States' Plans to Produce Clean Electricity

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1. Introduction

Most climatologists agree that we need to evolve the world's economies away from burning fossil-fuels and towards renewable and zero-carbon energy-sources in order to avoid the worst effects of climate change.[1] However we are early in this journey, and we need to make broader progress in order to achieve near-zero greenhouse gas (GHG) emissions within two decades (by 2045, which is many US States' goal). Also, there are two types of goals we need to reach in order to complete this evolution:

- Electrify all processes that currently produce significant GHGs
- Evolve the production of electricity to largely very low (less than 10%) GHG-producing processes

Each of the above programs are a huge and complex journey, and with any long journey it really helps to see where we are starting from. Section 2 defines these starting-points with respect to the second bullet above for each US State

2. Where Are States Today

Note that the table on pages 2 and 3 are for last year (2024). Also, I decided to use tables for this that are based on total fossil fuel used to produce electricity rather than per capita-fuels as the length of the journey is more related to the former.

It isn't totally surprising that Texas uses the most fossil fuel, as it has a triple-whammy of being a major fossil-fuel producer, the state with the second-largest population and the state with the second-largest land-area. All of the top-five fossil-fuel consuming states have very large populations: Texas (2nd largest), Forida (3rd largest), Pennsylvania (5th largest), Ohio (7th largest) and California (largest).

One other thing stands out in the chart on page 2 below, two very-large-population states consume zero / near-zero coal to generate electricity, and use also use (almost?) 100% natural gas fossil-fuel: coal produces the most greenhouse gas when combusted, and natural gas produces the least. These states are California and New York.

3. Current Commitments

A large number of states have made legislative commitments to move to 100% clean energy in future decades. There is also an organization of these states, the Clean Energy States Alliance (CESA).[2]

Note that the next two pages contain only the above-mentioned tables, and the above text continues on page 4.

[1] Lori Bird, Andrew Light and Ian Goldsmith, World Resources Institute, "US Clean Power Development Sees Record Progress, As Well As Stronger Headwinds," February 21, 2025, https://www.wri.org/insights/clean-energy-progress-united-states

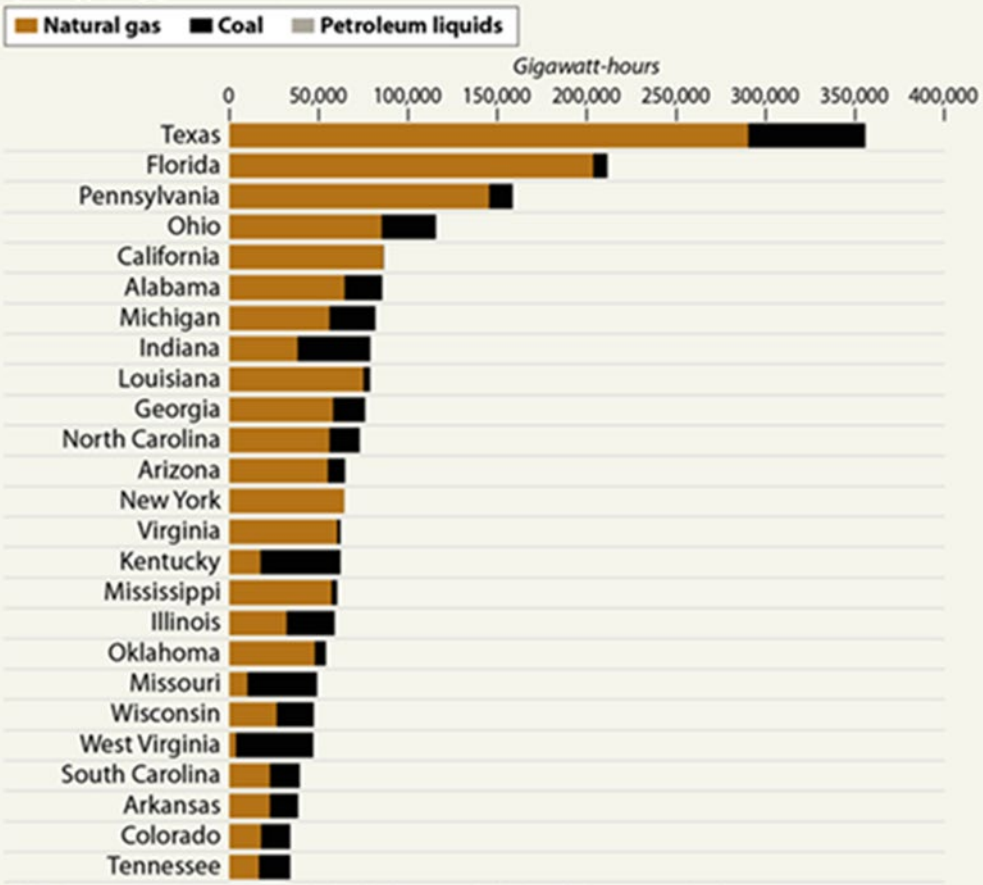
[2] Warren Leon and Anna Ziai, Clean Energy States Alliance, https://www.cesa.org/projects/100-clean-energy-collaborative/

