



COOPERATIVES GAINING SUBSTANTIAL BENEFITS FOR RENEWABLE INVESTMENTS FROM THE INFLATION REDUCTION ACT

The enactment of the Inflation Reduction Act of 2022 (IRA) may level the playing field and tilt the balance in favor of cooperatives to develop their own renewables instead of utilizing purchase power agreements (PPAs). Thanks to the “direct-pay” provision in the law, cooperatives may now have a cost advantage depending on significant new grants from the U.S. Department of Agriculture (USDA) and the new ability to monetize tax credits that previously were available only to traditional developers with taxable income. These changes will have a big impact, as we saw when we compared renewables built by a representative cooperative versus an equivalent PPA using MCR’s Project Investment Model.

KEY IMPACTS OF THE IRA

Prior to the IRA, the least-cost option for cooperatives was to use a PPA to purchase output from developer-built units since only the developers or their investors were able to take advantage of various tax credits. The IRA made significant changes by extending investment tax credits (ITCs), reviving the production tax credit (PTC) and expanding the list of applicable technologies. Section 13801 amends the Internal Revenue Code to allow qualifying entities to monetize the credits, which are no longer limited for use as an offset to taxes due. While the tax credits have limitations, including labor and domestic content requirements, the ITCs, with bonuses, can be as high as 50% of applicable project costs and are extended to projects in service by 2033 with a phase-out tied to greenhouse gas goals. The PTC has similar requirements and timing, starting at a maximum credit of \$35/MWh in 2023. The PTC is for the first 10 years of the asset’s life and escalates with inflation.

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Service (RUS), of which 50% is eligible for loan forgiveness. Section 22004 authorized \$9.7 billion in loan funds, for which 25% of the project cost can be forgiven. In addition, the IRA allows the RUS to loan to projects that serve both rural and non-rural members. Though the RUS has yet to finalize the rules, the scale of the grants is enormous, and the impact on project finances is substantial.

ANALYSIS ASSUMPTIONS

Our analysis compares a cooperative-developed project versus a PPA for two technologies: a 100 MW solar facility and a 100 MW solar facility with a 50 MW 4-hour battery storage unit using MCR's Project Investment Model. The PPA version of the model assumes that the developer sets a fixed price for power for a 30-year contract that achieves its rate of return based on net cash flows. The cooperative version of the model uses a member perspective and develops a present value of the member revenue requirement equated to a fixed rate over 30 years (see notes for detailed assumptions).

We used the latest projections from the National Renewable Energy Laboratory (NREL) Annual Technology Baseline for capital and operating assumptions and tested projects implemented from 2024 to 2033, the timeframe for when tax credits are available. For tax credits, we assessed various ITC and PTC levels and present a "most likely" case where the project qualifies under the labor and domestic content requirements. The PTCs are monetized in the year received for both the cooperative and the PPA, while the ITC is used to reduce initial debt in the cooperative model. From a USDA grant perspective, we assumed that the cooperative project qualifies for a grant of 25% of total capital under Section 22004, while the PPA receives no grants. We assumed that the grant is received when the project goes into service and reduces cooperative borrowing for the unit. The no-incentives case provides a measure of the relative value of the incentives.

COMPARING COOPERATIVE-DEVELOPED SOLAR TO A PPA

First, we compare the impact of incentives on the cooperative-built 100 MW solar unit (Figure 1). The no-incentives case starts at \$55/MWh, declines to \$45/MWh by 2030 and slowly increases as the rate of efficiency and cost improvements decline relative to inflation. Grant funding at 25% of the project cost reduces the 2024 install cost by \$8/MWh to \$47/MWh. Combining the ITC with the grant funding reduces the 2024 install cost an additional \$11.5/MWh to \$35.5/MWh. Lastly, replacing the ITC with the PTC yields the least-cost result at \$27.5/MWh for the 2024 install, which declines to \$16/MWh for the 2033 install. The least-cost PTC plus grant case is 50% of the no-incentives case for a 2024 install, declining to 33% for a 2033 install.

