

## Update on Co-op Renewable Energy: Growth Continues Through 2022

### Key Findings

- Co-ops added over 900 megawatts of new renewable capacity in 2022.
- Supply chain and permitting challenges delayed some projects.
- Co-op renewable deployment is expected to grow significantly in the next few years, with solar dominating planned capacity.
- Most capacity growth has been through power purchase agreements, rather than direct ownership.

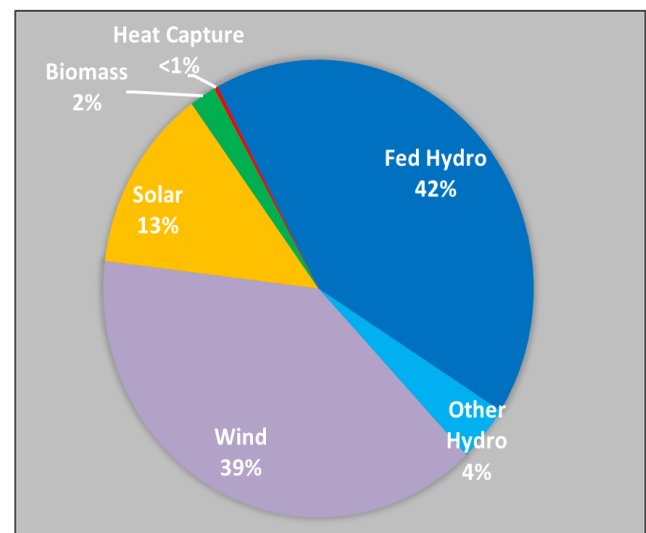
### Electric Cooperatives and Renewable Energy – A Long History

Electric cooperatives<sup>1</sup> have been involved with renewable energy since the very beginning, as the growth of rural electrification was intertwined with the growth in federal hydropower, both resulting from economic development “New Deal” programs of the 1930s. Today, co-ops purchase the output from roughly 10 gigawatts of hydroelectric plants sold by the four federal Power Marketing Administrations and the Tennessee Valley Authority.

Most of this power is purchased under the “preference principle,” wherein not-for-profit co-ops and public utilities are given first right of purchase at the lowest possible cost, which provided an early source of affordable power for rural electrification. While co-ops across the U.S. purchase federal hydro, co-ops in the Pacific Northwest are particularly reliant on this resource for the majority of their power supply.

### Renewable Capacity Growth in 2022

With cumulative additions of more than 900 megawatts, 2022 showed robust growth in the co-op renewable portfolio, though slower than 2021 when nearly 1,400 megawatts were added.<sup>2</sup> This was in part



**Figure 1: Co-op Renewable Portfolio (including federal hydro), ~24 gigawatts (2022)**

<sup>1</sup> Includes NRECA's ~50 public power, tribal, and mutual utility members.

<sup>2</sup> Data on cooperative renewable resources are based on NRECA analysis using a variety of public sources.

due to project delays caused by supply-chain and permitting challenges that delayed some projects into 2023 or further.

By the end of 2022, co-ops had nearly 14 gigawatts of renewables in their resource portfolios, in addition to 10 gigawatts of purchases from federal hydro facilities. These resources include non-federal hydroelectric resources, as well as wind, solar, biomass, and heat capture technologies.<sup>3</sup> Nearly 80% of this capacity is owned or contracted for by G&T cooperatives, with the remainder owned or under contract by distribution cooperatives.

### Co-op Solar Growth Exceeded Wind Growth for the Second Year

Wind has made up the vast majority of renewable additions since 2004, with more than 9.3 gigawatts of wind capacity online by the end of 2022, and another 1.6 gigawatts planned through 2025. Most co-op wind projects are located in the Midwest and Texas, where wind resources are concentrated. Solar growth has accelerated since 2016, and actually exceeded wind growth in both 2021 and 2022, reaching 3.1 gigawatts in total capacity by the end of 2022.

