

## Update on Co-op Renewable Energy: Strong Growth Continues through 2023 Despite Project Delays

### Key Findings

- Co-ops added over 1,350 megawatts of new renewable capacity in 2023.
- Supply chain and permitting challenges delayed several projects.
- Co-op renewable deployment is expected to grow significantly in the next few years.
- Most capacity growth has been through power purchase agreements, rather than direct ownership, but the availability of direct pay tax incentives could spur increased co-op ownership.

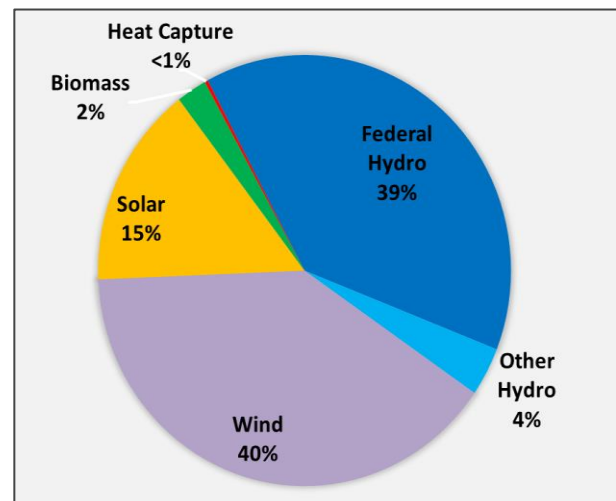
### Electric Cooperatives and Renewable Energy – A Long History

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 2023

With cumulative additions of more than 1,350 megawatts, 2023 showed robust growth in the co-op renewable portfolio, exceeding the 920 megawatts added in 2022, and was the third-highest year on record (behind only 2020 and 2021).<sup>2</sup> Nevertheless, this is significantly lower than the 4 gigawatts that was



**Figure 1: Co-op Renewable Portfolio  
(including federal hydro)  
~26 gigawatts (2023)**

<sup>1</sup> While “electric cooperatives” or “co-ops” will be used, these figures include NRECA’s rural public power, tribal, and mutual utility members as well.

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

planned to come online in 2023. Ongoing supply chain, permitting, and interconnection challenges delayed several projects into 2024 or 2025, while others were outright cancelled.

By the end of 2023, co-ops had nearly 26 gigawatts of renewable capacity<sup>3</sup> in their resource portfolios. See Figure 1. This includes 10 gigawatts of purchases from federal hydro facilities, and nearly 16 gigawatts of other resources including wind, solar, biomass, and heat capture technologies, as well as other non-federal hydroelectric generation. Of those 16 gigawatts, more than three-quarters is owned or contracted for by generation and transmission (G&T) cooperatives,<sup>4</sup> with the remainder owned or under contract by distribution cooperatives. Announced projects totaling more than 5.3 gigawatts of additional capacity are scheduled to come online between 2024 and 2027.

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

Wind has made up the vast majority of co-op renewable additions since 2004, with more than 10.2 gigawatts of wind capacity online by the end of 2023. See Figure 2. Projects totaling more than 900 megawatts of planned capacity have been announced through 2025. See Figure 3. Most co-op wind projects are located in the Midwest and Texas, where there is an optimal wind resource. Co-op and national wind growth has slowed in part to the expiration of most wind tax credits at the end of 2021.

Co-ops added more than 700 megawatts of new solar capacity in 2023, with total solar capacity now exceeding 3.9 gigawatts. With over 4,300 megawatts of new solar capacity planned to come online from 2024 through 2027, solar projects now account for the large majority of planned co-op 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.

