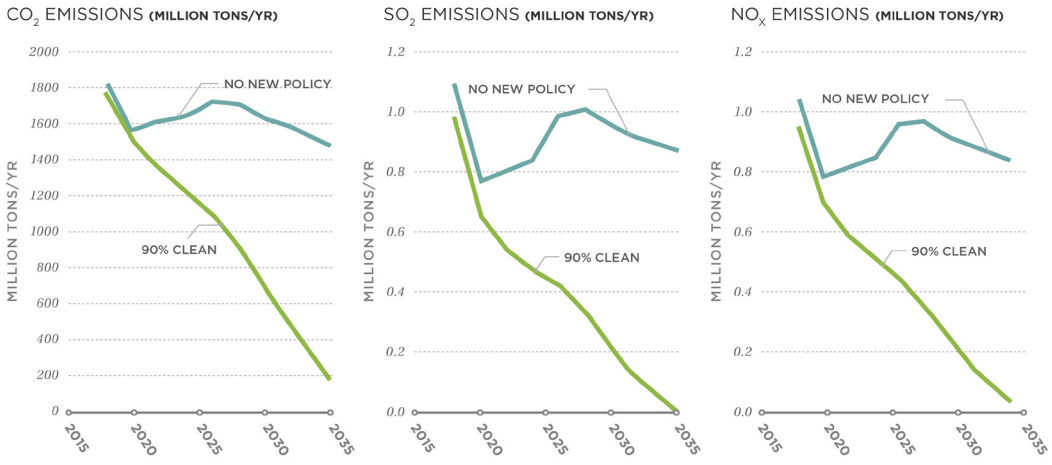
GOLDMAN SCHOOL OF PUBLIC POLICY
UNIVERSITY OF CALIFORNIA BERKELEY

2035 THE REPORT

PLUMMETING SOLAR, WIND, AND BATTERY COSTS CAN ACCELERATE OUR CLEAN ELECTRICITY FUTURE

Global carbon emissions likely must be halved by 2030 to avoid catastrophic global warming. Most policies and studies, however, target 2050 for deep power-sector decarbonization, which is too slow to avoid major damage. Fortunately, dramatic reductions in the costs of solar energy, wind energy, and battery technologies offer potential to accelerate this timeline. A new report uses the latest cost data and industry-standard modeling tools and forecasts to demonstrate the feasibility and affordability of achieving 90% carbon-free electricity in the United States by 2035. Compared to a "No New Policy" case, a "90% Clean" case cuts carbon emissions by 1.3 billion tons in 2035 and beyond, cumulatively 25 billion tons from 2020-2050.



STRONG POLICIES ARE REQUIRED:

The 90% Clean case assumes strong policies drive 90% clean electricity by 2035. The No New Policy case achieves only 55% clean electricity in 2035. A companion report identifies policy changes that would facilitate the rapid transformation to a 90% clean power sector.

THE 90% CLEAN GRID IS DEPENDABLE WITHOUT COAL OR NEW NATURAL GAS PLANTS:

In the 90% Clean case, all coal plants are retired by 2035, and no new fossil fuel plants are built. Wind and solar provide 70% of annual generation, hydropower and nuclear provide 20%, and natural gas plants drops to 10% (from 38% in 2019). The result is a grid system that meets U.S. electricity demand dependably in all regions, even during periods of high demand and/or low renewable energy generation.

ELECTRICITY COSTS FROM THE 90% CLEAN GRID ARE LOWER THAN TODAY'S COSTS:

Wholesale electricity costs are 10% lower in 2035 under the 90% Clean case than they are today thanks to the dramatic decline in solar PV, wind, and storage costs. Relying on already-built natural gas plants to provide the last 10% of generation avoids new investments for infrequently used capacity while avoiding major stranded-asset costs and cutting emissions.

THE 90% CLEAN GRID AVOIDS $1.2 TRILLION IN HEALTH AND ENVIRONMENTAL DAMAGES, INCLUDING 85,000 PREMATURE DEATHS, THROUGH 2050:

The 90% Clean case nearly eliminates U.S. power-sector emissions by 2035, which avoids over $1.2 trillion in health and environmental costs, including 85,000 premature deaths, through 2050. These savings equate to roughly 2¢/kWh of wholesale electricity costs, which makes the 90% Clean case the lowest-net-cost option when environmental and health costs are considered.

SCALING-UP RENEWABLES TO ACHIEVE 90% CLEAN ENERGY BY 2035 IS FEASIBLE:

To achieve the 90% Clean case by 2035, 1,100 GW of new wind and solar generation must be built, averaging about 70 GW per year. Recent U.S. precedents for natural gas and wind/solar expansion suggest that a renewable energy buildout of this magnitude is challenging but feasible. New renewable resources can be built cost-effectively in all regions of the country.

THE 90% CLEAN GRID CAN SIGNIFICANTLY INCREASE ENERGY-SECTOR EMPLOYMENT

The 90% Clean case supports over 500,000 more jobs each year through 2035, compared to the No New Policy case, with a big shift from plant operations jobs to construction jobs.

For full results see 2035report.com