Grant funding plus the PTC reduces the cost impact to members by 50% for a 2024 install.

Comparing cooperative development to a PPA for the same 100 MW solar project reveals interesting observations (Figure 2). In the no-incentives case, we can see what cooperatives have always known: their lower cost of capital and longer timeline for cost recovery can generate an economic benefit for their members. The advantage is \$7/MWh for a 2024 install, which declines slightly to \$6/MWh for the 2033 install. With incentives applied, the combination of grant funding plus ITC for cooperatives nearly equates to the PPA with ITC case, which has a \$1/MWh advantage for all install dates. Lastly, the cooperative PTC plus grant case is initially \$2/MWh below the PPA with PTC case for a 2024 install, with the cost advantage



FIGURE 1

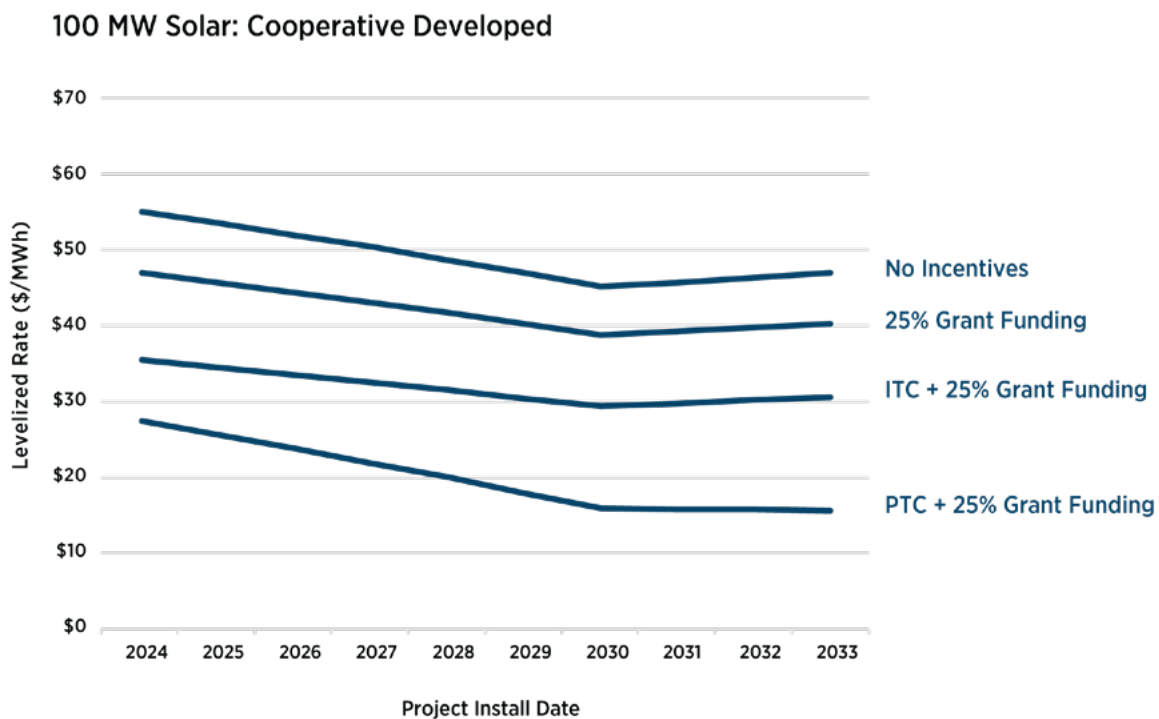
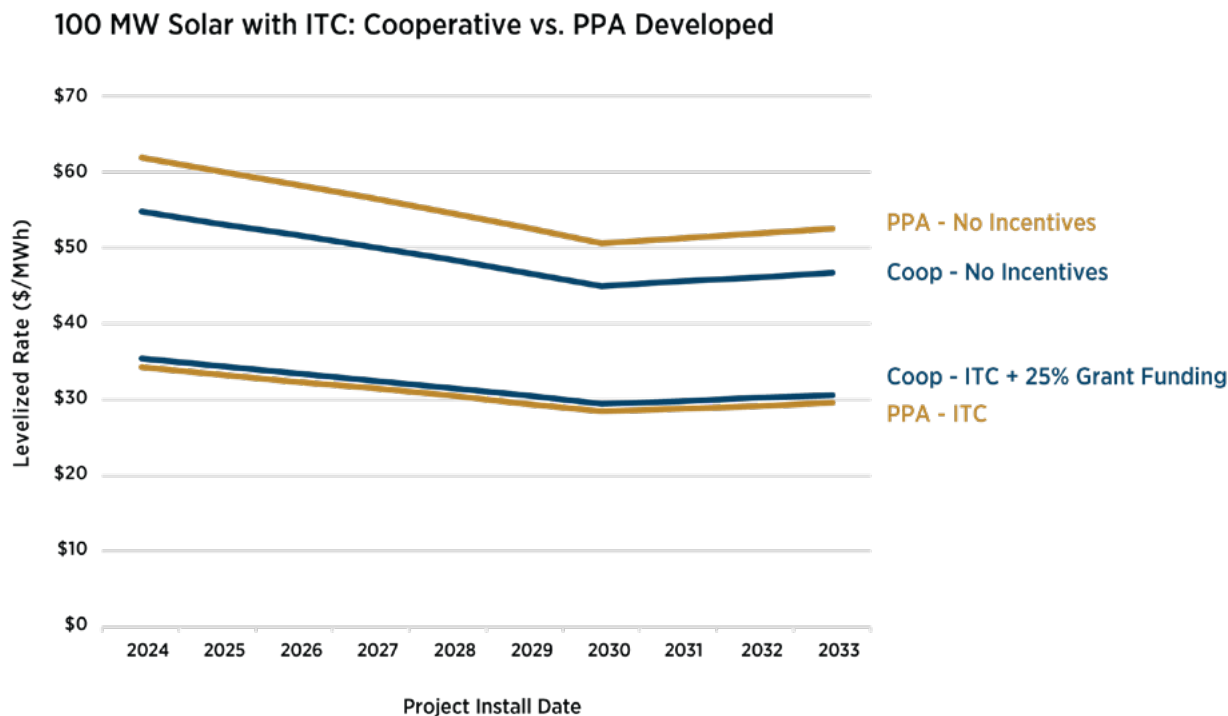