With over 5 gigawatts of new solar capacity planned to come online from 2023 through 2026, solar projects now account for the large majority of planned renewable capacity. Solar growth has accelerated in large part due to the increasing size of co-op solar projects. Co-op solar resources have seen particular growth in the Southeast and the West, though many large projects are also online or planned in the Midwest. The shift from wind to solar growth follows national trends, in part due to the phase out and expiration of most federal tax credits for wind at the end of 2021 while solar credits continued. There is also an effort by resource planners to increase solar deployment to balance wind generation across regions where wind and solar production patterns complement each other daily (with solar producing during the day and wind producing more at night) and seasonally (with solar output higher in summer and wind output higher in winter).

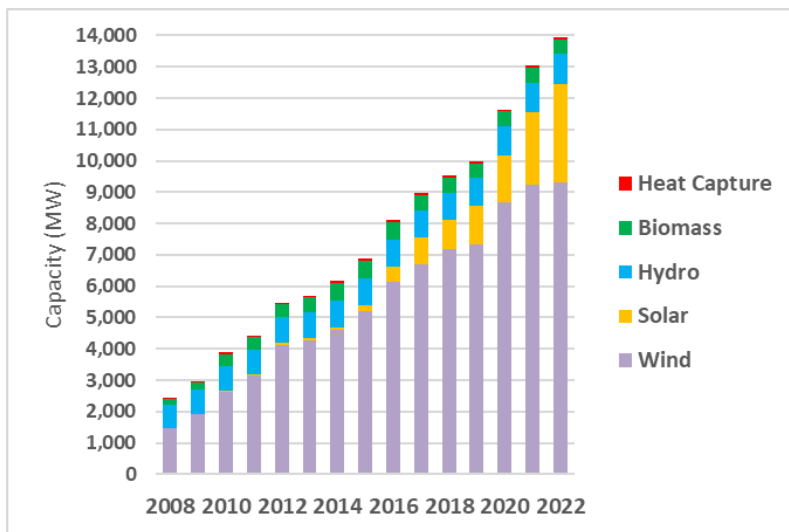


Figure 2: Cumulative Co-op Renewable Capacity Online (By Type, excluding federal hydro)

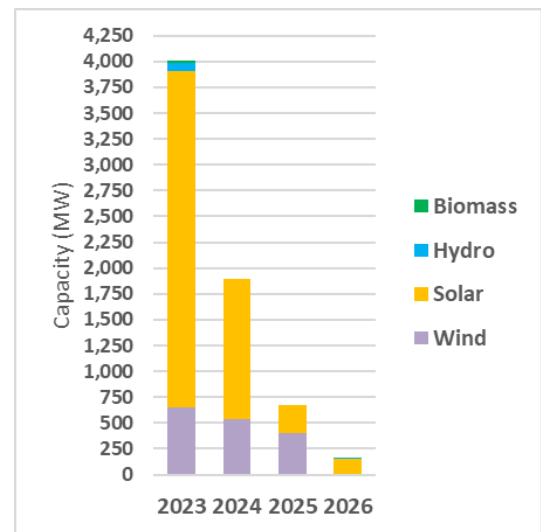


Figure 3: Planned Capacity by Year (By Type)

<sup>3</sup> Some co-ops sell the environmental attributes of power generated using renewable resources.

## Most Growth has Come through Power Purchase Agreements

Most electric cooperatives are not-for-profit and exempt from federal taxes, which has historically made it difficult to directly access federal tax credits for renewable project development. For this and other reasons (e.g., lack of experience with operations & maintenance), co-ops have primarily used power purchase agreement (PPA) contracts to add new renewable resources, capturing the benefits of the tax credits through negotiated contract rates. Of the nearly 14 gigawatts of non-federal co-op renewable capacity, about 12.3 gigawatts are under PPAs, with most planned new capacity also from contracted projects. This is of course in addition to purchasing the output from about 10 gigawatts of federal hydro facilities annually.

