

The California State of Solar

July 2024

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Utilities Are Getting in the Way of California's Solar Potential, and State Regulators Are Helping Them

Utilities hate competition from rooftop solar, and they have undue influence over state government:

- April 2023: The CPUC implemented an overnight 70-80% cut in the value of energy produced by rooftop solar.
- November 2023: The CPUC went further by making solar even more expensive for multimeter properties like schools, farms, apartments and small businesses.
- April 2024: The Contractor State License Board (CSLB) voted with the state's IOUs and their affiliated union in cutting off solar contractors from being able to do battery installations

- May 20 **Blocking Rooftop Solar** le of the
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The companies, lobbyists and front groups undermining local clean energy

The companies, lobbyists and front groups undermining local clean energy

The New York Times

California Reduces Subsidies for Homes With Rooftop Solar

The decision, which would reduce the incentive for homeowners to install solar panels, could influence other states to make similar changes.

charges in the
nomics of solar

We predicted the impacts of the “NEM-3” decision, which the CPUC ignored

“The CPUC's final proposal is a loser for California on many levels. For the solar industry, it will result in business closures and the loss of green jobs. For middle class and working-class neighborhoods where solar is growing fastest, it puts clean energy further out of reach. For our grid reliability needs, it fails to promise robust growth in battery storage. And for California's race to clean energy, it puts us behind our goals and out of step with the national pro-solar agenda. The proposal is a step backwards when we really need to be moving forward with solar and battery storage. It is a dark day in California when the utility regulators try to block out the sun.”

We are launching the solar and storage industry into the future so that it can support the modern grid. The new tariff promotes solar systems and battery storage with a focus on equity and advances the new clean energy technologies we need to meet our climate goals and help ensure grid reliability.”

- CPUC Press Release, December 15, 2022

Now – over a year later – we are still seeing severe impacts on clean energy progress, green jobs and solar business.

MARKETS

SunPower stock collapses below \$1 as company halts leases, installations and shipments

PUBLISHED FRI, JUL 19 2024 8:23 AM EDT | UPDATED AN HOUR AGO

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Analysts Estimate Enphase Energy (ENPH) to Report a Decline in Earnings: What to Look Out for

Titan Solar Power closes down operations, files for bankruptcy

The company filed for Chapter 7 bankruptcy protection June 20

World at Work

SolarEdge Technologies to lay off 400 employees

By Reuters

July 15, 2024 4:06 AM PDT · Updated 5 days ago

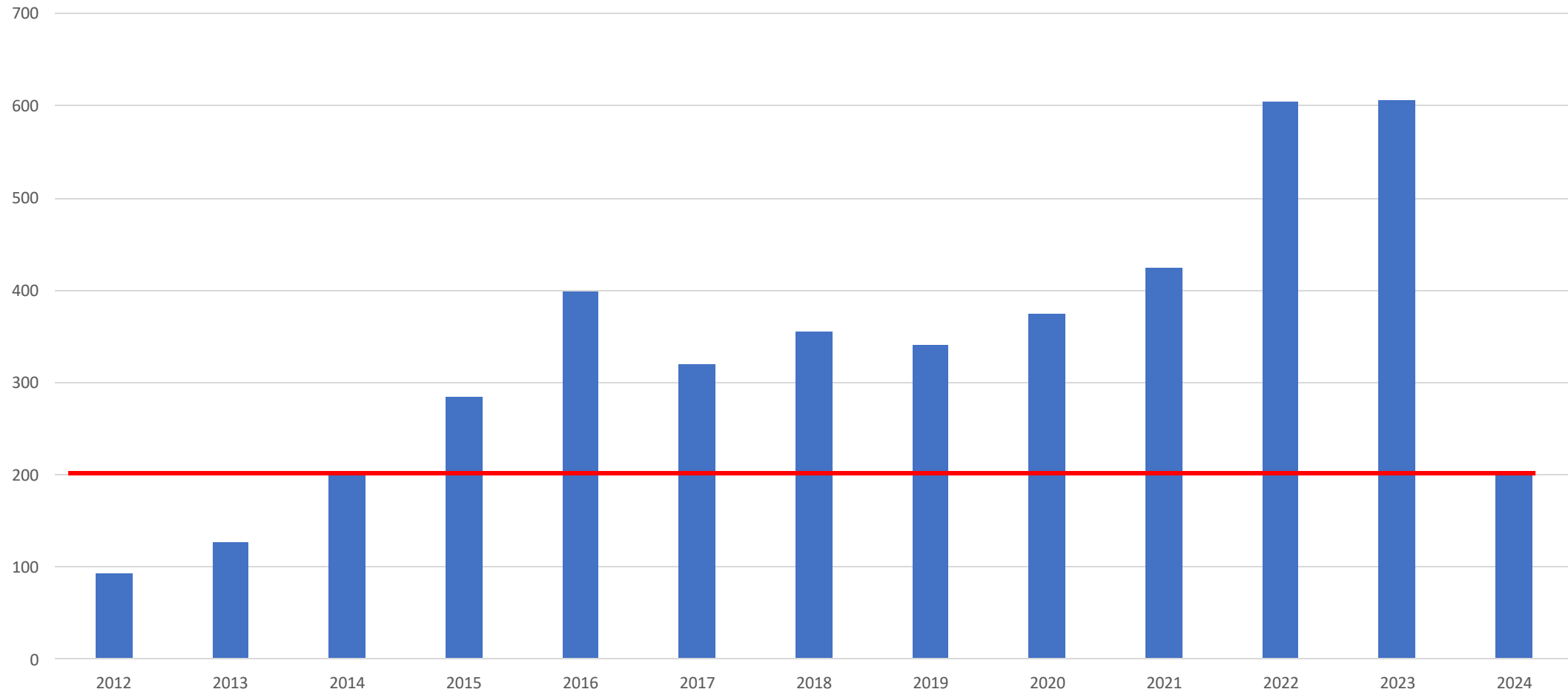


U.S. publicly traded solar installer Sunworks files for bankruptcy

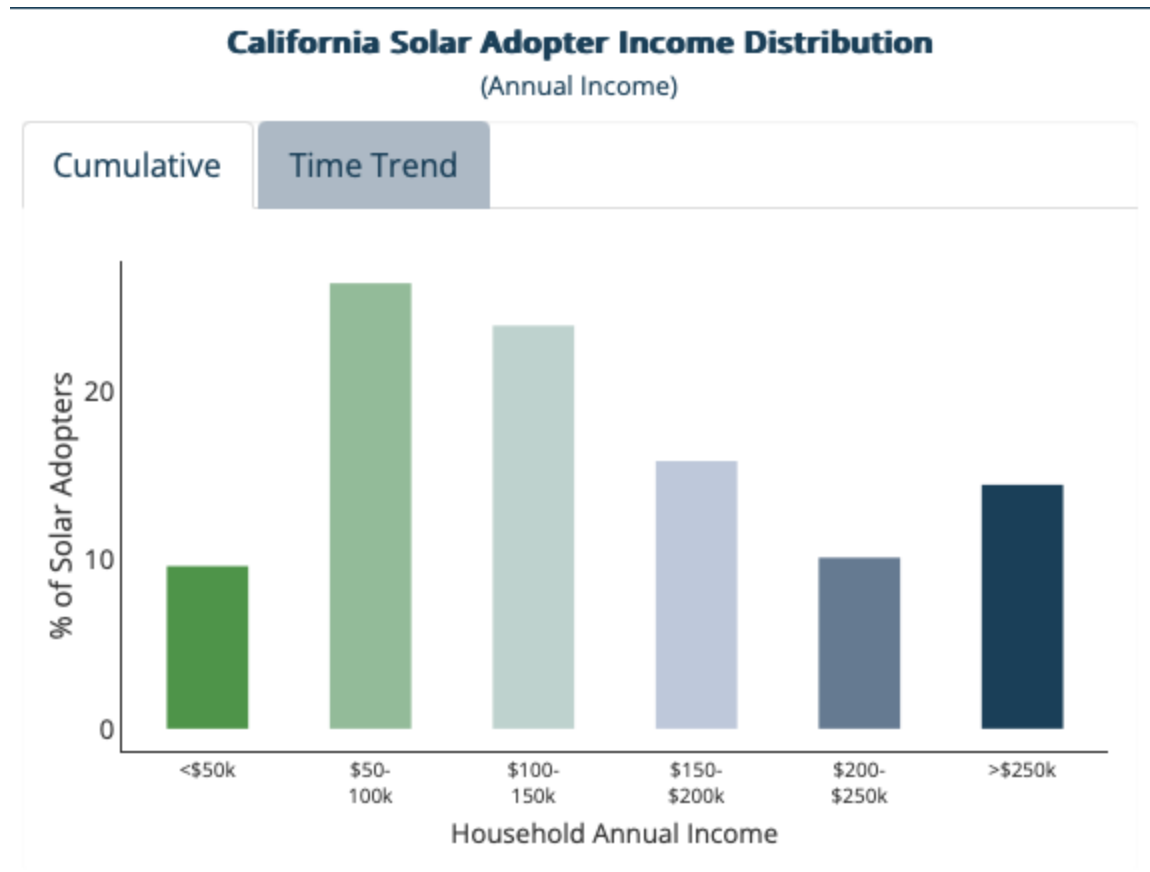
The residential, commercial, industrial, and agricultural solar installer files for bankruptcy amid troubled macroeconomic conditions for distributed solar nationwide.