FIGURE 2

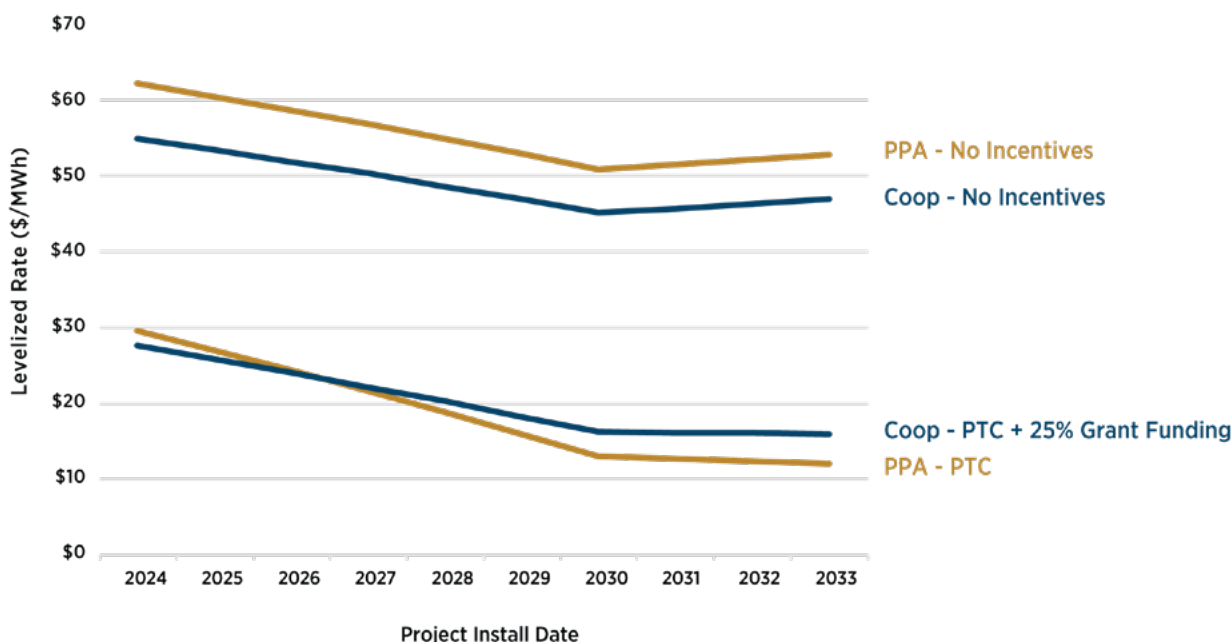




shifting over time to a \$4/MWh higher cost for the 2033 install (Figure 3). Prior to the IRA, the cooperatives had minimal incentives while PPAs had the ITC. Now, cooperatives have viable self-build options.