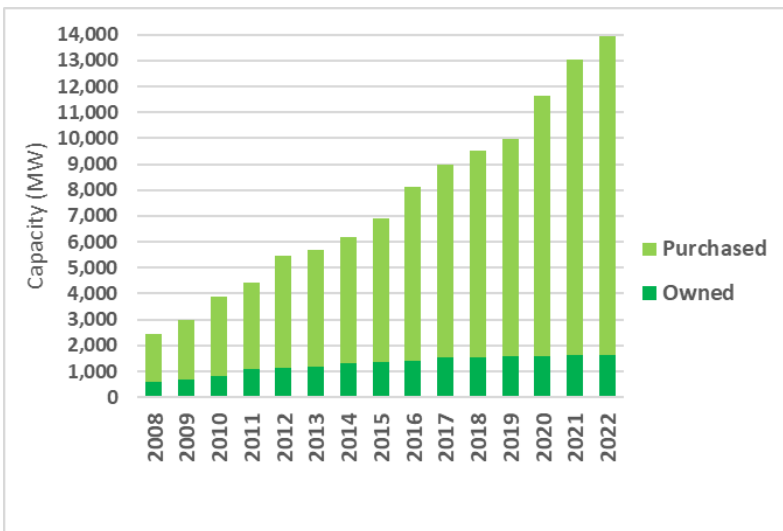


Figure 4: Cumulative Co-op Renewable Capacity Online (By Owned or Purchased through PPA, excluding Federal Hydro)

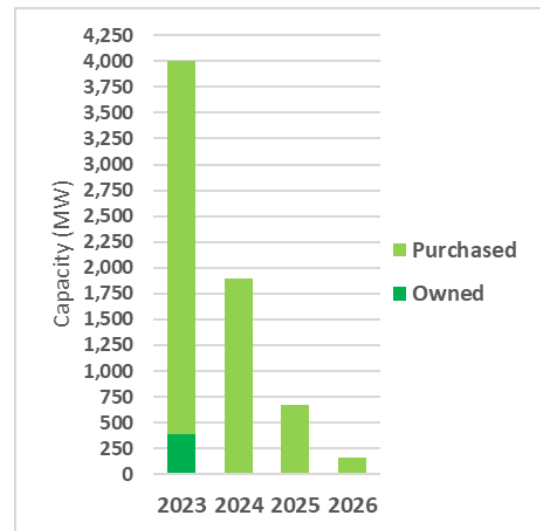


Figure 5: Planned Capacity by Year (By Owned or Purchased through PPA)

## New Federal Support for Renewables

The Inflation Reduction Act (IRA) signed into law in August 2022 is expected to have a significant impact on renewable growth in the coming years. Notably, the restoration of tax credits for wind generation is expected to drive renewed growth in wind generation over the next decade, as well as additional solar growth. For electric cooperatives and rural public power utilities, the pending availability of a “direct pay” option will allow not-for-profit utilities to directly access these tax credits for the first time. Also, while battery energy storage systems (BESS) previously had to be paired with solar generation to access tax credits, the new tax credits created standalone tax credits for battery energy storage systems, which both supports standalone deployments and levels the playing field for renewable hybrids using various technologies.

There are new prevailing wage and apprenticeship requirements to access the full tax credits,<sup>4</sup> as well as stackable “bonuses” for domestic content, location in “energy communities,” and for project that serve low-income communities. Besides tax credits, there are a variety of other USDA grant and loan programs funded under this new law to support renewable and other low- and non-emitting generation technologies. Note that

<sup>4</sup> The full regular rate is 30% for the Investment Tax Credit and 2.75 cents/kWh for the Production Tax Credit in 2022-2023 (with an annual inflation adjustment).

under the \$9.7 billion Electric Cooperative Assistance Program, an electric cooperative does not have to be a RUS borrower to access the funding.<sup>5</sup>