California's Solar Market Has Been Setback 10 Years

MW of Solar Projects by PTO Date January - April 2012-2024

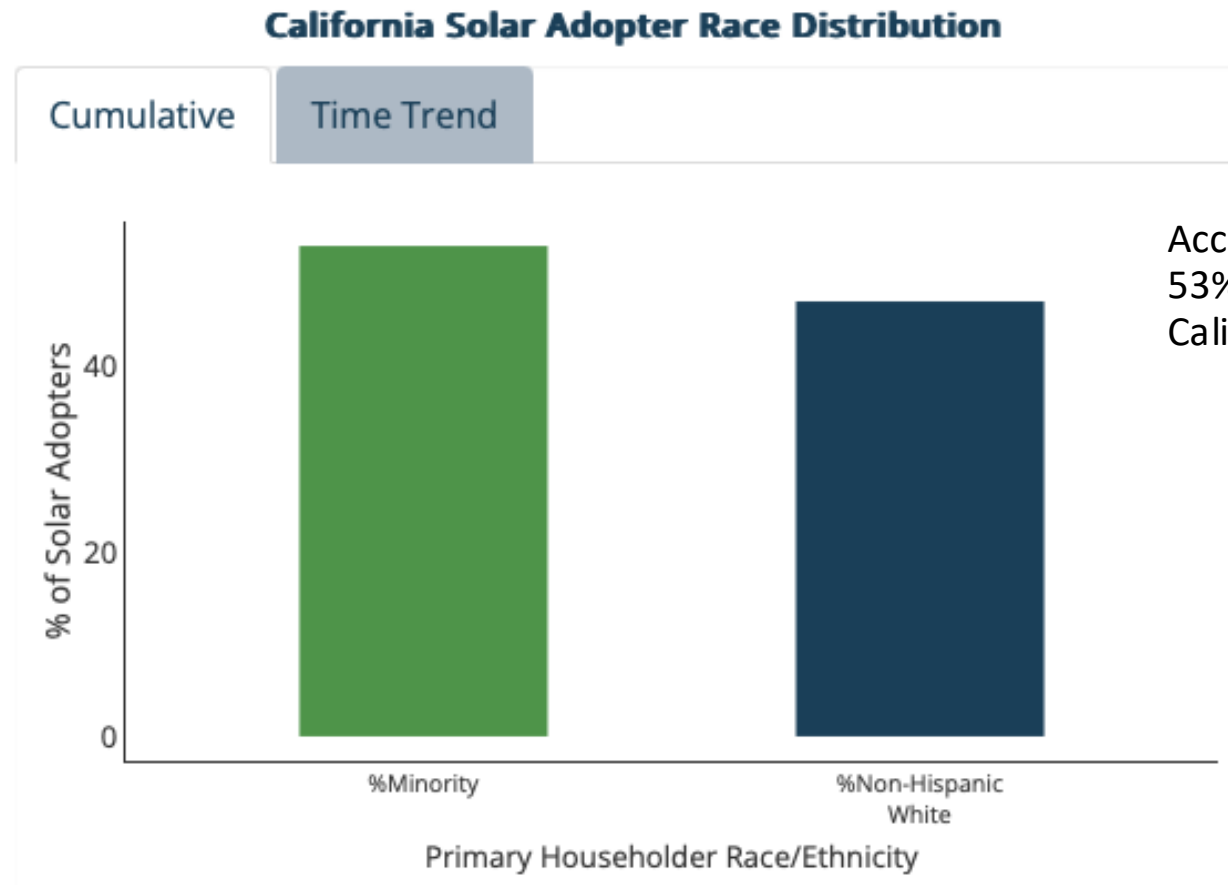


Utilities Lie and Say Solar is “Only for the Rich,” But the Truth is Solar is For Everyone



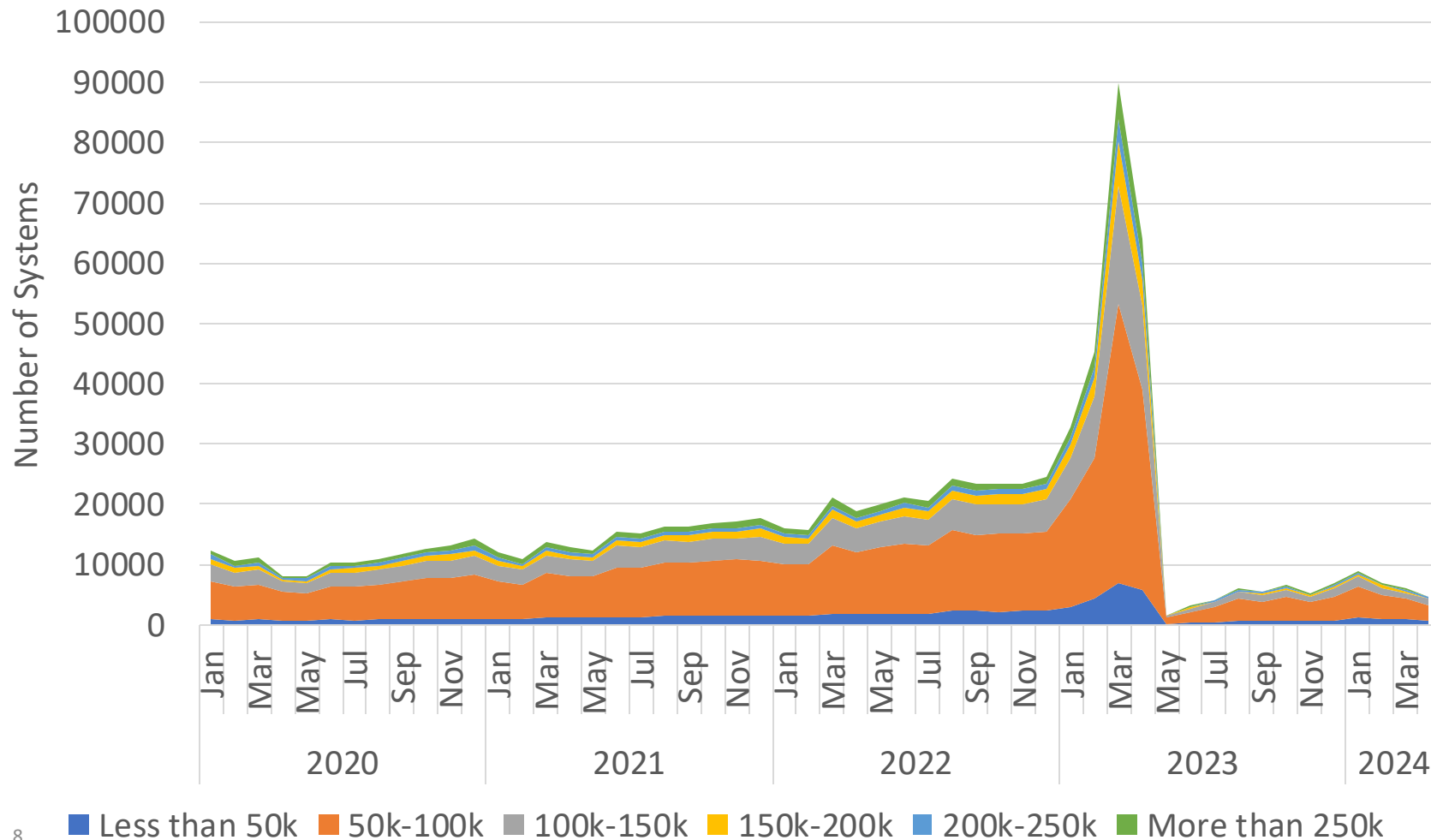
According to Lawrence Berkeley Labs,
60% of All Solar Users in California are
Low- or Middle-Class

Utilities Lie And Say Solar Hurts Diversity, But the Truth is Solar Users Are Diverse



According to Lawrence Berkeley Labs, 53% of All 2 Million Solar Users in California are People of Color

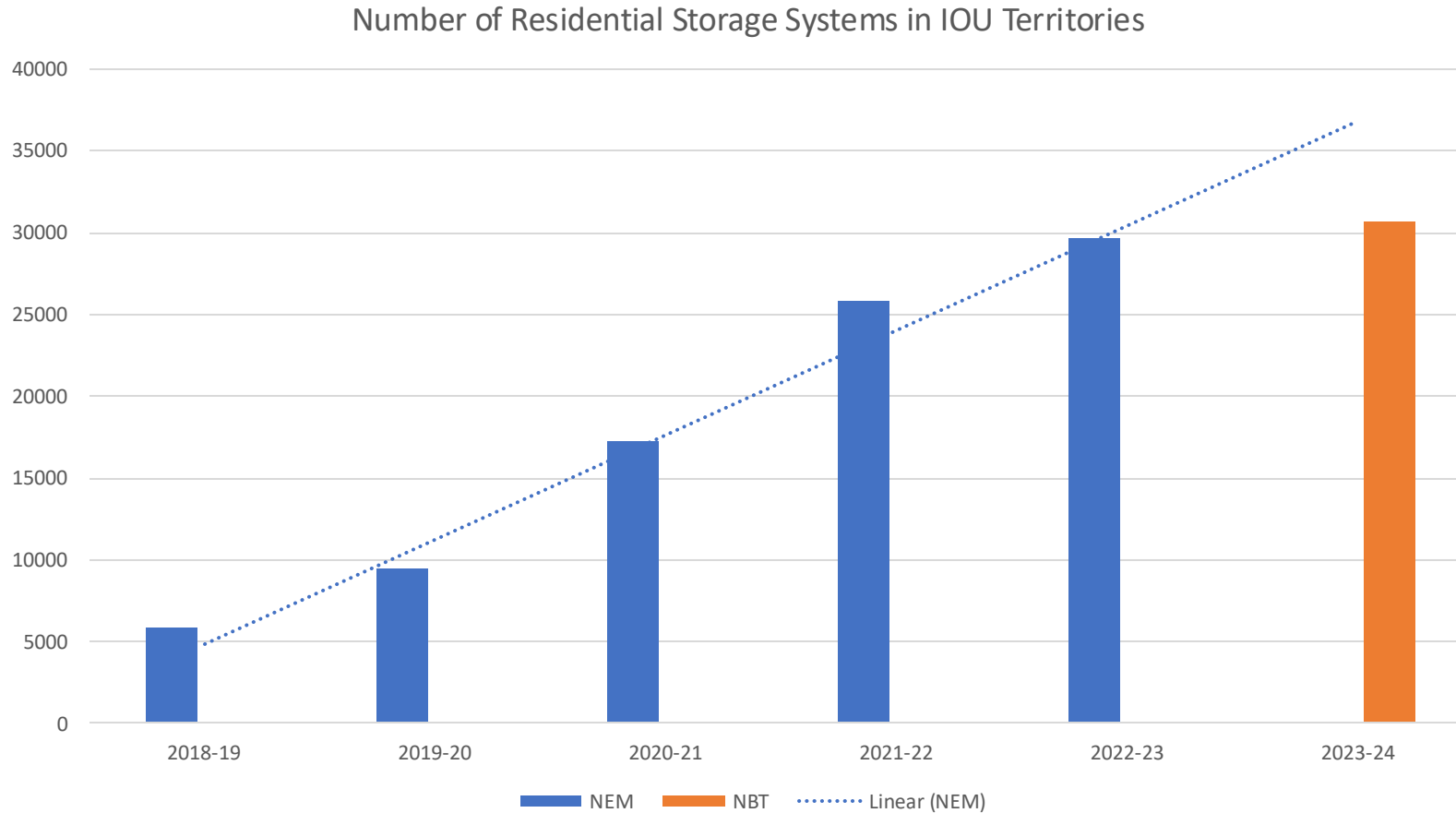
By Making Solar More Expensive, California Has Hurt All Consumers But Especially Low and Middle-Income Families



All income levels were severely harmed by the sudden and extreme changes of NBT, but especially those in the \$50k-\$100k bracket as they are the largest slice of the market pie.

Data based on Lawrence Berkeley Labs 2024 analysis

The Storage Market Was Growing at a Faster Rate *Before* Recent Changes



In approving NBT, the CPUC emphasized on the need to grow energy storage.

However, California was on pace to install far more storage than what has happened under NBT as seen in this chart.

A more gradual transition to lower daytime export credits combined with enhanced state rebates and the removal of barriers to storage adoption, such as licensing restrictions, would have accelerated the growth of storage far more effectively.

