



Clean Energy Investing in America

April 2023



Photo credit: Recurrent Energy

Overview

In the last eight months, over \$150 billion in domestic utility-scale clean energy investments have been announced.

This amount is equivalent to five years' worth of American clean energy investments, surpassing total investment into U.S. clean power projects commissioned between 2017 – 2021.

In the same period, 47 new utility-scale clean energy manufacturing facilities were announced, bringing an expected 18,000+ new American jobs. \$4.4 billion in savings were also announced for over 24 million customers served by utilities building out more clean power.

It's clear that clean energy has begun to transform the makeup of American manufacturing and investment.

Since new federal clean energy incentives were passed in August 2022, signs of rapid growth for maturing American clean energy industries are emerging. U.S. wind manufacturing plants that closed in recent years are bringing back workers. Plans for an unprecedented amount of new solar, battery, and offshore wind plants are being drawn and developed. The U.S. is in a position to secure our energy independence and become a global leader in the buildout of clean energy.

The new incentives offer companies significant opportunity to invest in new utility-scale wind, solar, and storage projects and manufacturing facilities, while passing on savings to American consumers.

However, to realize this clean energy future and ensure the full potential of these projects, ACP urges the Administration and Congress to continue improving trade policies, supporting next-generation technologies, finalizing effective tax implementation and working to enact commonsense permitting reform.

If completed, these investments and projects will strengthen our energy independence, improve air quality, support one million American clean energy jobs, and put us on track to produce enough affordable domestic clean electricity to power the equivalent of every American home by 2030.

This report provides an overview of the investments into projects and facilities, jobs, and savings associated with announcements made between August 16, 2022 and March 31, 2023.



Photo credit: Ørsted

Since August 16, 2022...

47 new clean energy manufacturing facilities (or facility expansions) have been announced:

- + 27 solar** manufacturing facilities
- + 10 utility-scale battery storage** manufacturing facilities
- + 8 wind power** manufacturing facilities
- + 2 offshore wind power** manufacturing facilities



Over \$150 billion of capital investment announced for clean energy projects and manufacturing facilities

96,000 MW of new clean energy capacity announced

\$4.4 billion
in savings announced
for over 24 million
utility customers

18,000 new
manufacturing jobs
associated with new
facility announcements

Photo credit: AES (bottom)

METHODOLOGY: The information in this analysis was collected from ACP members and public sources. The report contains announcements made following enactment of the Inflation Reduction Act on August 16, 2022 and March 31, 2023. Investments are calculated from announcements by utility and independent power producers. Capital investment amounts for planned capacity announcements, when not provided, are estimated using NREL ATB data.