In its 2023 *Annual Energy Outlook*, the U.S. Energy Information Administration modeled various utilization scenarios for the new tax credits (See Figure 6). Depending on uptake, these are expected to have a significant impact on the growth of wind and solar resources. Growing demand for electricity from the electrification of transportation and other end-uses is also expected to have a major impact on the evolution of the U.S. electric supply mix.<sup>6</sup>

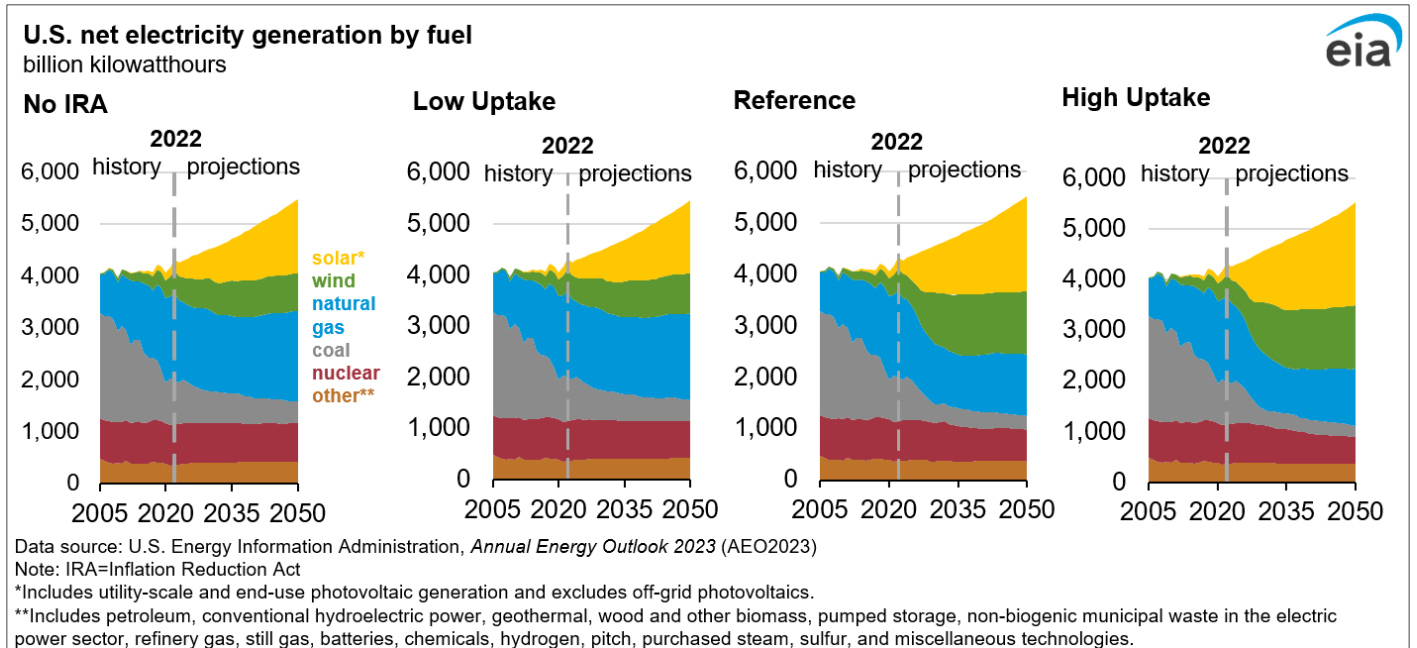


Figure 6: EIA Projections Under Various Tax-Credit Utilization Scenarios

## Contact for Questions

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<sup>5</sup> As of April 2023, guidance on direct pay and other details of these tax credits is pending, as well as guidance on other programs funded through this new law. For more information on this process or on specific provisions of the IRA, contact information for NRECA Government Relations staff can be found [here](#).

<sup>6</sup> See the Energy Information Administration's *Issues in Focus: Inflation Reduction Act Cases in the AEO2023* for more information on how the tax-credit provisions of the IRA are projected to impact various types of generation, available [here](#).