Policy Changes Have Led To Cost Increases for Consumers

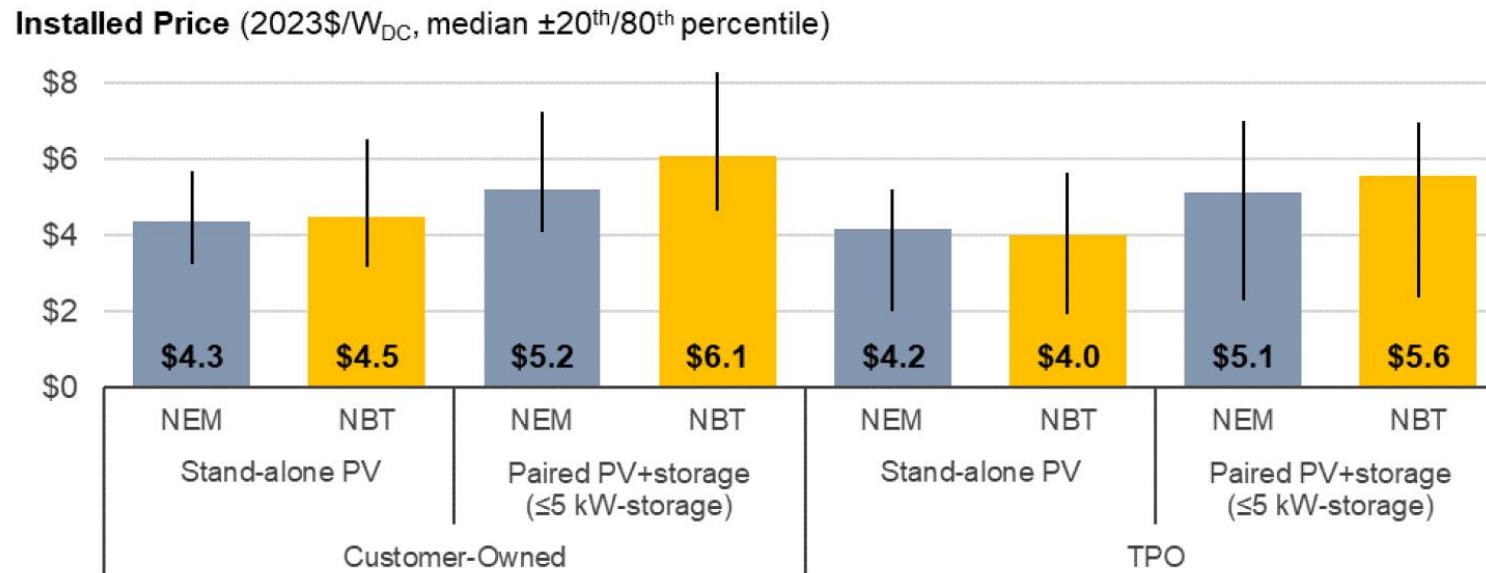


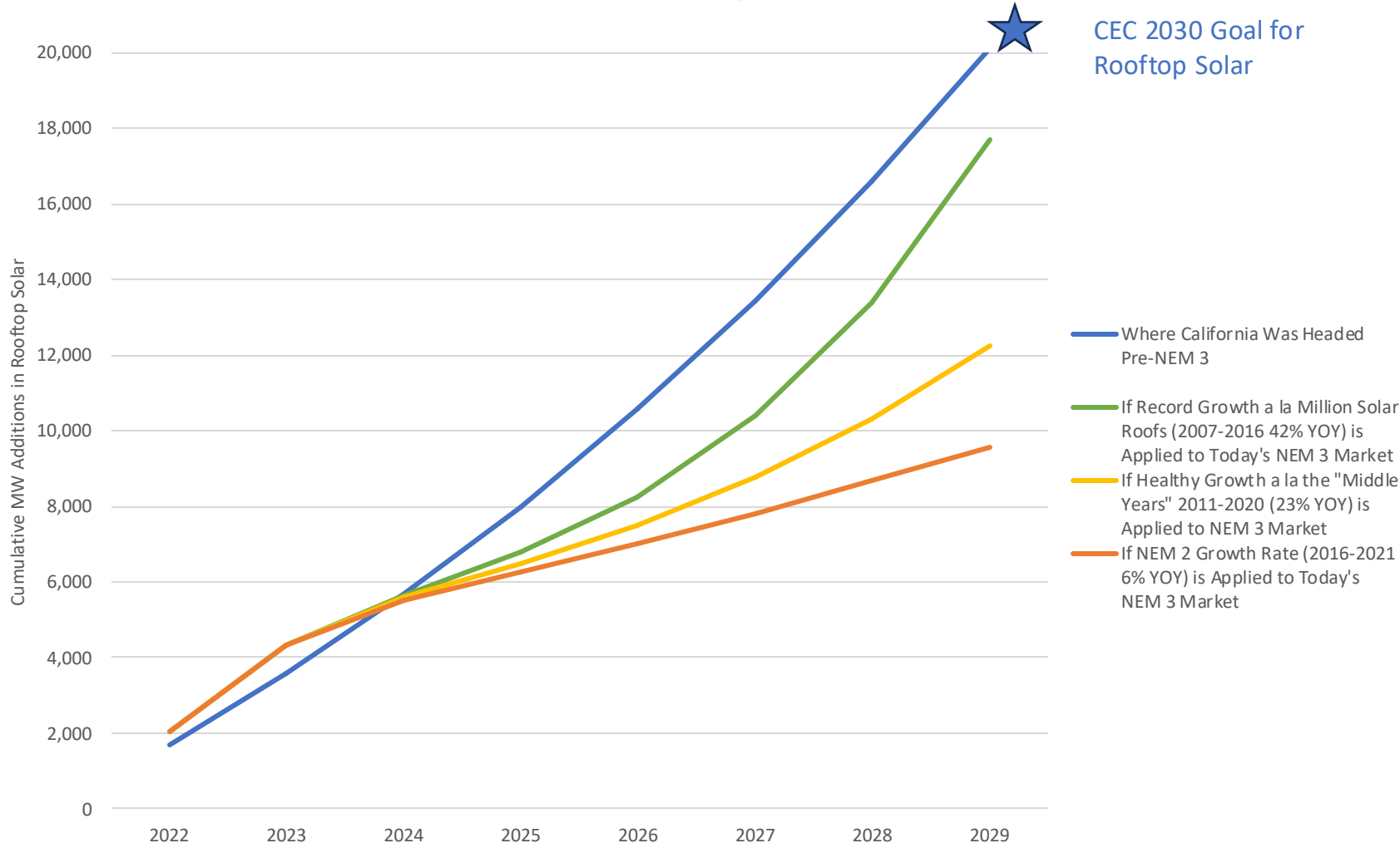
Figure 8. Installed prices under NEM and NBT, for different system configurations and ownership

Anti-rooftop solar advocates predicted that solar providers would simply reduce prices in response to NBT. They held an overly simplistic understanding of pricing, business practices, and competitive markets.

The solar industry would lower costs if we could. Due to the severe cuts in demand, solar & storage costs increased because installers had fewer systems to cover business costs.

California is Now Way Off Track In Meeting Its Clean Energy Goals...

Various Growth Scenarios for Rooftop Solar in California 2022-2029



The CEC estimates California needs to add 20,000 MW of rooftop solar by 2030 to meet its clean energy goals.

Under the previous NEM regime, California was on track to meet those goals.

Today, under NBT, even if the state's rooftop solar market were to grow at a 42% YOY rate (achieved via the Million Solar Roofs Initiative), California would still fall short.

Other growth scenarios have the state falling far short of goal.

