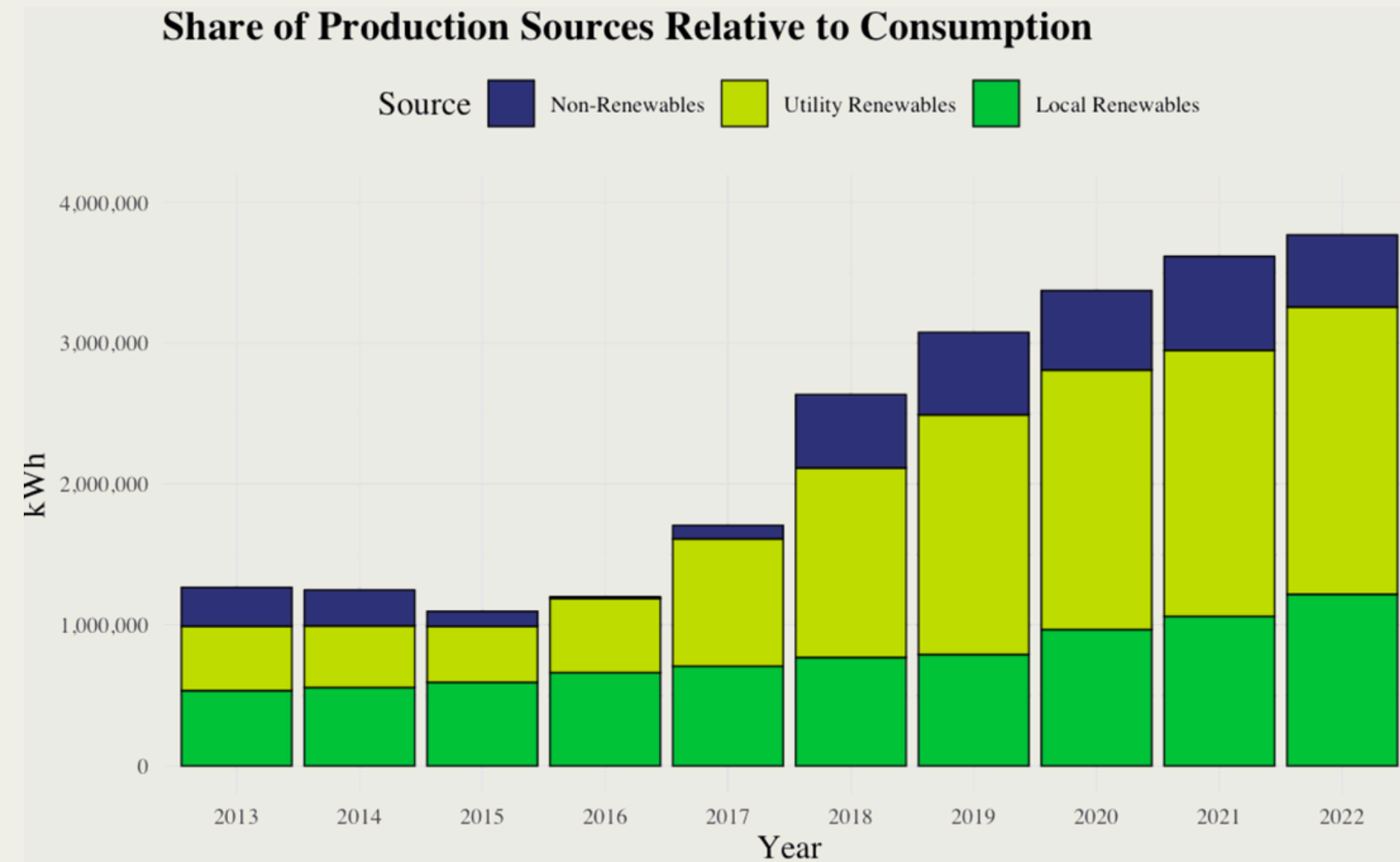
INFRASTRUCTURE

DISTANCE TO NET-ZERO

BCPUD could source all of the electricity it supplies from renewables.

2,490,157 kWh is needed to match Bolinas's electricity consumption with local renewable electricity production.

511,362 kWh is needed when incorporating California's renewable utility portfolio.



INFRASTRUCTURE SOLUTIONS

Total Local Consumption

The total electricity consumption is around 3,869,824 kWh, or around 3.87 GWh.