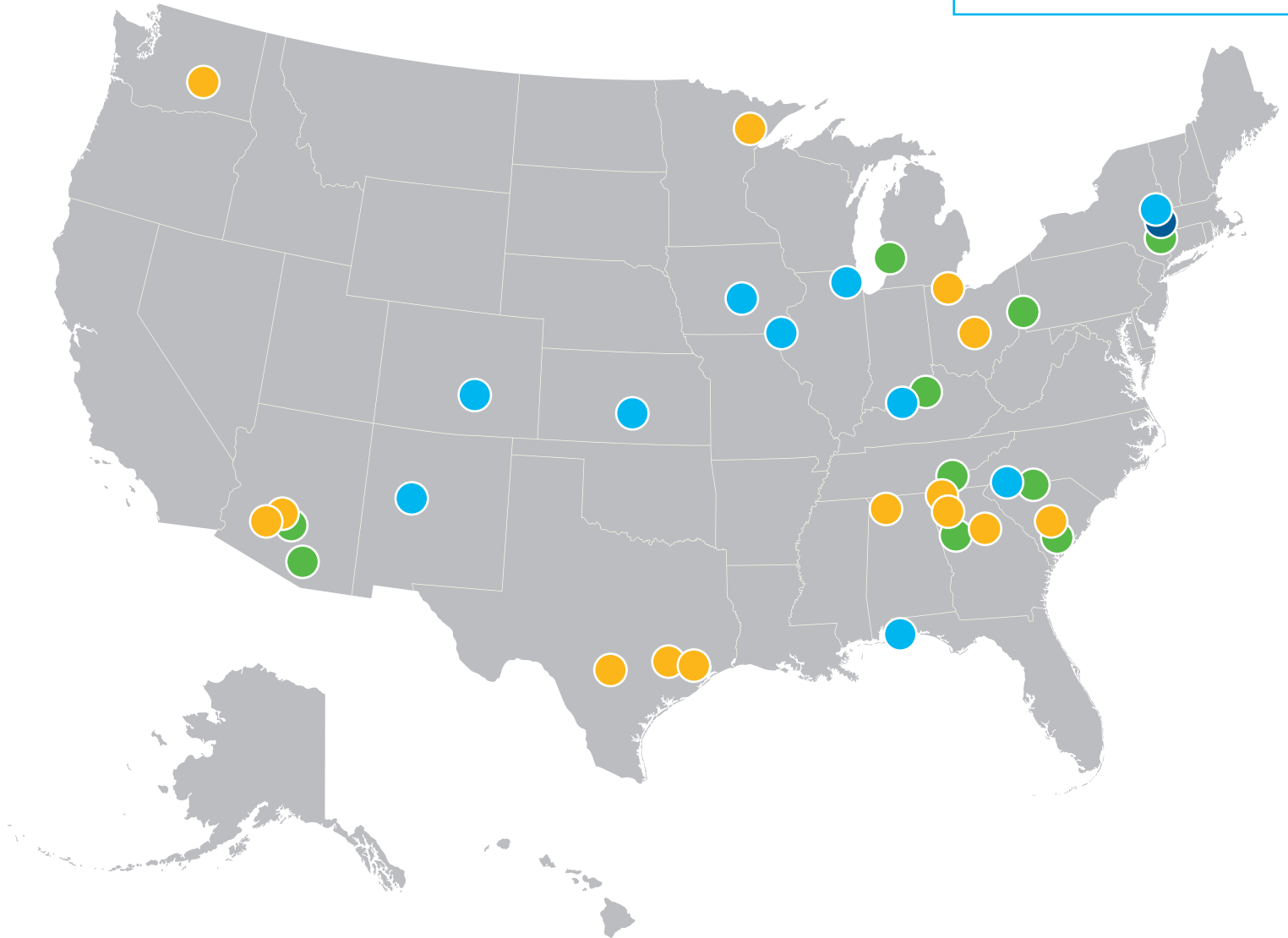
Manufacturing Facilities

47 facilities announced since August 16, 2022.

47

New Facilities

(or facility expansions)
for utility-scale clean
energy announced



Offshore Wind



Wind



Solar



Energy Storage

CLICK HERE


to open an Interactive Map

11 additional facilities have not yet announced locations.



Facilities without location information: PV Hardware (Solar), Enphase Energy (Solar), SolarEdge (Solar), Enel (Solar), Canadian Solar (Solar), CubicPV (Solar), GameChange Solar (Solar), Hanwha & LG Solutions (Storage), Linton Crystal Technologies (Solar), Trading Philadelphia (Solar), Mitrex (Solar). Locations are approximate.

Manufacturing Facilities


18,000 New Good-Paying Manufacturing Jobs

| Technology | Company | Expected Online Date | Jobs | Note | State | Congressional District |
|---|---|----------------------|-------|--|-------|------------------------|
|  Energy Storage | Albemarle Corporation | 4Q 2024 | 300 | Albemarle expects the facility to annually produce approximately 50,000 metric tons of battery-grade lithium hydroxide from multiple sources (rock & recycled batteries), with the potential to expand up to 100,000 metric tons. Read more | SC | SC-05 |
| | American Battery Factory | 4Q 2024 | 1,000 | The American Battery Factory would create 1,000 jobs once all phases of the project are completed. The facility would manufacture lithium-iron-phosphate battery cells for home and commercial energy-storage systems. Construction is expected to start in June with completion in late 2024. Factory will have a \$3.1 billion economic impact on the county over the next decade. Read more | AZ | TBD |
| | EnerVenue | 4Q 2023 | 450 | EnerVenue will open a 1 million square foot battery manufacturing facility in Shelby County. The facility is expected to begin operations by late 2023 and will produce the company's metal-hydrogen Energy Storage Vessels. EnerVenue is projected to have an annual production of 1 GWh and create 450 jobs in the region. Read more | KY | KY-04 |
| | Form Energy | 2024 | 750 | Form Energy is an American energy storage technology and manufacturing company that is developing and commercializing an iron-air battery capable of storing electricity for 100 hours at system costs competitive with legacy power plants. The company expects to start construction of its Weirton factory in 2023 and begin manufacturing iron-air battery systems in 2024 for broad commercialization. Read more | WV | WV-1 |
| | FREYR | 2025 | 720 | FREYR announced the development of the Giga America clean battery manufacturing facility based on the next-generation SemiSolid™ Lithium-Ion Battery Technology platform developed by 24M Technologies Inc. The facility will be developed in multiple phases beginning with an initial battery cell production module of approximately 34 GWh at a preliminarily estimated capital investment of \$1.7 billion. Read more | GA | GA-3 |
| | Hanwha & LG Energy Solutions | TBD | TBD | Hanwha & LG aim to establish battery storage-specific manufacturing facilities in the U.S. They will develop energy storage system products for the commercial and industrial (C&I) and utility markets. Read more | TBD | TBD |
| | LG Energy | 2026 | TBD | LG Energy will invest about \$2.3 billion in a facility to manufacture lithium-iron phosphate pouch-type batteries (LFP) for energy-storage systems. Located in Queen Creek, AZ, the facility is expected to begin delivery in 2026 and is expected to have an annual output of 16 GWh. Read more | AZ | AZ-05 |
| | Piedmont Lithium | 2025 | 120 | The TN Lithium project, located in Etowah, TN, has a planned production of 30,000 metric tons per year of lithium hydroxide. First production is targeted for 2025. Read more | TN | TN-3 |
| | Pomega Energy Storage Technologies (Kontrolmatik Technologies) | 2H 2024 | 575 | Pomega Energy Storage Technologies broke ground on its Colleton County, SC facility in February. The facility will require a capital investment of \$279 million, create 575 new jobs, and is expected to begin production in mid-2024. The facility will manufacture lithium-ion battery cells, but will also produce the modules and other elements of the company's containerized energy storage solutions. Read more | SC | SC-6 |
| | Zinc8 Energy Solutions | TBD | 500 | Zinc8 Energy Solutions makes a zinc-air battery that can store and discharge energy durations from 4 to 100 hours. The company's inaugural commercial production facility will be based in Ulster County in New York. Read more | NY | NY-19 |