...And Falling Further Behind Because Utility Scale

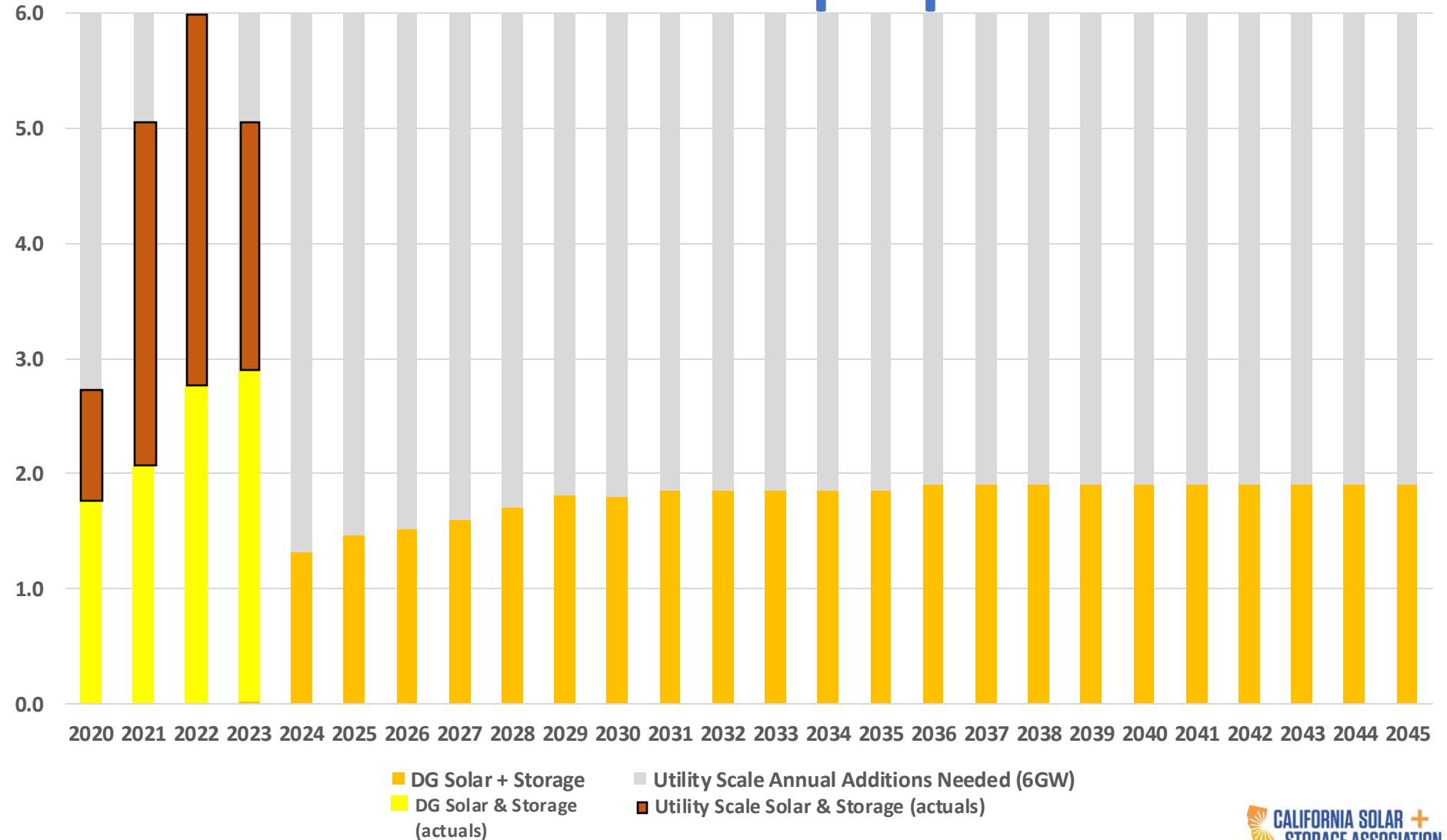
Renewables Can't Keep Up

California Must Build 6 GW Per Year From 2020-2045 To Achieve 100% by 2045

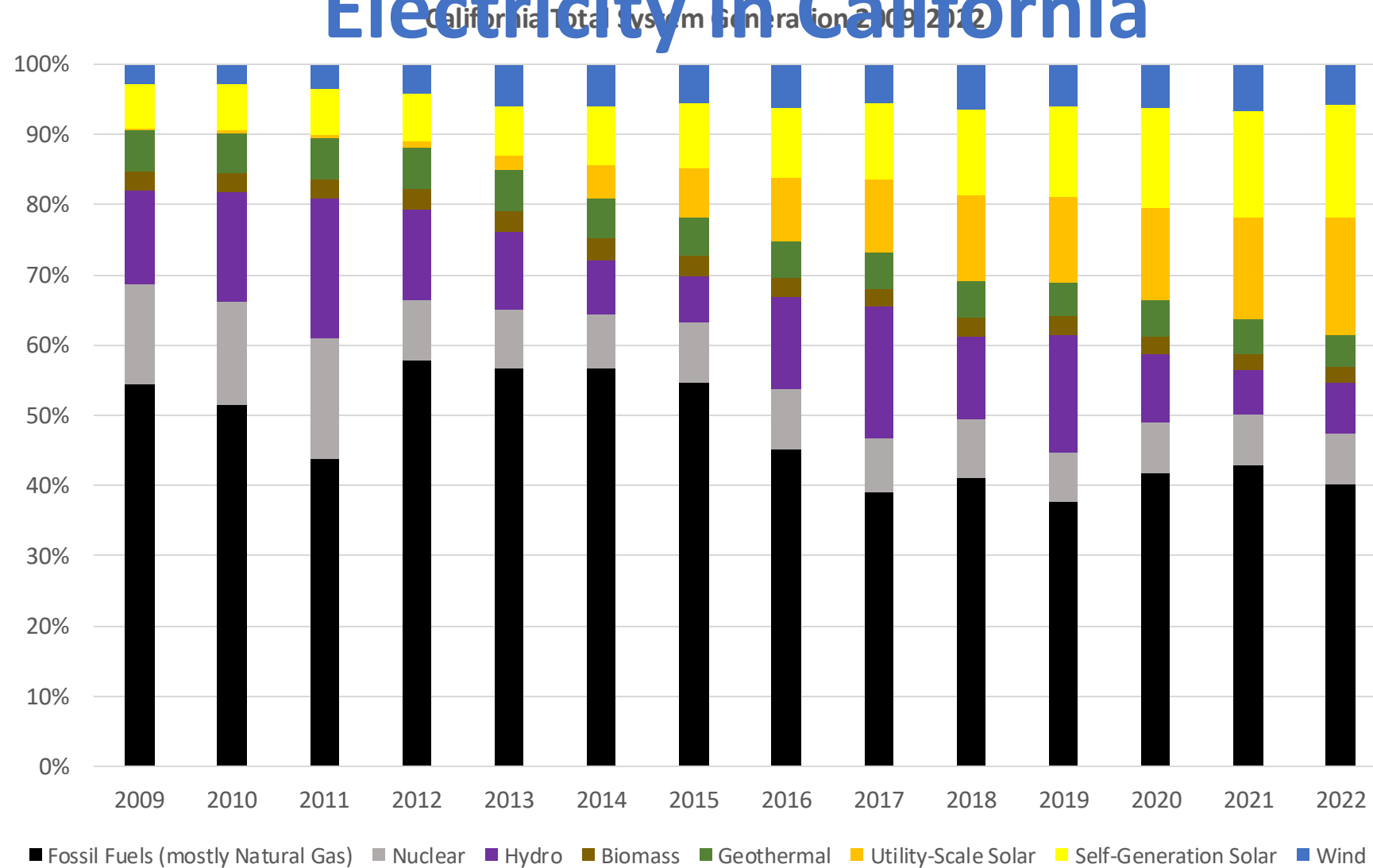
Since 2020, California built 20 GW of utility scale & rooftop solar combined (red + yellow). This was 4 GW shy of goal **with** a booming rooftop market.

Today, the rooftop market is a fraction of its former self. Even if the rooftop market recovers quickly, the utility-scale market is unlikely to meet its own goals not to mention cover ground lost.

Bottom line, California is now even further behind meeting its clean energy goals.



Natural Gas is Still the Single Largest Source of Electricity in California

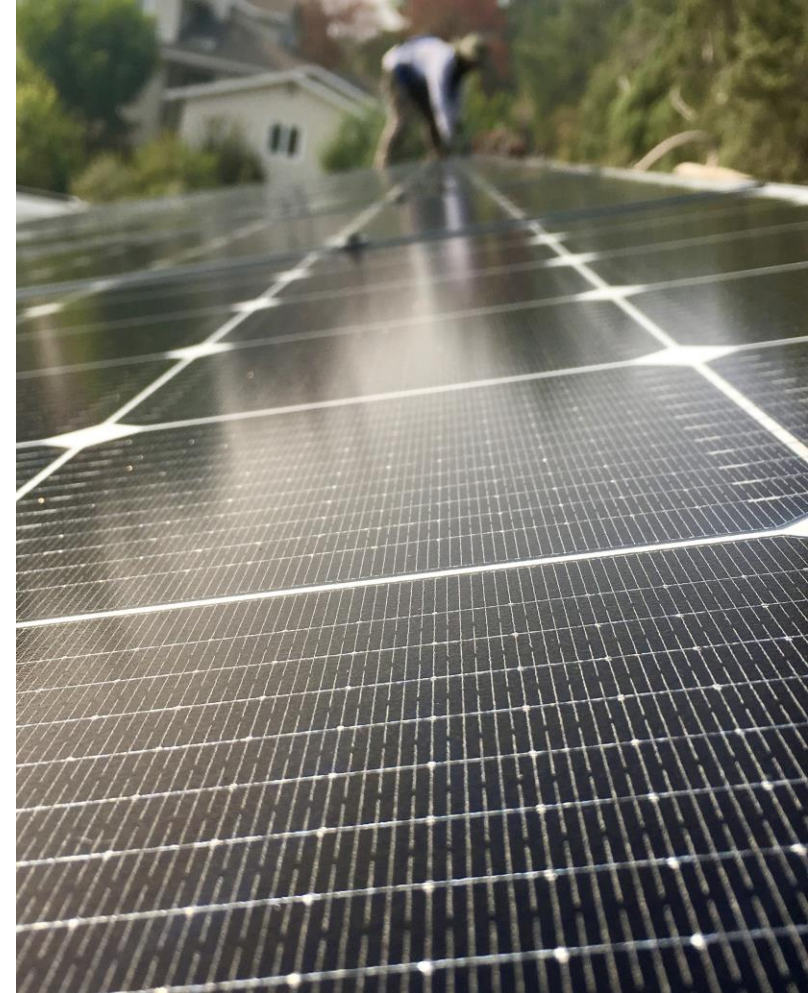


State of the Solar Business

Solar Businesses Should be Thriving. Solar Business in California Are Struggling.

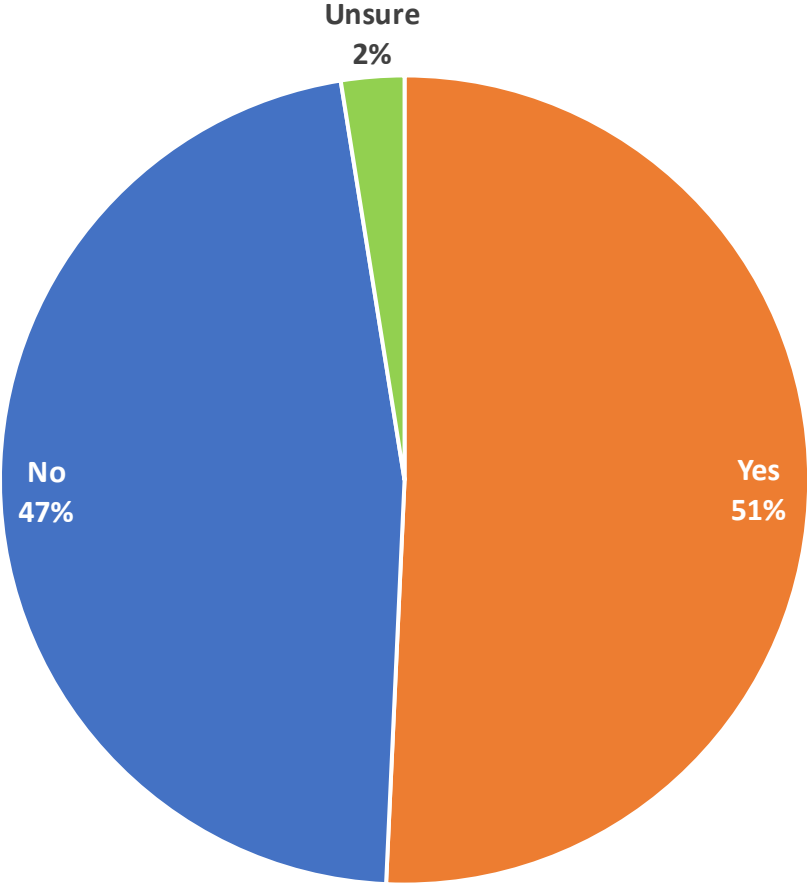
In the Spring of 2024, CALSSA surveyed 225 solar businesses assessing the state of their company, job losses, and the overall condition of California's distributed solar and storage market.

The responses show overwhelming harm due to the sudden and abrupt changes brought about by the CPUC's "NEM 3" decision.