Matching this would cover all of Bolinas's electricity consumption.

Wind

One 1.5 MW turbine is estimated to generate around 4,989,000 kWh/yr.

- Land: ~120 acres
- Installation: \$4,905,000
- Maintenance: \$58,500/yr

Non-Local Consumption Gap

The annual non-local consumption gap of 2,490,157 kWh, or around 2.49 GWh.

Matching this would cover all of Bolinas's electricity consumption that is not already matched by local production.

Wind

Nine 100 kW commercial turbines

- Land: ~76 acres
- Installation: \$5.694 million
- Maintenance: \$35,100/yr

Solar

Ground-mounted, 1-axis tracking

- Land: 11.75 acres
- Installation: \$2.043 million
- Maintenance: \$23,440/yr

INFRASTRUCTURE SOLUTIONS

Renewable Consumption Gap

The annual non-renewable consumption gap is 511,362 kWh, or around 0.5 GWh.

Matching this would enable Bolinas to reach net-zero by generating sufficient renewable energy to offset periods when it relies on non-renewable power from California's larger grid, effectively using the grid as a battery.

Wind

Two 100 kW commercial turbines

- Land: ~17 acres.
- Installation: \$1.265 million
- Maintenance: \$7,800/yr

Solar

Ground-mounted, 1-axis tracking

- Land: 2.36 acres
- Installation: \$534,303
- Maintenance: \$4,814.33/yr

Excess Renewable Energy

Bolinas could generate and sell excess power to neighboring communities.

This would generate \$200,000/yr in revenue.

Wind

One 3.3 MW utility turbine is estimated to annually generate around 13,530,000 kWh/yr.

- Land: ~280 acres
- Installation: \$5,775,000
- Maintenance: \$135,300/yr

Any local development of clean energy infrastructure is bounded by the Bolinas Community Plan, which states: **“The expansion or addition of public utilities should correlate with the growth rates projected by the plan.”**