Manufacturing Facilities (continued)

| Technology | Company | Expected Online Date | Jobs | Note | State | Congressional District |
|--|---|----------------------|-------|---|-------|------------------------|
|  Offshore Wind | GE Vernova (GE) | TBD | 220 | GE Vernova, GE's portfolio of energy businesses, proposed building a state-of-the-art facility to build nacelles, which house the generating components of a wind turbine. This facility would create approximately 220 direct jobs, with approximately 35% of those jobs coming from disadvantaged communities. Read more | NY | NY-20 |
| | LM Wind Power (GE) | TBD | 650 | Should GE receive sufficient order volume, LM Wind Power, a GE subsidiary, is ready to build a state-of-the-art facility to manufacture offshore wind turbine blades—creating approximately 650 direct jobs, with approximately 35% of those jobs coming from disadvantaged communities. Read more | NY | NY-20 |
| | Siemens Gamesa | TBD | TBD | Siemens Gamesa intends to build a major offshore nacelle manufacturing facility at Port of Coeymans in New York, subject to the company's wind turbines being selected by the New York authorities in their third offshore wind solicitation. The facility will create approximately 420 direct jobs and represents a \$500 million investment in the region. Read more | NY | NY-20 |
|  Solar | Adion Solar | 2H 2023 | NA | Adion Solar has purchased equipment from Italian assembly line manufacturer Ecoprogetti and expects to move into its new-build factory in late summer 2023. The factory will initially have a 500-MW annual capacity with the room to grow to 1 GW. Adion is planning on manufacturing a mix of mono- and bifacial solar panels, all focused on the commercial market and potentially the utility-scale market. Read more | GA | GA-10 |
| | Alpha Steel (JV of FTC Solar & Taihua New Energy) | 2H 2023 | TBD | The Alpha Steel facility, a FTC Solar and Taihua New Energy joint venture, will produce steel components, including torque tubes, for utility-scale solar projects. Read more | TX | TX-10 |
| | Canadian Solar | NA | NA | There is speculation that Canadian Solar is considering a solar manufacturing facility with up to 5 GW of annual capacity. Read more | TBD | TBD |
| | CubicPV | 2025 | 1,500 | CubicPV plans to start a 10-GW silicon wafer manufacturing facility in the U.S. The company expects the factory to create 1,500 new direct jobs. Read more | TBD | TBD |
| | Enel | 2024 | 1,500 | Enel has plans to construct a factory that would manufacture solar panels and solar cells. The factory could have an output of up to 6 GW in solar panels and could take an investment of over 1 billion. This is an attempt by Enel to build up the U.S. domestic solar supply chain. Read more | TBD | TBD |
| | Enphase Energy | 2H 2023 | NA | Enphase Energy has signed a letter of intent to procure power electronics for solar panels at three U.S. locations not yet named. The company plans to open four to six manufacturing lines for its microinverters by the second half of 2023, totaling up to 1 GW in capacity. Read more | TBD | TBD |
| | First Solar | 2025 | 700 | First Solar will build its fourth, fully vertically integrated domestic factory, with an annual capacity of 3.5 GWDC, in the U.S. Southeast. The facility will manufacture thin-film solar panels. Read more | AL | AL-4 |
| | First Solar | TBD | 850 | First Solar is expanding the company's existing Northwest OH footprint to be expanded by 0.9 GWdc with a \$185 million upgrade. Read more | OH | TBD |
| | First Solar | 1H 2023 | TBD | In August 2021 First Solar broke ground on its third OH manufacturing facility. The facility was initially expected to have a capacity of 3.3 GWdc. In August 2022, First Solar announced plans to expand the manufacturing capacity of the facility to 3.5 GWdc. The facility is expected online in the first half of 2023. Read more | OH | TBD |