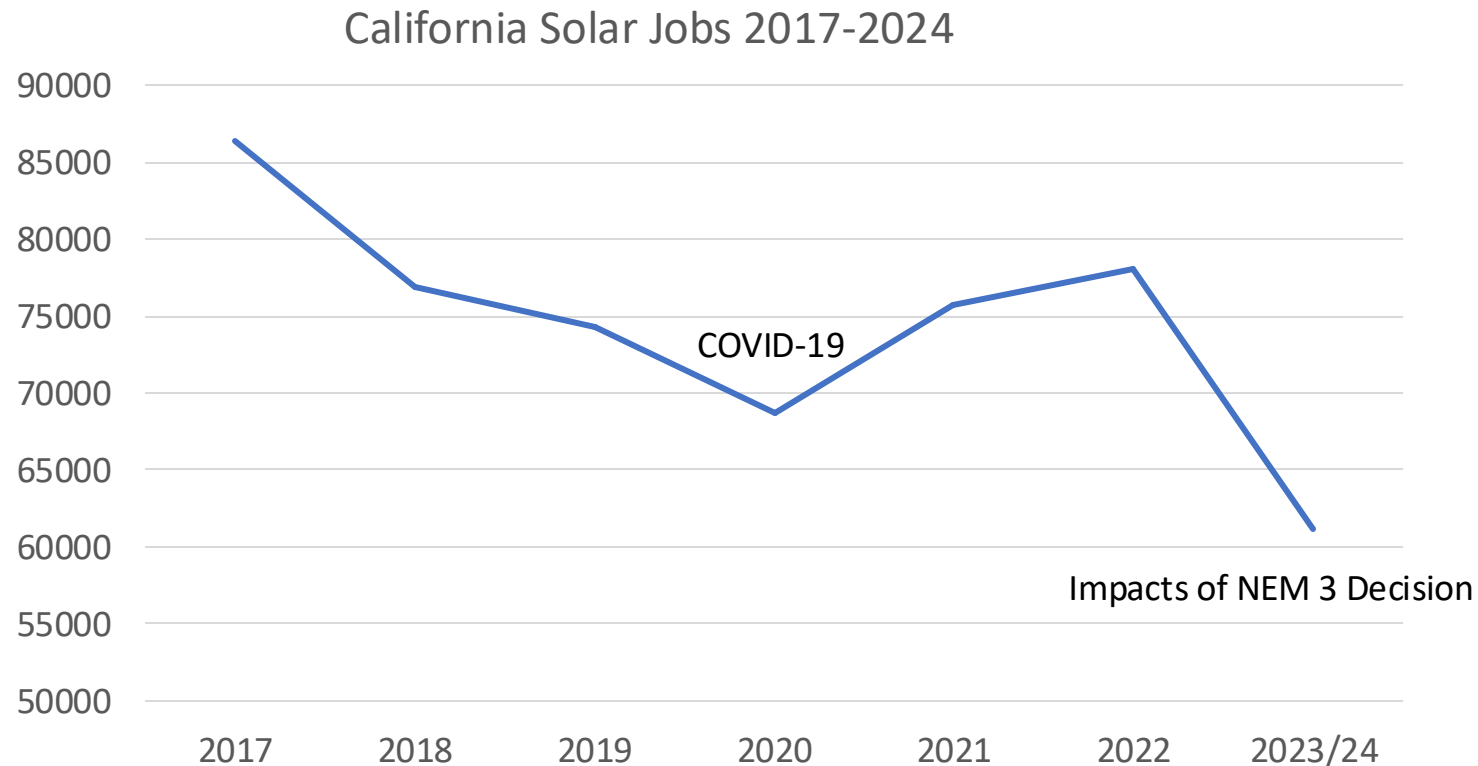
The Majority of CA Solar Businesses Suffered Job Losses Due to Policy Changes

Spring 2024: Have you had to lay off any employees in the past 12 months due to market conditions in California?



Depression-Level Job Loss in Solar

17,000 jobs have been lost due to NEM-3. The massive job loss represents 22% of all solar jobs in California.



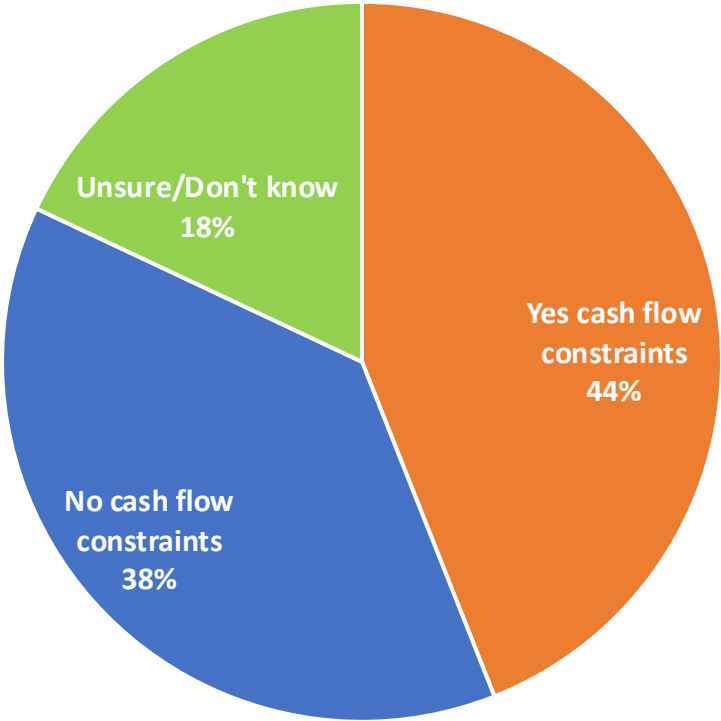
Good Jobs Lost

Most of the jobs lost are on the installation side of business. These positions earn \$70,000 per year on average and come with health insurance, retirement plans, and other benefits.



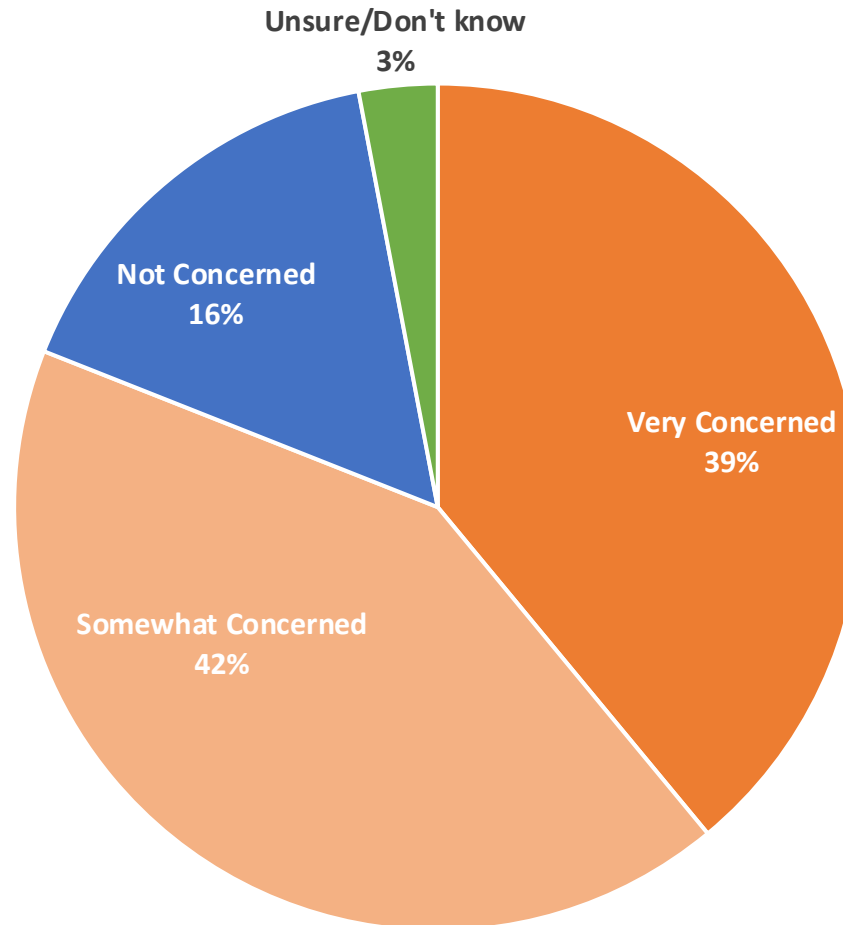
44% of CA Solar Businesses Are Still Experiencing Cash Flow Constraints A Year After the Policy Took Effect

Spring 2024: Are you concerned about your ability to meet cash flow requirements in any of the following quarters? Q2, Q3, Q4



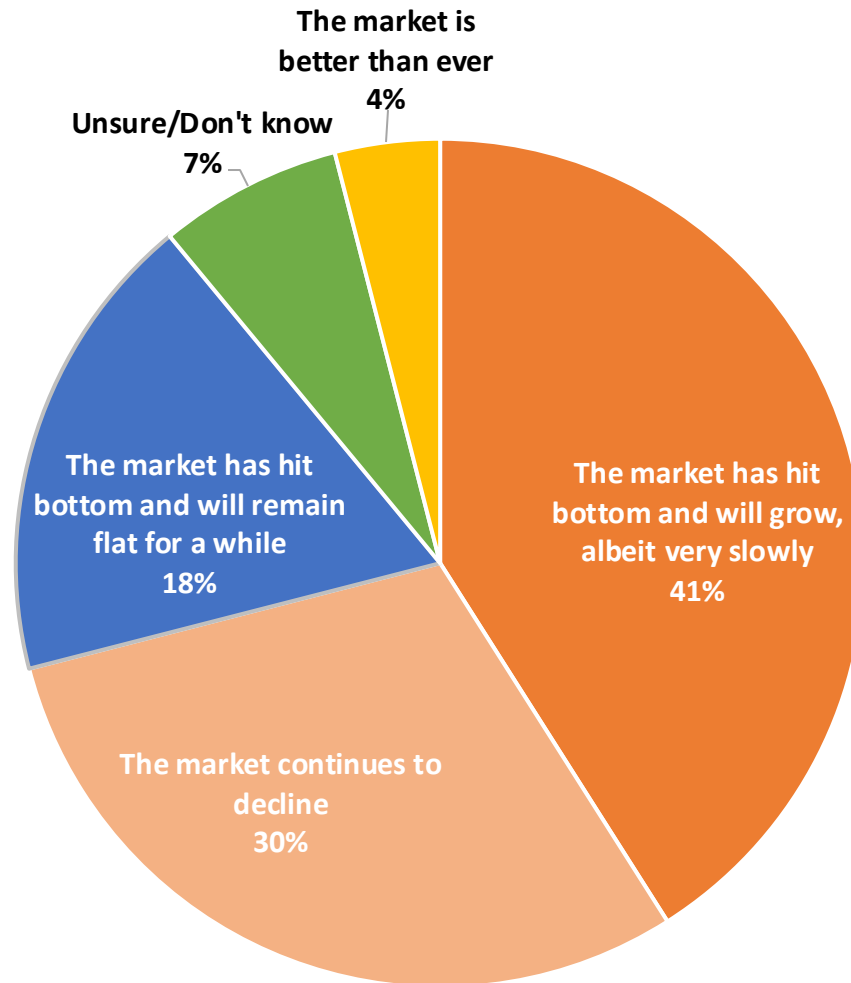
81% of CA Solar Businesses Are Still Concerned About Ability To Stay In Business

Spring 2024: How concerned are you about your ability to maintain your California business due to market conditions?