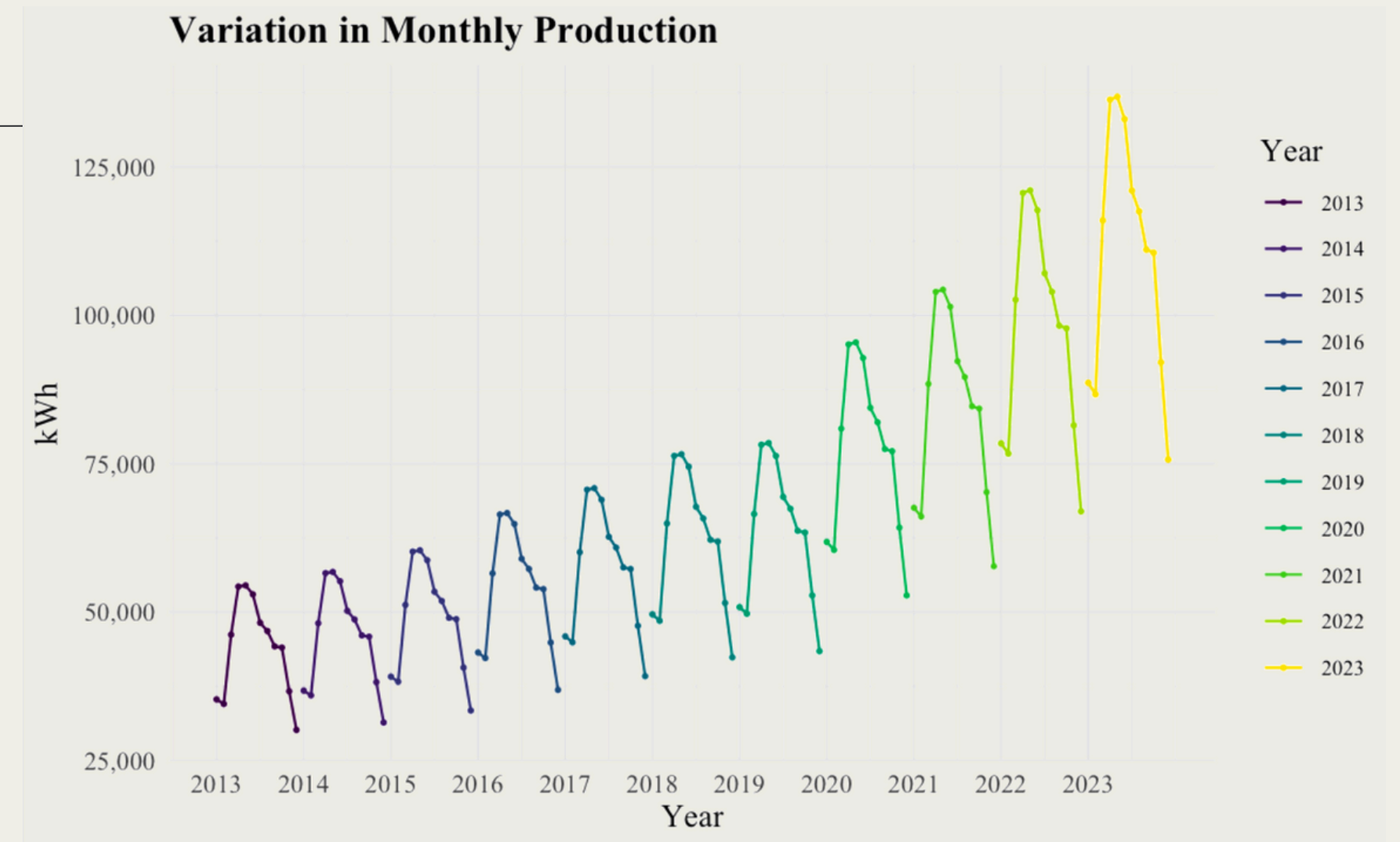
CHALLENGES

INTERMITENCY

Renewable energy relies on fluctuating natural resources, resulting in daily and seasonal variability.

Storage solutions must parallel infrastructure scale.

Tesla Megapack presents a commercial-scale battery solution. Each unit stores ~1,927 kW of energy and costs of \$2,081,060. Installation costs an additional \$802,200.



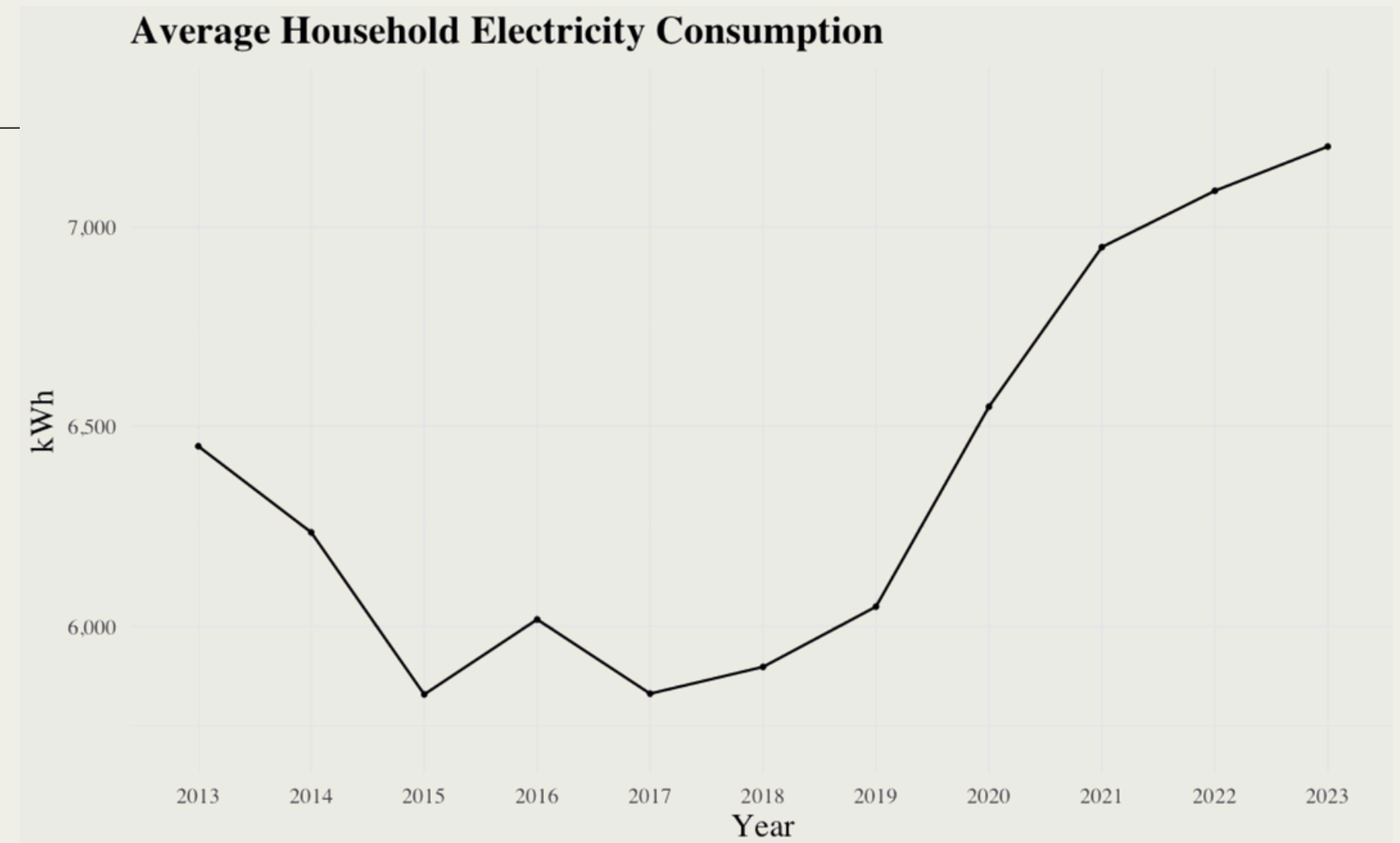
This graph shows the pattern of seasonal energy production fluctuations from the solar installations in Bolinas.