Texas, Florida Lead in Electricity from Fossil Fuels

More than half of the United States' electricity comes burning fossil fuels, although the share has been declining. Here are the states ranked by the sum of their electricity generation from natural gas, coal and petroleum liquids. Hawaii is the only state with enough electricity from petroleum to be visible at this scale.

U.S. ELECTRICITY GENERATION

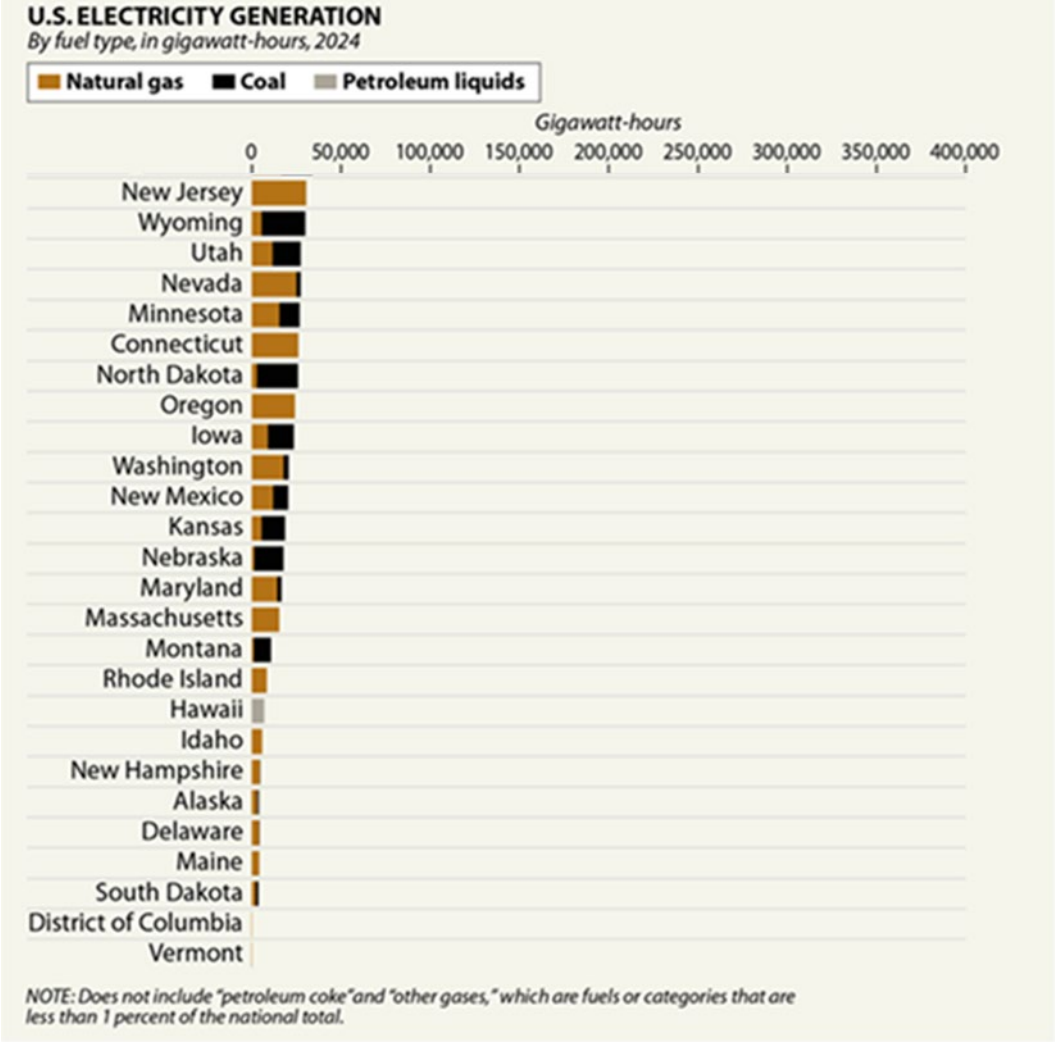
By fuel type, in gigawatt-hours, 2024



NOTE: Does not include "petroleum coke" and "other gases," which are fuels or categories that are less than 1 percent of the national total.

SOURCE: Energy Information Administration

PAUL HORN / Inside Climate News


U.S. ELECTRICITY GENERATION
By fuel type, in gigawatt-hours, 2024
Natural gas
Coal
Petroleum liquids
Gigawatt-hours
0
50,000
100,000
150,000
200,000
250,000
300,000
350,000
400,000
New Jersey
Wyoming
Utah
Nevada
Minnesota
Connecticut
North Dakota
Oregon
Iowa
Washington
New Mexico
Kansas
Nebraska
Maryland
Massachusetts
Montana
Rhode Island
Hawaii
Idaho
New Hampshire
Alaska
Delaware
Maine
South Dakota
District of Columbia
Vermont
NOTE: Does not include "petroleum coke" and "other gases," which are fuels or categories that are less than 1 percent of the national total.
SOURCE: Energy Information Administration
PAUL HORN / Inside Climate News

The rapid adoption of aggressive state clean energy targets has been one of the most important energy and climate change policy developments of recent years. Twenty-four states plus the District of Columbia and Puerto Rico have now set 100% clean energy goals for electricity, either through legislation or Governors' actions. Those states are listed in a Table of 100% Clean Energy States that CESA[2] regularly updates. The states with goals include more than half of US population.

Note that the 24 Clean Energy State's and DC's plans are described in subsections 3.1 through 3.25 below.