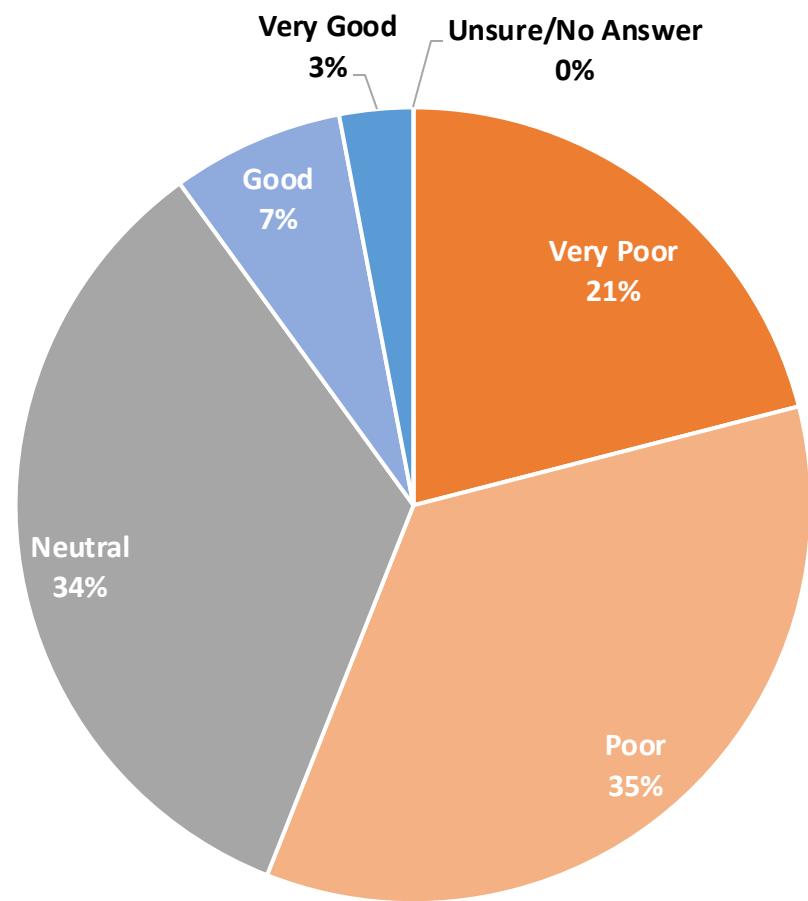
71% of Solar Businesses Believe the Market Will Decline Further or Remain Flat

Spring 2024: Overall, how would you characterize the California market today?



56% of Solar Businesses Rate California's Overall Business Climate Poor

Spring 2024: Please provide a measure of the overall business climate in California



A large, stylized sunburst graphic in a lighter shade of blue, positioned on the left side of the slide. It features a central point from which numerous lines radiate outwards, some ending in small circles, creating a fan-like or sunburst effect.

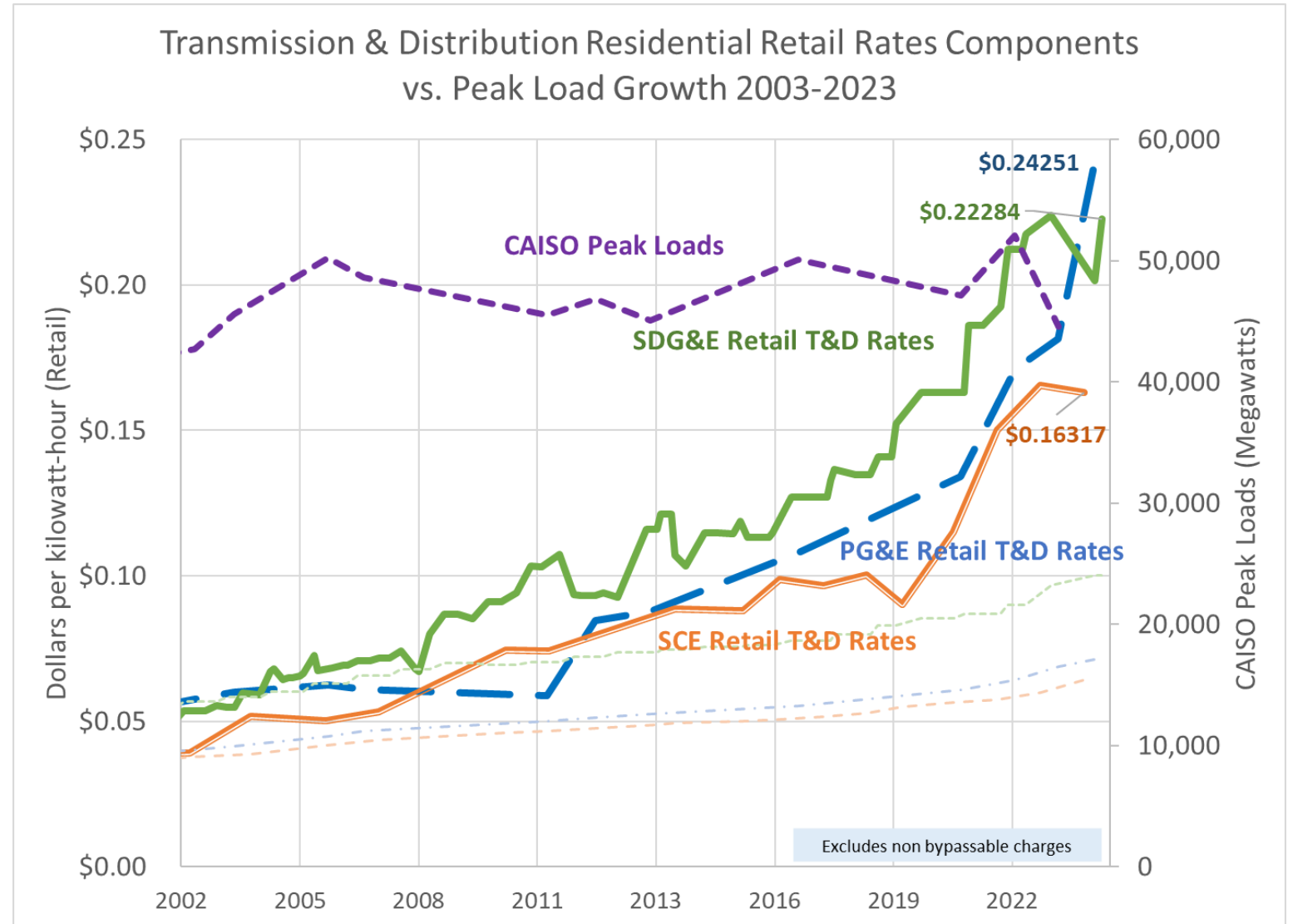
The Real “Cost Shift”: Utility Overspending, Rate Increases & Profit

The “Cost Shift” Is a Very Convenient Utility Lie

Utilities have used the cost shift narrative for years to **make solar a scapegoat** for rising energy costs.

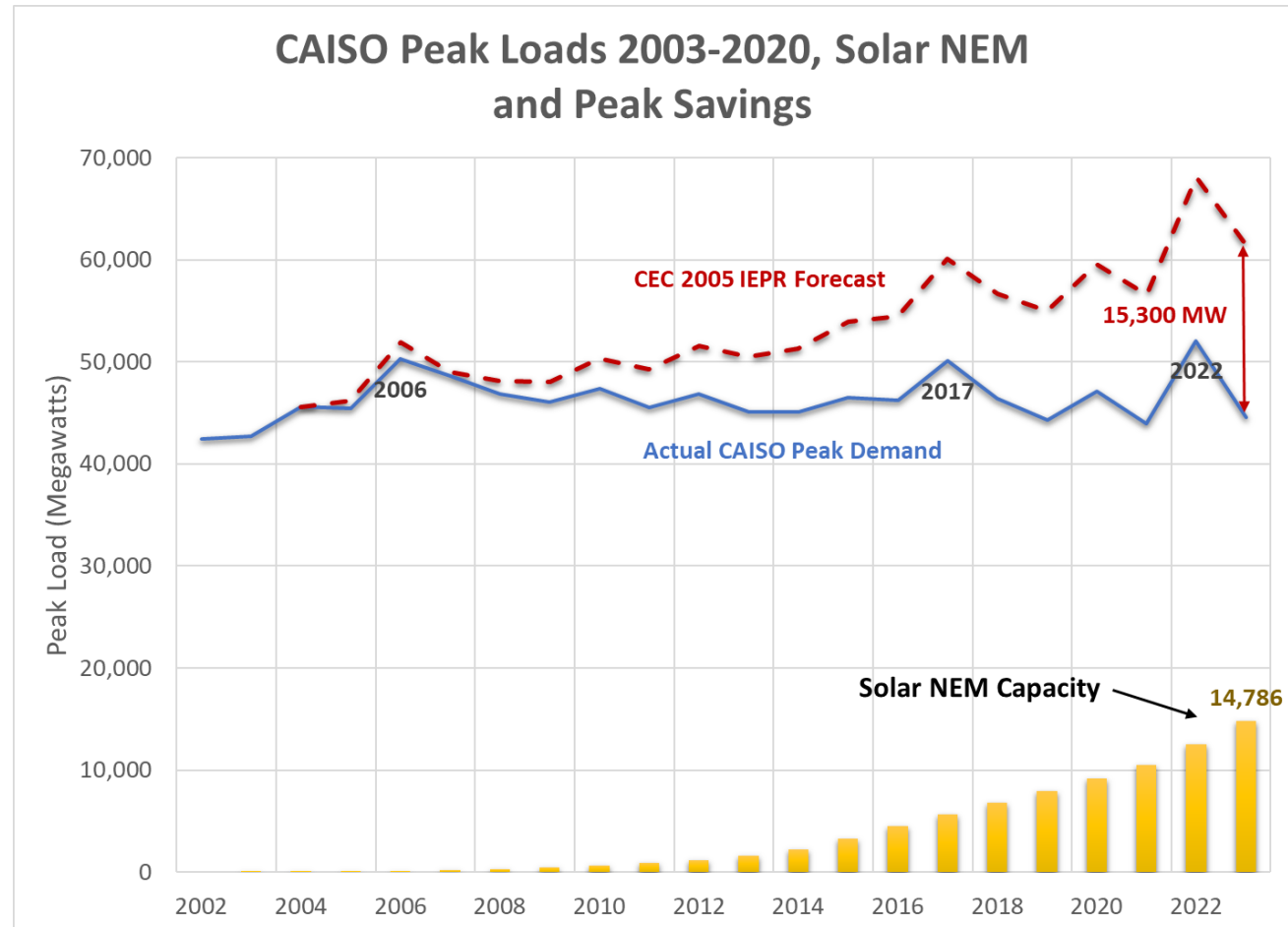
The truth is, **they needed someone to blame** so they picked **their competition**.