VARIABLE DEMAND

Electricity demand is generally unpredictable.

However, in Bolinas, the water moratorium restricting new real estate development makes demand more predictable compared to other regions.

Nonetheless, average household electricity use remains uncertain, influenced by factors such as electrification, appliance efficiency, and conservation efforts.



This graph shows that average household energy consumption is increasing.

FUNDING

- Federal and state securities laws designed to protect the public from fraud and risky investments create barriers for public funding of community-scale renewable energy projects seeking a broad investor base.
- The Marin County Civil Grand Jury report strongly recommends that “private funding should be aggressively explored” for micro-grids in West Marin.
- Grants exist.
 - The California Public Utilities Commission allocated \$200 million in 2021 for a statewide micro-grid incentive program, aimed at supporting vulnerable communities affected by grid outages and testing new technologies or regulatory approaches to guide future actions (Decision 23-04-034).

Bolinas has successfully secured public funding in the past, recently raising over \$300,000 through resident donations to provide free COVID-19 and antibody testing for its residents.

ECONOMIES OF SCALE

- For nearly a century, conventional wisdom is that larger-scale power generation result in lower-cost electricity. There are limits to economies of scale in solar and wind power.
- Distributed generation reduces transmission costs and associated losses, which have been rising by approximately 10% annually among California's three major investor-owned utilities. Efficiency losses during transmission range between 7% and 14% .
- Solar power remains competitive at almost any scale.
 - Community solar projects may represent the optimal balance, capturing economies of scale while delivering power locally to avoid high transmission costs.
- Larger individual wind turbines are more cost-efficient. However, farms with fewer turbines can still remain competitive.

The economies of scale debate is controversial within the field of environmental economics.