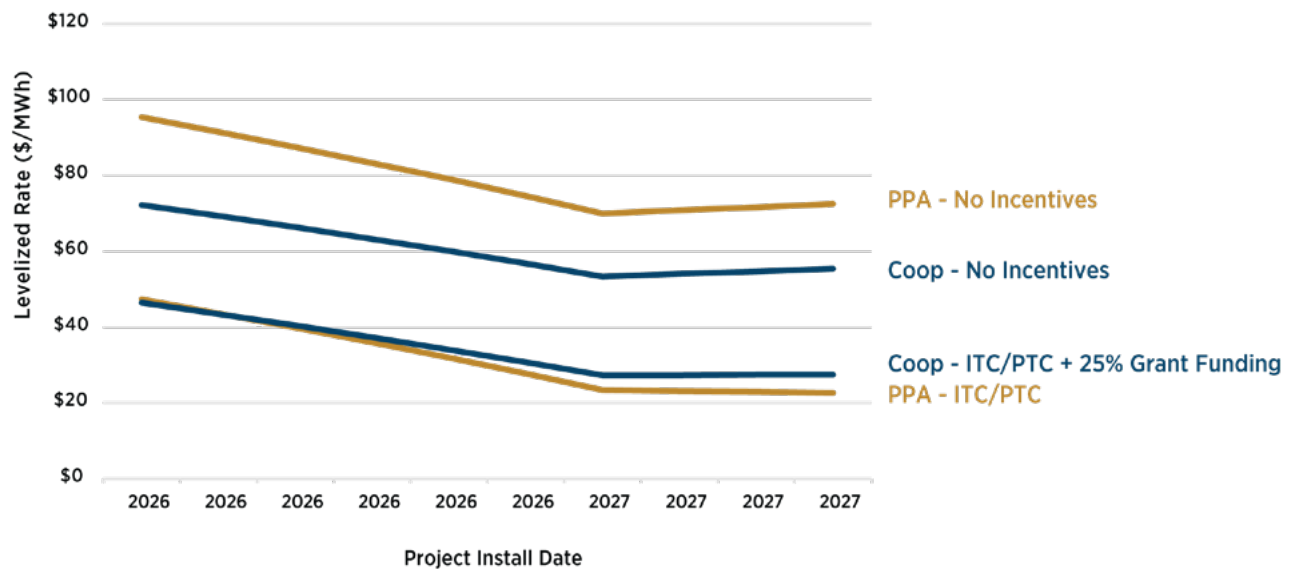
FIGURE 3

100 MW Solar with PTC: Cooperative vs. PPA Developed



COMPARING COOPERATIVE-DEVELOPED SOLAR PLUS STORAGE TO A PPA

The IRA added energy storage to the list of technologies that can take advantage of tax credits to drive efficiency gains and cost reductions. We modeled NREL’s Utility Scale PV plus Battery Storage, which represents 100 MW of solar output with a 50 MW 4-hour battery. The combination of the PTC for the unit output and the ITC on the battery components provided the least-cost solution (Figure 4). Again, the no-incentives case shows the value that the cooperative provides to its members through a lower cost of capital versus a PPA. The cooperative-developed unit is approximately \$23/MWh less expensive than the PPA unit for a 2024 install, with the advantage shrinking to \$17/MWh for the 2033 install. The combination of ITC, PTC and grant funding reduces the cooperative-developed unit by \$26/MWh for the 2024 install, while the ITC and PTC combination reduces the PPA unit by \$48/MWh, making those options nearly equal in 2024. Further out, the PPA with ITC and PTC has a small \$4.5/MWh advantage over the cooperative with ITC, PTC and grant funding for a 2033 install.

FIGURE 4
100 MW Solar plus 50 MW Battery: Cooperative vs. PPA Developed


SUMMARY

While the process and rules from both the RUS and the Internal Revenue Service remain to be seen, it is clear that the IRA will provide significant cost reductions for either a self-developed or a PPA renewable facility. The direct payment of tax credits and the USDA subsidies levels the playing field for cooperatives and provides cooperative management with significantly greater flexibility to obtain new resources. To best position the cooperative for these potential opportunities, management needs to address several key questions:

- » Is resource planning integrated with finance to accurately assess new renewable opportunities?
- » Does the cooperative have the tax and accounting expertise it needs to understand the rules of the road?
- » Are processes in place to manage a portfolio of renewable projects?
- » Do cooperative boards understand the implications of these new benefits?

Cooperatives will need to measure the potential benefits and risks of self-developed projects versus PPAs to optimize value for their members.



NOTES:

Technology assumptions:

- All technology data are based on National Renewable Energy Laboratory (NREL) Annual Technology Baseline 2022 V3, updated March 2023 (<https://atb.nrel.gov/electricity/2022/data>).
