

# Growing the Grid:

## *A Plan to Accelerate California's Clean Energy Transition*

October 2022

California needs to develop and implement a state-wide clean energy deployment plan that considers the state as the interconnected, diverse, and contiguous whole that it is.

**California is a global leader in climate and clean energy policy**, having already achieved important clean energy milestones and setting the bar for policy ambition—including 100 percent zero-carbon electricity sales and economywide net-zero greenhouse gas emissions by 2045. The California State Assembly further cemented the state's reputation as a climate vanguard in 2022 by requiring 90 percent zero-carbon electricity sales by 2035 and 95 percent by 2040. As measured by the time it takes to plan and build major clean energy infrastructure, the first of these milestones is just around the corner.

**Meeting California's clean energy targets will require a rapid expansion of the grid** to provide electricity to buildings, transportation, and other sectors that convert from unabated fossil fuels to clean electricity. California Air Resources Board's (CARB) *Draft 2022 Scoping Plan Update* projects California's in-state electricity generation capacity would need to be four times larger than today (Figure 1). CARB estimates that 5 GW of utility-scale solar needs to be built annually for more than 20 years, five times faster than today's rate. Similarly, the Princeton *Net-Zero America* study finds that electricity transmission capacity would need to triple by 2050 by building new power lines and improving to existing facilities.

**Achieving the state's climate goals will take more than new wind, solar, and power lines.** It will also require batteries, clean firm power like nuclear and geothermal,<sup>1</sup> customer-owned and distributed resources, CO<sub>2</sub> transport and storage infrastructure, carbon capture at industrial facilities, clean hydrogen production, storage, and use, among other solutions.

**With reliability again threatened by the state's third straight year of higher-than-normal heat and drought, the risks of moving too slow have far eclipsed the risks of moving too fast.** The complexity and interconnectedness of the energy system, coupled with the sheer volume and diversity of new resources required to reduce emissions and provide reliable electricity, necessitate proactive deployment of clean energy resources and electricity transmission.

**The real-world obstacles to clean energy deployment will likely grow if left unaddressed.** Energy models used to develop climate policy goals often ignore the complex mix of land, social, and institutional barriers that slow clean energy deployment in the real world. For example: while the models California uses assume ample land available for solar siting, in reality considerations like transmission access, competing land uses, visual impact, and parcel size—to name a few—make identifying suitable solar sites extremely difficult (Figure 2).

The following **RECOMMENDATIONS** offer a path to accelerate California's clean energy transition:

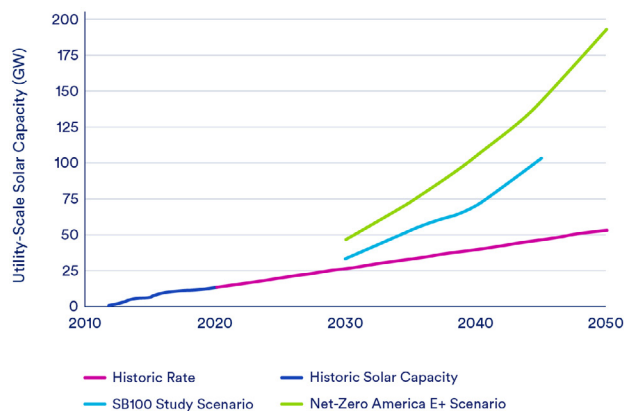
- ✓ **Develop a Clean Energy Deployment Plan** with specific quantities, locations, and timing of new resource development and infrastructure expansion.
- ✓ **Assign a lead agency** the responsibility for achieving the state's clean energy goals.
- ✓ **Develop a dashboard** to publicly track progress.
- ✓ **Engage the public** by continuing and strengthening California's current public engagement efforts.
- ✓ **Advance supportive policy** for planning, permitting, financing, and building clean energy infrastructure.

The state must take additional steps to prevent falling short of its climate goals. Overcoming the challenges to a rapid, affordable, and reliable clean energy transition is already a state priority as demonstrated by recent coordination efforts, reports, workstreams, and reforms advanced by the agencies and the legislature in recent past. Even so, California's current project-by-project, bottom-up approach to clean energy deployment is failing to elicit the pace, scale, and diversity necessary to achieve its ambitious clean energy targets and the benefits of a clean energy transition.

**Developing a plan to accelerate California's clean energy transition is the next step on the path of climate leadership.** Building the diverse clean energy technologies and infrastructure the state needs won't be easy. But it's essential: Californians deserve cleaner air, healthier communities, and good jobs that a move towards clean energy provides. The importance and complexity of so rapidly eliminating emissions from every sector of the economy creates a vital role for planning. And the billions of dollars of financial support for clean energy made available by the Inflation Reduction Act, the largest federal climate action in history, creates a vital role for progress. If past is prologue, there's nothing stopping California from decades more of climate leadership.

**Figure 1: Modeling Projections of Utility-Scale Capacity Additions Compared to the Historic Rate of New Development**

The historic rate of utility-scale capacity additions is based on years 2015 to 2020 (1.3 GW per year). Projections of the SB 100 Study Scenario, which models eliminating emissions from the power sector, exclude off-grid solar necessary for clean fuels production, estimated by CARB to be an additional 40 GW by 2045.



**Figure 2: Practical Limits to Available Land for Wind and Solar Resource Development**

Developed by Lucid Catalyst, building on The Nature Conservancy's Power of Place Study (2019).