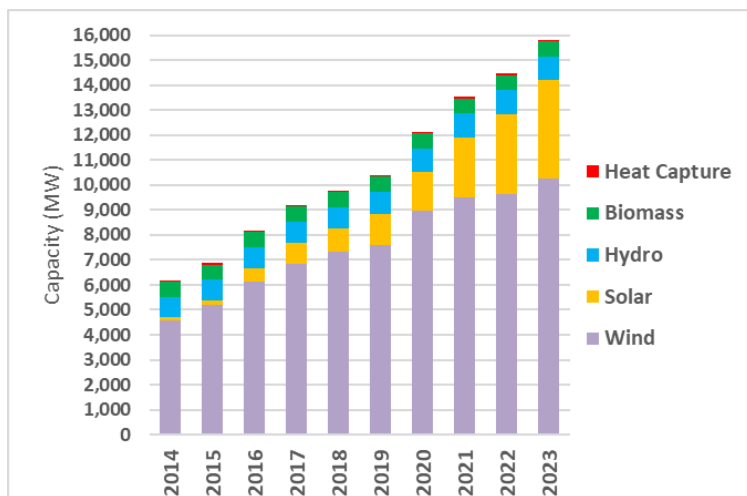


Figure 2: Cumulative Co-op Renewable Capacity Online (By Type, excluding federal hydro)

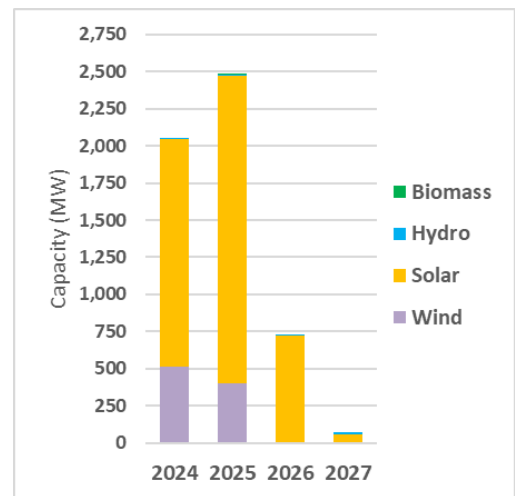


Figure 3: Planned Capacity by Year (By Type)

This shift from wind to solar growth follows national trends, in part due to the lapse of wind credits and also the wider national solar resource footprint (e.g., solar has grown in the Southeast where the onshore wind

<sup>3</sup> Some co-ops sell the environmental attributes of power generated using renewable resources, and technologies are treated differently in varying states and markets.

<sup>4</sup> Including Green Power EMC, a green power program that secures renewable resources on behalf of 38 Georgia EMCs.

resource is limited). In areas with significant wind adoption, there is also an effort by resource planners to increase solar deployment to balance wind generation 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), using the complementarity of these resources to ensure more predictable intermittent generation.

## 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 agreements (PPAs) to add new renewable resources, indirectly capturing a portion of the benefits of the tax credits through negotiated contract rates. Of the nearly 16 gigawatts of non-federal co-op renewable capacity, more than 14 gigawatts (89%) are under PPAs. See Figure 4. Most planned new capacity is also from third-party contracted projects, though at 82%, this is lower than in previous years due primarily to several large solar projects that co-ops plan to own directly. See Figure 5.



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

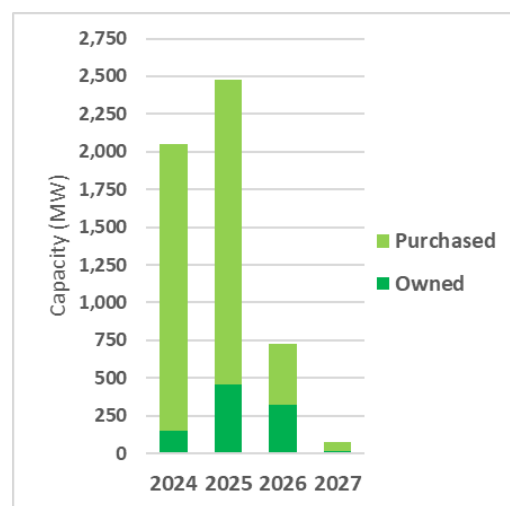


Figure 5: Planned Capacity by Year (By Owned or Purchased through PPA)

## 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, which had expired in 2021, 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, availability of “direct pay” tax credits will allow not-for-profit utilities to directly access these tax credits for the first time. There are new prevailing wage and apprenticeship requirements to access the full value of the tax credits, as well as “bonuses” for domestic content, location in “energy communities,” and for projects that serve low-income communities.<sup>5</sup>

<sup>5</sup> NRECA members can access information and guidance on utilizing direct pay tax credits here: <https://www.cooperative.com/programs-services/government-relations/regulatory-issues/Pages/Secure/Direct-Pay-Credits.aspx>.