The primary participants in the 100% Clean Energy Collaborative are state agency officials with responsibilities for achieving their state's 100% goals, as well as policymakers in other states that may consider establishing similar goals in the future. Through the Collaborative, participants are sharing program insights, engaging with analysts who are studying solutions to technical challenges, and participating in Collaborative meetings. The Collaborative offers individualized technical assistance to the 100% states.

An Advisory Committee composed of state officials and clean energy experts provides guidance to CESA on strategic plans and activities for the Collaborative.

The 100% Clean Energy Collaborative also shares information with a wider group of stakeholders, including utilities, municipalities, clean energy advocates, industry representatives, and interested members of the general public.

The 100% Clean Energy Collaborative has produced a Guide to 100% Clean Energy States,[3] which includes information about the goals, timelines, legislation, and plans of the states, plus DC and Puerto Rico, that have adopted 100% clean electricity goals. The Guide makes it easy to track what is going on at the state level related to zero-carbon electricity. It is divided into five parts.

The following states and DC, in the alphabetical order (as they appear on the reference 2 website), have legislatively mandated clean energy goals.

3.1. California

Commitment: 100% carbon-free electricity by 2045.

2018 legislation (SB 100) extended and expanded the existing state Renewable Portfolio Standard (RPS). State agencies were required to submit implementation plans by January 1, 2021. Also, in 2018, Gov. Jerry Brown's Executive Order B-55-18 set a goal of statewide carbon neutrality by no later than 2045, with net negative GHG emissions thereafter.

California's demand for electricity is anticipated to increase 76% by 2045. California will likely need at least 72 GW of solar capacity with 37 GW of storage to fully decarbonize the state's energy system by 2045, according to the California Air Resources Board. California's solar capacity was ranked first in the country as of the end of 2024, with 49 GW of installed capacity supplying more than 31% of the Golden State's electricity, according to Solar Energy Industries Association.[4] Note new reference, this paragraph only.