- Solar operating data are based on NREL's Utility PV, Class 5, Moderate Scenario.
- Storage assumptions are based on NREL's Utility Scale PV Plus Battery, Class 5, Moderate Scenario.
- All cost information has been inflated to current period dollars.

Cooperative model assumptions:

- Cost of capital: 80% debt financed, 6.5% long-term debt rate, 30-year loan with 3% construction loan. Grant funding reduces overall borrowing.
- Tax credits: direct payment of tax credit regardless of tax status.
- Other: full recovery of costs net of tax credits plus margin at 1.2 times interest earned ratio, book life of 30 years.

PPA model assumptions:

- Cost of capital: 50% financed, 6.5% long-term debt rate, 30-year loan with 3% construction loan, 20% return on equity on 50% equity capitalization for a weighted average cost of capital of 12.5%.
- Tax credits: Tax credits are fully utilized.
- Other: 24% tax rate, book life of 30 years and 7-year tax depreciation.

MCR FINANCIAL PLANNING AND ANALYSIS LEADERSHIP



Dave Thompson is a Vice President at MCR and leads the Financial Planning and Analysis Practice. During his 20+ years of management consulting experience to utilities, he has developed significant expertise in crafting innovative business solutions and sophisticated analytics to advance strategic planning, risk management, and financial planning initiatives. Dave played a key role in developing MCR's Financial and Regulatory Strategy Tool, which has been implemented at electric, gas, and water utility IOUs; G&Ts; distribution cooperatives; and municipals.

Contact Dave at:

dthompson@mcr-group.com
612-382-5742



Dan Rupp is a Manager at MCR and has over 20 years of industry and consulting experience. A recognized industry expert in the area of financial and economic modeling, Dan uses sophisticated modeling applications to transform clients' financial forecasting capabilities. He also provides management with insights on the impacts of alternative short- and long-term strategies and changing business and market conditions. Dan has worked with numerous energy companies across the industry, including IOU's, G&T, distribution cooperatives, and municipal utilities.

Contact Dan at:

drupp@mcr-group.com
513-520-2323



To learn more, visit
mcr-group.com/financial

155 N. Pfingsten Road, Suite 1551, Deerfield, IL 60015
847-562-0066

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