Manufacturing Facilities (continued)

| Technology | Company | Expected Online Date | Jobs | Note | State | Congressional District |
|--|--|----------------------|--|---|----------|------------------------|
|  <p>Solar (continued)</p> | GameChange Solar | TBD | TBD | GameChange Solar, a fixed-tilt racking and tracker equipment manufacturer, is increasing domestic manufacturing capacity to 24 GW annual capacity. The company has both expanded existing facilities and established new factories, and reports that it now has manufacturing facilities in MI, OH, NY, NJ, LA, IN, IL, and KY. Read more | Multiple | TBD |
| | Hanwha Advanced Materials GA (HAGA) | June 1, 2024 | 160 | HAGA will supply Qcells with encapsulant film ethyl vinyl acetate (EVA), which is the front “foil” on solar modules sandwiching the cells against the backsheet and front glass. The investment of \$147 million by HAGA is expected to create more than 160 full-time jobs, with production beginning in June 2024. Read more | GA | GA-11 |
| | Hanwha Qcells | 2024 | 2,500 | Qcells will invest \$2.5 billion to expand its manufacturing capacity in the U.S., creating as many as 2,500 jobs in GA. The new facility in Cartersville, GA will begin production in 2024. The new factory will make solar panel components including silicon ingots, wafers and cells, as well as the modules themselves. Read more | GA | GA-11 |
| | Hanwha Qcells | 4Q 2023 | TBD | Qcells will expand its existing solar panel assembly operations in Dalton by 2 GW a year to 5.1 GW as soon as 2023. Read more | GA | GA-14 |
| | Heliene | June 1, 2023 | 60 | During the facility opening in October 2022, the company announced that Heliene will spend \$7 million on updated equipment for the company’s original 150 MW plant, doubling the capacity to 300 MW. They expect this to be done by July 2023. Read more | MN | MN-8 |
| | Hounen Solar | TBD | 200 | Hounen Solar will lease a plant in Orangeburg, SC, which will “allow the company to develop, manufacture and sell one gigawatt crystalline silicon PV panels in the U.S.” The company plans to make a \$33 million investment and bring in 200 new jobs. Read more | SC | SC-06 |
| | Illuminate USA | 4Q 2023 | 850 | Illuminate USA, a joint venture between Invenery and Longi, will invest \$600 million in a 1.1 million square foot factory in Pataskala, OH. Construction will begin in 04/2023 and is set to be operational by the end of the year. Project will create 850 jobs and 150 construction jobs and can deliver up to 5 GW of solar module capacity. Read more | OH | OH-12 |
| | JA Solar | 4Q 2023 | 600 | JA Solar will invest \$60.5 million in a 2 GW PV panel manufacturing facility in AZ. The factory is expected to start commercial operations in the fourth quarter of this year, creating 600 new jobs. Read more | AZ | TBD |
| | Linton Crystal Technologies | 4Q 2023 | 75 | Linton Crystal Technologies plans to manufacturer semiconductor and solar manufacturing equipment in the U.S. Efforts are underway to secure a site to house the plant, which will produce furnaces for making silicon, as well as wire saws and solar manufacturing machinery, according to the release. The company expects to break ground on the facility in Q2 2023. Read more | TBD | TBD |
| | Meyer Burger | TBD | TBD | Meyer Burger is expanding a previously announced facility that had stalled. Initial annual production capacity is expected to be 400 MW by the end of 2022, with the potential to scale to 1.5 GW capacity in the future. Read more | AZ | AZ-09 |
| | Mission Solar | 2024 | 150 | Mission Solar Energy will expand its manufacturing capacity in TX to 1 GW. The company currently operates a 200-MW annual capacity plant in San Antonio. Read more | TX | TBD |
| | Mitrex | 1Q 2024 | 250 | Mitrex is expected to announce the site of its planned U.S. solar panel facility soon. The facility will manufacture colored solar panels, BPiV cladding, and traditional panels. Facility will have an output of 2.5 GW annually and create 250 manufacturing jobs. Read more | TBD | TBD |
| Nextracker | September 2022 | TBD | In September 2022, Nextracker and BCI Steel began production at a new facility, manufacturing solar tracker equipment for large-scale solar power plants. The facility is located at the previously-abandoned Bethlehem Steel manufacturing factory. Read more | PA | PA-7 | |