Another change from the IRA is the introduction of standalone tax credits for battery energy storage systems, which previously had to be paired with solar generation to access tax credits. This change both supports standalone battery deployments and levels the playing field for renewable hybrids using various technologies beyond solar. Co-ops have deployed more than 50 battery energy storage systems, the majority of which are part of renewable hybrids paired with solar, wind, or other technologies. Hybrid projects have become more common, and it is expected that these new tax credits will further drive this trend. Co-ops are using battery storage to help address intermittency, reliability, and resiliency needs in these hybrid deployments.

Besides tax credits, the IRA funded two new major U.S. Department of Agriculture (USDA) programs. The first, Powering Affordable Clean Energy (PACE) set aside \$1 billion in partially forgivable loans for entities in rural areas, including electric cooperatives and rural public power districts, to deploy renewable generation and associated energy storage systems. The second program, Empowering Rural America (New ERA), set aside \$9.7 billion in grant and loan funding specifically for electric cooperatives to deploy new clean energy systems, including renewable generation. Both programs required a letter of interest (LOI) to be submitted from June-September of 2023. PACE loan awards were non-competitive and based on first in, first out; the first group of awardees was announced in March 2024.<sup>6</sup> New ERA is competitive, and co-ops that submitted LOIs have been or will be notified if they are invited to proceed with a full application. The IRA also increased funding for USDA’s existing Rural Energy for America Program (REAP). Other grant funding for renewable projects was made available through the Department of Energy through provisions of the Bipartisan Infrastructure Law.

Though it has taken time for funding to be awarded and there has been the need for guidance on the new provisions of the tax credits created by the IRA, there is currently unprecedented federal financial support available for renewable energy deployment that is expected to drive growth in the years ahead. The early impacts of these policies are captured in the U.S. Energy Information Administration’s latest *Short Term Energy Outlook* (May 2024), which forecasts continued steady growth of wind capacity, and a significant uptick in solar capacity through 2025.<sup>7</sup> See Figure 6.

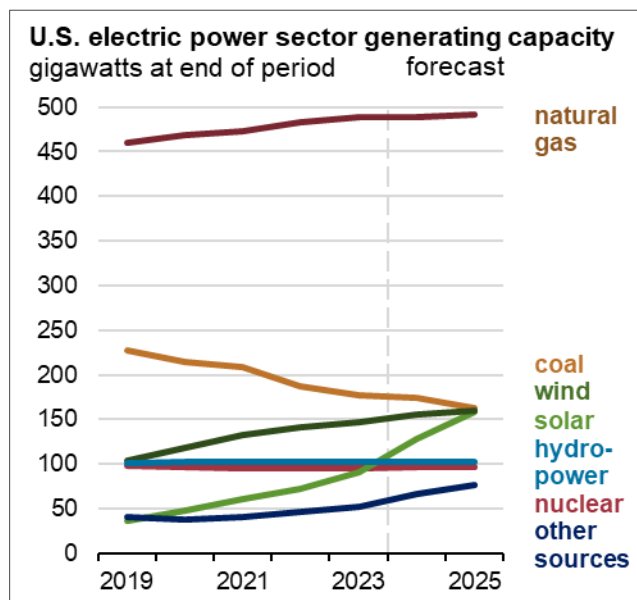


Figure 6: Forecast of Near-Term Capacity by Type  
Source: EIA Short Term Energy Outlook, May 2024

## Contact for Questions

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<sup>6</sup> See <https://www.usda.gov/media/press-releases/2024/03/06/biden-harris-administration-invests-23-billion-projects-expand>.

<sup>7</sup> Available at <https://www.eia.gov/outlooks/steo/archives/may24.pdf>.