[3] https://www.cesa.org/projects/100-clean-energy-collaborative/guide/

[4] Rachel Metea, PV Magazine, "Governor Newsom fast tracks agrivoltaic solar-plus-storage project in California," March 24, 2025, https://pv-magazine-usa.com/2025/03/24/governor-newsom-fast-tracks-agrivoltaic-solar-plus-storage-project-in-california

3.2. Colorado

Commitment: 100% carbon-free electricity by 2050 for Xcel Energy.

A 2019 law (SB 19-236) codified a pledge previously made by Xcel, whose service territory covers approximately 60% of the state's load. It is mandatory "so long as it is technically and economically feasible."

3.3. Connecticut

Commitment: 100% carbon-free electricity by 2040.

Governor Ned Lamont's 2019 Executive Order (Number 3) set a 2040 goal for carbon-free electricity and asked the Department of Energy and Environmental Protection to develop a decarbonization plan for the power sector, in line with previous legislation to cut economy-wide carbon emissions by 80% below 2001 levels by 2050. In May 2022, Senate Bill 10, An Act Concerning Climate Change Mitigation, placed the goal into law.

3.4. Delaware

Commitment: 100% reduction in GHG emissions.

HB 99, signed by Gov. John Carney in August 2023, requires Delaware to reduce state-wide GHG emissions by 50% from 2005 levels by 2030 and 100% by 2050.

3.5. District of Columbia

Commitment: 100% renewable energy by 2032 through the RPS.

The Clean Energy DC Omnibus Amendment Act of 2018 (DC Act 22-583) amended the existing RPS to mandate 100% renewable electricity by the year 2032.

3.6. Hawaii

Commitment: 100% renewable energy by 2045 through the RPS.

2015 legislation (HB623) made Hawaii the first state to set a 100% RPS for the electricity sector.

3.7. Illinois

Commitment: 100% clean energy by 2050.

2021 legislation (SB2408) established a goal of 100% clean energy by 2050, with interim targets of 40% by 2030 and 50% by 2040.

3.8. Louisiana

Commitment: Net zero greenhouse gas emissions by 2050.

Governor John Bel Edwards' 2020 Executive Order (JBE 2020-18) established a Climate Initiatives Task Force to develop a roadmap and make recommendations.

Author's comment: Note that the term "net zero" allows the use of offsets, like planting trees that offset the GHG emitted by absorbing a like amount of GHG (CO_2).

3.9. Maine

Commitment: 100% clean energy by 2050

2019 legislation (LD 1494) increased Maine's RPS to 80% by 2030, and set a goal of 100% by 2050. Also, LD1679 sets an economy-wide goal of 80% cuts to greenhouse gases by 2050.

3.10. Maryland

Commitment: Net-zero greenhouse gas emissions by 2045.

The General Assembly enacted the Climate Solutions Now Act of 2022. This wide-ranging legislation includes the 2045 net-zero goal.

3.11. Massachusetts

Commitment: Net-zero greenhouse gas emissions by 2050.

In 2020, the Secretary of Energy and Environmental Affairs set a 2050 net-zero GHG emissions goal under the authority of 2008 legislation. The same goal was then included in a March 2021 climate action law (Bill S.9). A decarbonization roadmap was released at the end of 2020.

3.12. Michigan

Commitment: 100% carbon-free electricity by 2040.

Senate Bill 271 (2023) requires all utilities to have a portfolio of 60% renewable energy by 2035, and 80% "clean energy"—which includes carbon capture and storage—by 2035 and 100% by 2040.

3.13. Minnesota

Commitment: 100% carbon-free electricity by 2040.

2023 legislation (SF 4) requires electric utilities to get 100% of the electricity they sell from carbon-free sources by 2040, including renewables and nuclear power. There are interim targets of 80% carbon-free power in 2030 and 90% in 2035. The legislation also increases the state's Renewable Energy Standard to 55% by 2035.

3.14. Nebraska

Commitment: Net-zero carbon emissions from generation resources by 2050 for Nebraska Public Power District and Omaha Public Power District; 2040 for Lincoln Electric System.

Nebraska is the only state served solely by publicly owned utilities. As of December 2021, the three public utilities that serve the vast majority of customers have all adopted 100% clean energy goals.

3.15. Nevada

Commitment: 100% carbon-free electricity by 2050

2019 legislation (SB 358) raised the RPS to 50% by 2030, and set a goal of a net-zero emission power sector by 2050.