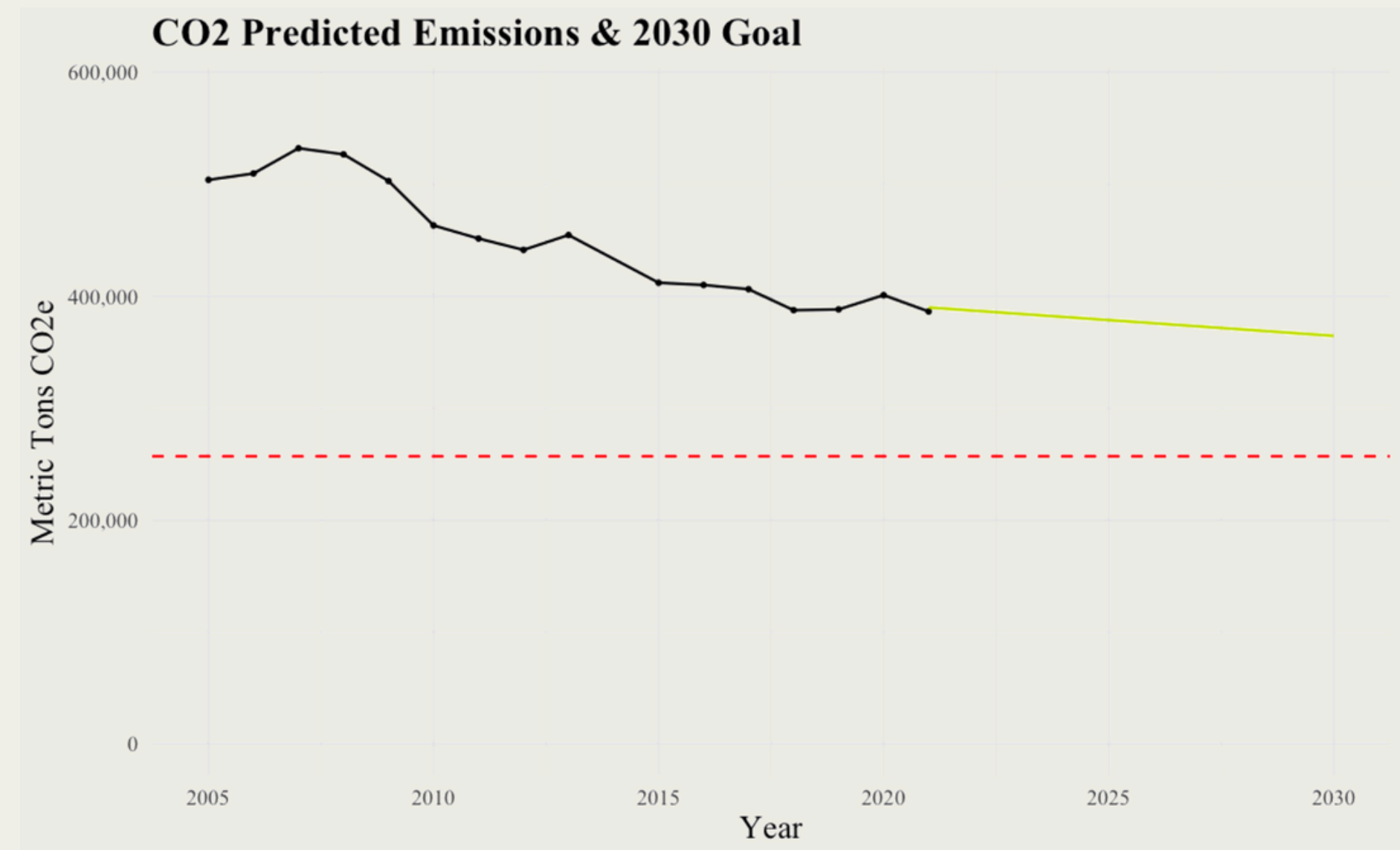
MOTIVATIONS

At the heart of the Bolinas
Community Plan is the guiding
principle: **“What we can do for
ourselves will more likely get done.”**

FALLING SHORT OF CLIMATE GOALS

Unincorporated communities in Marin County are not on track to achieve California's target of reducing emissions to 40% below 1990 levels by 2030.

Generating sufficient renewable energy to match their consumption would support emission reduction targets.



The Community Plan supports expanding BCPUD services to include electricity by integrating alternative energy sources to support Bolinas's goals for **self-sufficiency** and **independence**.

RELIABILITY

Local power generation is essential community facilities, like hospitals and internet, in the event of broader grid failures.

PG&E power shutoffs are frequent during periods of increased fire danger. Other emergencies — like earthquakes, severe wind or weather events, and cyber security events — can also cause power disruptions.

The Marin County Civil Grand Jury, citing PG&E unreliable electric transmission infrastructure, recommended the establishment of micro-grids in western Marin by 2024 to enhance resilience against power outages.

The Community Plan emphasizes environmental stewardship:

“Protecting the environment—including plant and animal wildlife as well as the landscape—is more than a legal duty under the Environmental Protection Act.”

BALANCING OBJECTIVES

Any clean energy infrastructure development requires significant conservation measures to mitigate disturbances on the local environment.

The plan highlights potential sites on the Bolinas peninsula (like the Sewer Pond Property) suitable for energy production, contingent on the infrastructure not adversely affecting other natural or man-made systems.



Thank you!

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