Utility Rates Continue to Rise Despite Flat or Reduced Demand



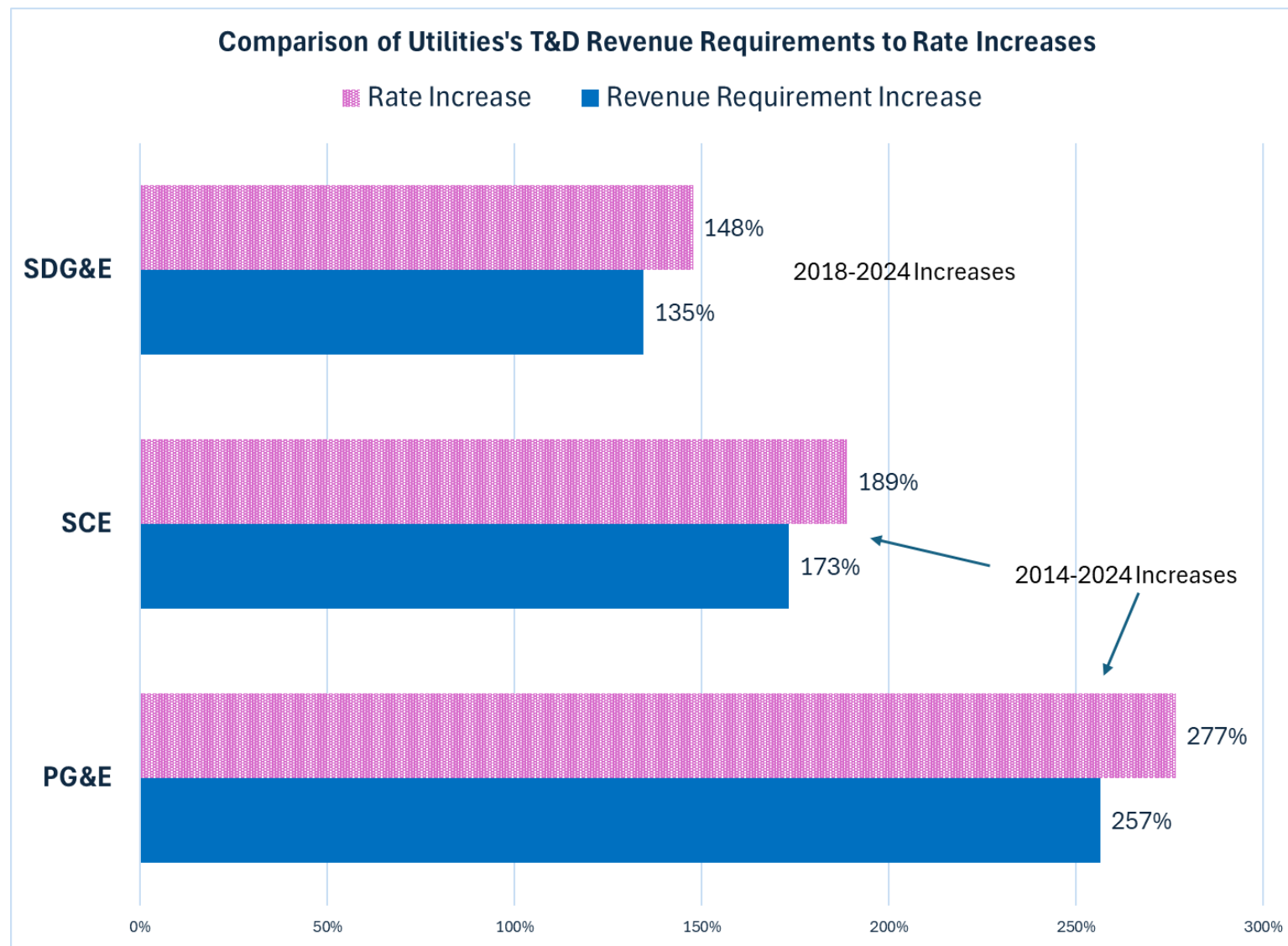
California's Electricity Demand is Flat Due, In Part, to Rooftop Solar.

Customer solar has played a major role in keeping electricity demand flat, but *utilities and state energy planners have ignored that trend and continued overspending*



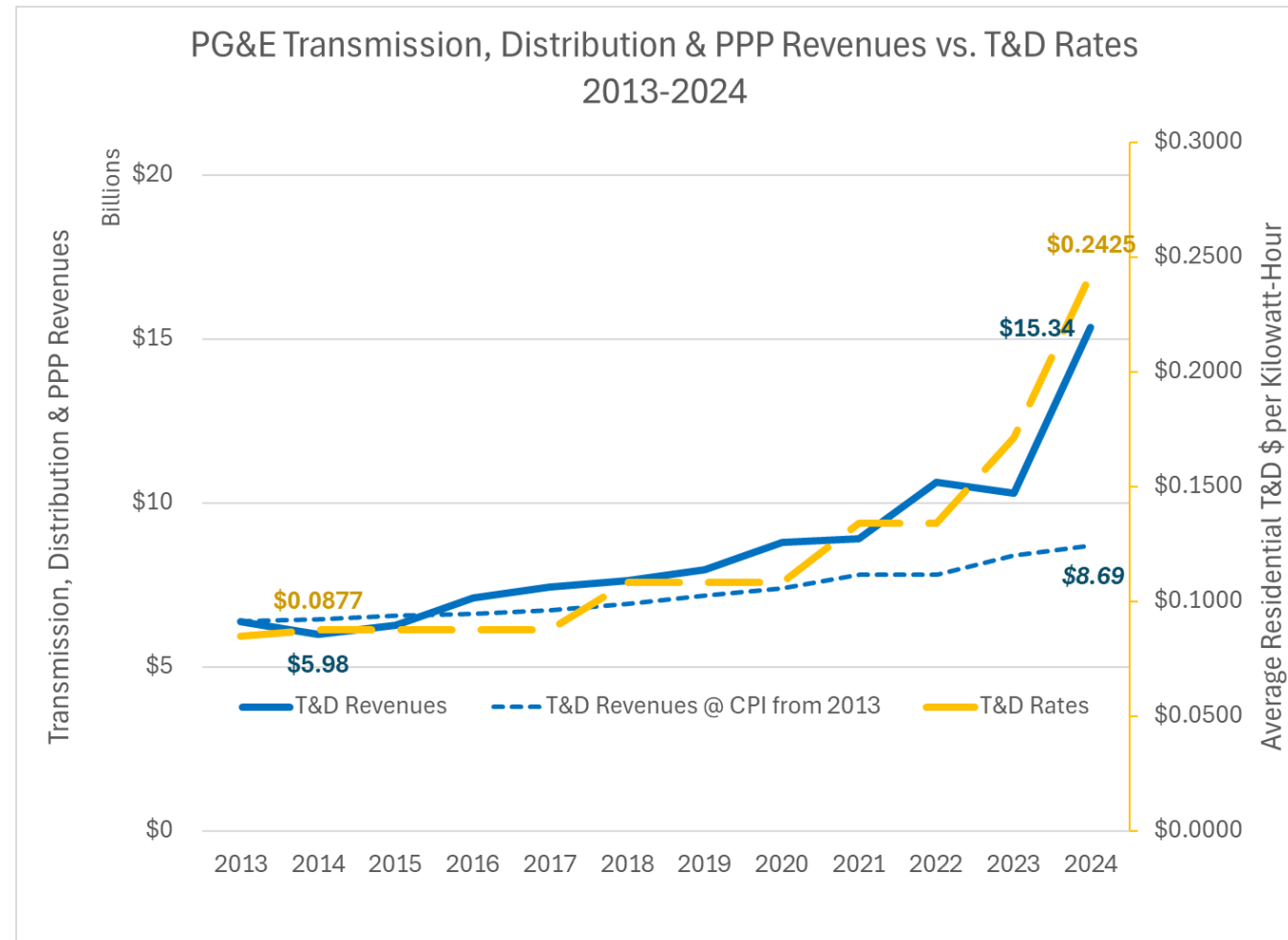
Increases Are
Due to
Spending
Increases, Not
Because There
Are Fewer
People Paying
for Grid Costs,
e.g. The “Cost
Shift”

91%-93% of the utilities' rate increases are the direct result of their spending increases.

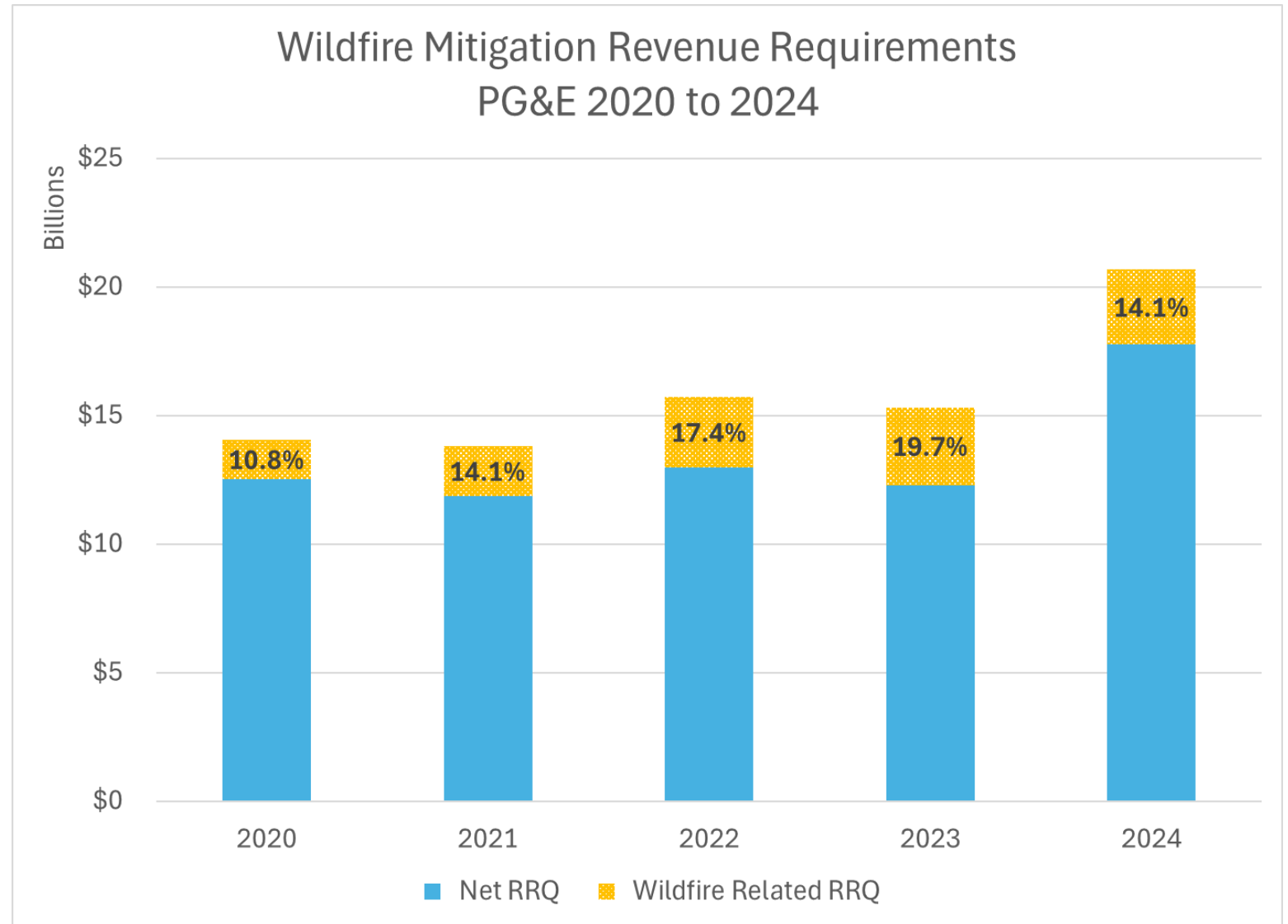


Utilities Are Spending Money on Transmission and Distribution, Despite Flat Or Lowered Electricity Demand