3.16. New Mexico

Commitment: 100% carbon-free electricity by 2045.

2019 legislation (SB 489) requires utilities to have a zero-carbon power supply by 2045, including at least 80% from renewables, with the exception of rural electric coops which have a 2050 target date.

3.17. New York

Commitment: 100% carbon-free electricity by 2040.

2019 legislation (S6599) requires zero-emissions electricity by 2040 and sets a goal of cutting all state GHGs 85% by 2050. A Climate Action Council will develop a plan.

3.18. North Carolina

Commitment: Carbon neutrality in the electricity sector by 2050.

2021 legislation (HB 951) requires the North Carolina Utilities Commission to "take all reasonable steps" to achieve a 70% reduction in CO_2 emissions from electric generating facilities in the state by 2030 and carbon neutrality by 2050. The 2022 Executive Order 246 sets an economy-wide target of net-zero emissions by "no later than 2050," sets a goal that half of new vehicle sales must be electric vehicles by 2030, incorporates environmental justice and equity into climate programs, and has other measures.

3.19. Oregon

Commitment: Greenhouse gas emissions reduced 100 percent below baseline emissions by 2040.

2021 legislation (HB 2021) requires investor-owned utilities to reduce greenhouse gas emissions associated with the electricity they sell to 80 percent below baseline emissions levels by 2030, 90 percent below baseline emissions levels by 2035, and 100 percent below baseline emissions levels by 2040.

3.20. Puerto Rico

Commitment: 100% renewable energy for electricity by 2050.

2019 legislation (SB1121), the Public Energy Policy Law of Puerto Rico, set a timeline for reaching 100% renewable electricity by the year 2050.

3.21. Rhode Island

Commitment: 100% renewable energy electricity by 2033.

Governor Gina Raimondo's 2020 Executive Order (20-01) requires the Office of Energy Resources to "conduct economic and energy market analysis and develop viable policy and programmatic pathways" to meet 100% of statewide electricity deliveries with renewables by 2030. 2022 legislation (H7277 SUB A) updates the state's RPS to require 100% of RI's electricity to be offset by renewable production by 2033.

3.22. Vermont

Commitment: 100% renewable energy by 2035 for all utilities and 100% renewable energy by 2030 for Green Mountain Power and Vermont Electric Coop.

2024 legislation (H289) updates the state's 2015 Renewable Energy Standard and requires all Vermont utilities to provide 100% renewable energy by 2035, with a 2030 goal for the state's two biggest utilities. The law increases the amount of in-state renewable energy utilities must procure from 10% to 20%. The law also restricts new large hydropower, expansions of existing large hydropower, and biomass power from being counted as new renewables.

3.23. Virginia

Commitment: 100% carbon-free electricity by 2045 for Dominion Energy and 2050 for Appalachian Power Company.

The 2020 Virginia Clean Economy Act (House Bill 1526 and Senate Bill 851) requires zero-carbon utilities by 2050 at the latest.

3.24. Washington

Commitment: 100% zero-emissions electricity by 2045.

2019's Clean Energy Transformation Act (SB5116) applies to all utilities. The state Commerce Department started a rulemaking process in August 2019. Utilities must file implementation plans by January 2022.

3.25. Wisconsin

Commitment: 100% carbon-free electricity by 2050

Governor Tony Evers' Executive Order (EO38) in 2019 directed a new Office of Sustainability and Clean Energy to "achieve a goal" of all carbon-free power by 2050.

4. Industrial Process Electrification

There is another huge sector that is current a major emitter of greenhouse gas, the Industrial Sector. Although the Commercial sector also contributes it has two mitigating factors: (1) as the residential sector electrifies, the technologies used to do this can be easily imported into the commercial sector and (2) once the commercial sector electrifies, it can then take advantage of the commitments described above in section 3 and additional states paths to GHG-free electricity. Go through the link below to see a good summary of progress in the Industrial Sector.[5]

[5] Andrew Hoffmeister, Fikayo Omotesho, Hellen Chen, New Map Shows Industrial Electrification Gaining Momentum in U.S., The American Council for an Energy-Efficient Economy (ACEEE), https://www.aceee.org/blog-post/2025/02/new-map-shows-industrial-electrification-gaining-momentum-us