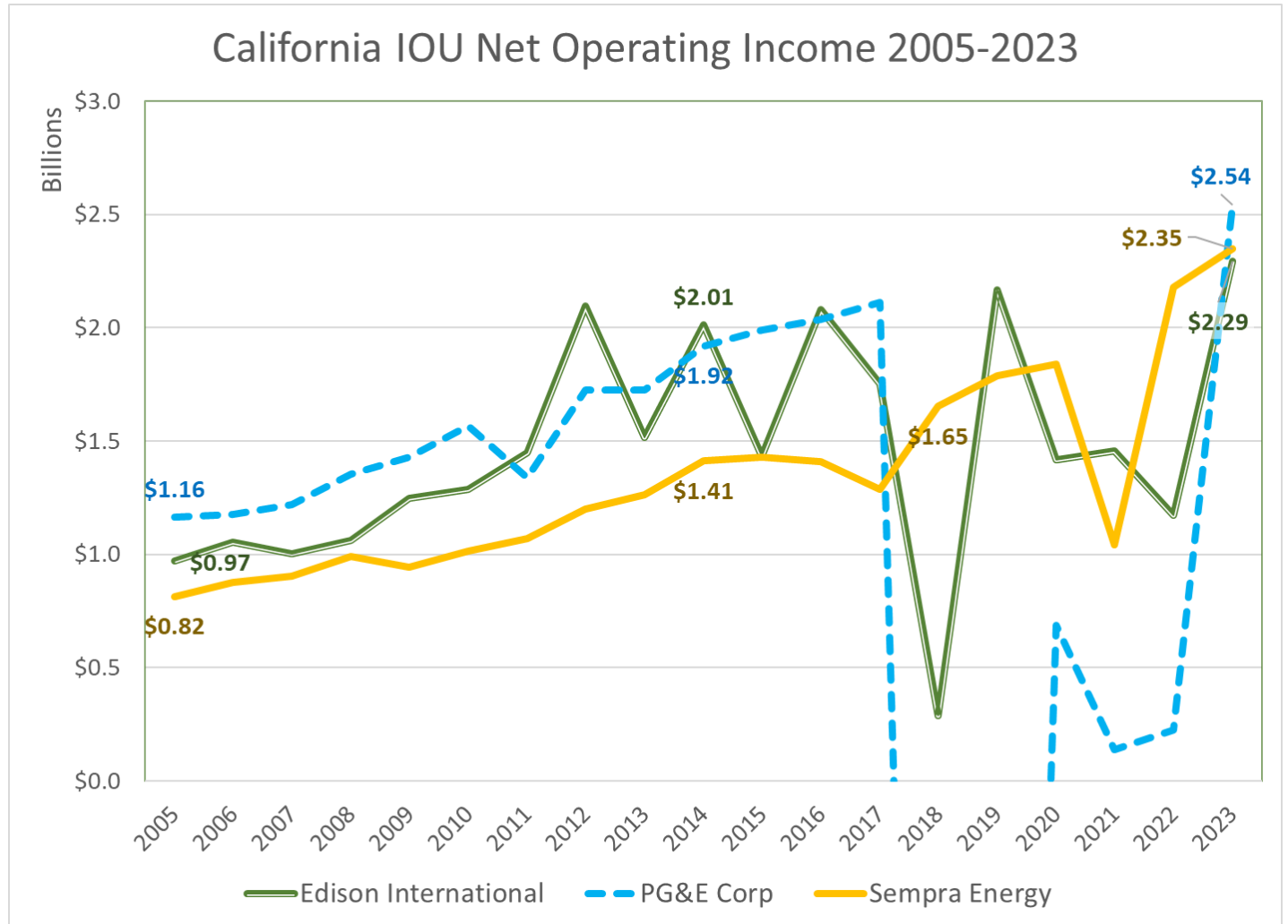
- PG&E grid spending has far outpaced inflation
- Rate increases track nearly 1:1 with spending increases



Wildfire
Mitigation
Costs Are
NOT the
Reason for
Rate
Increases



Along With
Spending, Utility
Profits Have
Soared.



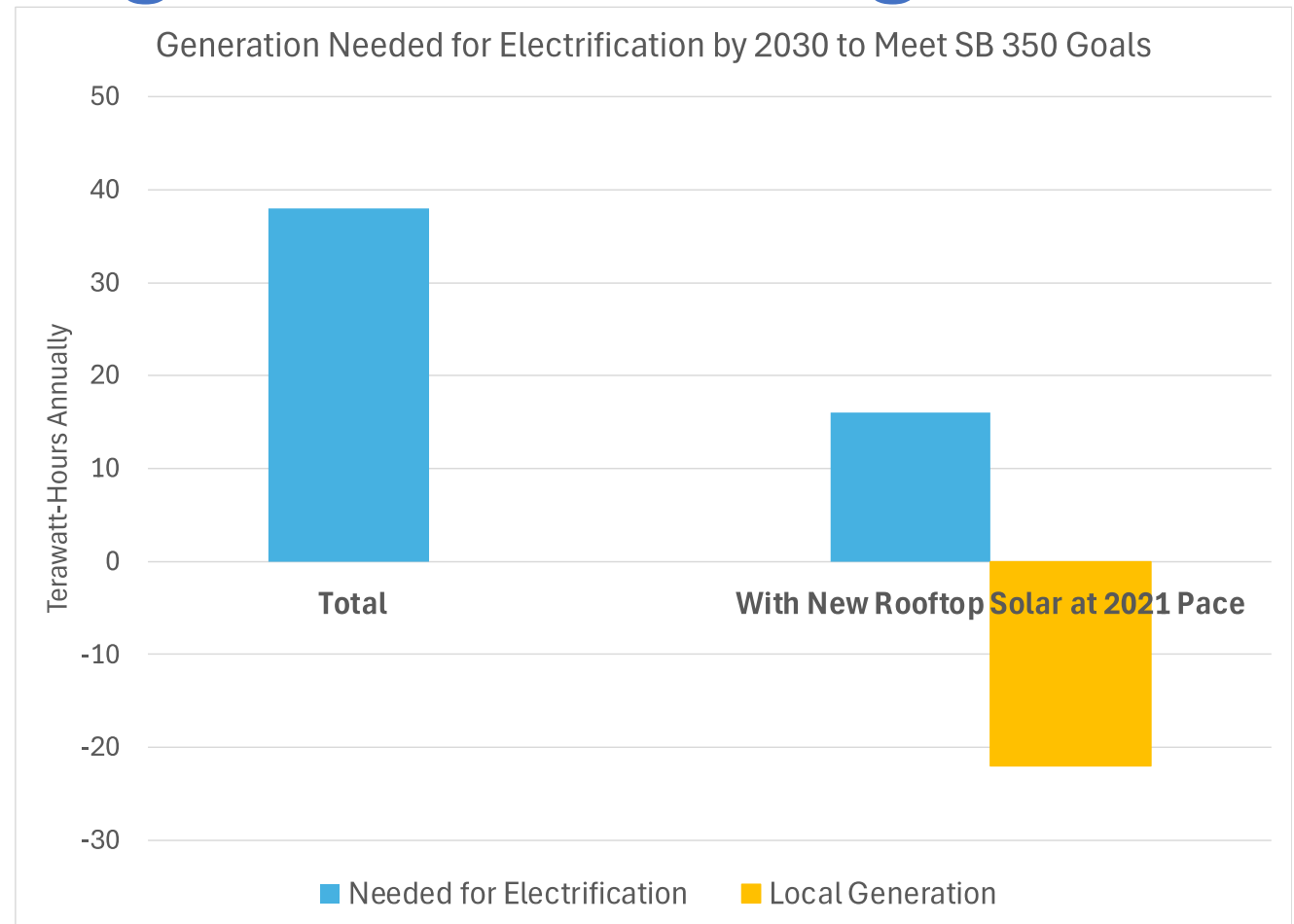
The “Cost Shift” Numbers Are False

The CPUC, IOUs, utility-funded economists, and other utility allies all sing from the same erroneous songbook when they publicize their solar “cost shift” numbers. They all make following major mistakes:

- 1. They include solar self-consumption, not just exports.**
 - Solar self-consumption is no different from energy efficiency.
 - CEC forecasts 29,000 GWh of energy efficiency reductions between 2022 and 2030. Ratepayers spend \$billions to incentivize these reductions and no one is decrying “efficiency cost shift.”
 - Why is solar being singled out? If the rooftop solar market gets back on track, the amount installed this decade will generate 22,000 GWh in 2030. Why is solar being singled out?
- 2. The future energy consumption they analyze does not include full electrification.**
 - If California covers electricity usage from EVs and heat pumps with local solar, it can save ratepayers by reducing the need to expand the grid. Undercounting consumption creates a false picture of utility spending that can be avoided.
- 3. They ignore changes to underlying rate structures such as Time of Use rates that reduce solar credits in the day and increase solar-user costs in the evening.**
- 4. They use unrealistic assumptions for large-scale renewable projects, misleading the public on how much we can lean on this side of the market to meet our clean energy goals and what it will cost ratepayers.**
 - They assume projects will be sited in locations with the lowest possible transmission upgrade needs. This is not realistic.
 - They assume utility-scale solar costs will remain low, despite increased demand and a limited supply of locations that are most favorable to avoid environmental and logistical costs.

Growing solar and storage is the only way to get California back on track with the clean energy solutions we need to fight climate change.

- Electrification will cause dramatic increases in electricity usage in cities and towns throughout the state. This will put even more pressure on rates if we only build power lines to faraway power plants.
- If rooftop solar returns to its 2021 pace, it would cover 58% of the projected increase in electricity demand due to electrification.
- Bottom line: new solar will offset new load. It will not take kWh of existing load out of the rate base. It will avoid spending to serve new load from faraway power plants.





California Needs More
Rooftop Solar, Not Less