Manufacturing Facilities (continued)

| Technology | Company | Expected Online Date | Jobs | Note | State | Congressional District |
|--|--|----------------------|------|---|-------|------------------------|
|  <p>Solar (continued)</p> | PV Hardware | May 30, 2023 | TBD | PV Hardware will open a 6 GW U.S. solar tracker manufacturing facility and expected to begin operations in 2023. Read more | TX | TBD |
| | REC Silicon & Mississippi Silicon | 2023 | TBD | In June 2022 REC Silicon announced it would re-start production at its idle Moses Lake facility, which was shut down in July 2019. In August, the company announced an MOU with Mississippi Silicon to expand production at its Moses Lake Facility. Read more | WA | WA-04 |
| | Seraphim Energy Group (SEG) | 1Q 2024 | 500 | SEG Solar plans to set up a PV module manufacturing plant in Houston, TX with an anticipated annual capacity of more than 2 GW. The facility is expected to start construction at the end of 2022 and be fully operational by early 2024. Read more | TX | TBD |
| | SolarEdge | 2023 | NA | SolarEdge is aiming to establish U.S. manufacturing capability for inverters and optimizers in 2023. They are in active planning and site selection process. Read more | TBD | TBD |
| | Trading Philadelphia | 2023 | TBD | This module manufacturing facility will produce 400- and 530-watt mono-PERC solar modules for residential and utility-scale markets, with plans to move into heterojunction technology in 2025. Initially announced a 1 GW facility in July 2021, but in Nov 2022 announced a partnership with Translucent Energy and expanded the capacity to 1.2 GW. Read more | TBD | TBD |
|  <p>Wind</p> | Arcosa | 3Q 2024 | 250 | Arcosa will invest between \$55 and \$60 million to open a wind-tower production facility in Belen, NM. The announcement comes as the company has received \$750 million in wind-tower orders. The investment will help the company procure equipment as well as purchase and modify the existing facility on the site. The facility is expected to begin operations in mid-2024 and will create around 250 jobs in the area. Read more | NM | NM-02 |
| | CS Wind | 2024 | 850 | CS Wind announced plans to expand its Pueblo, CO wind turbine tower manufacturing plant in September 2022. CS Wind would double its output to 10,000 turbine towers per year, creating at least 850 new jobs. The facility will be expanded in three phases, with the first to be completed in summer 2024. Read more | CO | CO-3 |
| | Flender Corporation | TBD | 50 | Flender Corp. will expand its gearbox manufacturing facility in Elgin, IL. The expansion will create 50 new full-time jobs and retain 140 existing jobs. The facility has been in operation since 1976. Read more | IL | IL-08 |
| | GE Vernova (GE) | TBD | TBD | GE is investing \$20 million in expanding nacelle manufacturing facilities in Pensacola, FL to expand production capacity and bring new products to market. Read more | FL | FL-01 |
| | Nucor Steel | December 31, 2022 | 400 | Nucor Steel broke ground on this facility back in October 2020, creating 400 jobs with a \$1.7 billion investment. In January 2023 Nucor introduced the Elcyon product for the offshore wind industry. Read more | KY | KY-02 |
| | Siemens Gamesa | January 1, 2023 | 250 | A recently shuttered wind turbine manufacturing plant will reopen in southeast Iowa. Read more | IA | IA-2 |
| | Siemens Gamesa | April 31, 2023 | TBD | The Siemens Gamesa nacelle facility in KS closed doors and went into "hibernation." At the time of its closing, more than 90 workers were employed at the Hutchinson facility. The facility is now reopening and expects to be ramping up production by April. Read more | KS | KS-01 |
| | TPI Composites | 2024 | 700 | Facility closed in 2021 and cut 700 jobs, but thanks to the IRA, the facility is able to reopen. TPI Composites and GE announced a 10-year agreement to supply turbine blades. Production is expected to begin again in 2024. TPI hopes to restore staffing levels to around 700-800 staff. Read more | IA | IA-2 |

CMS Energy Corp estimates \$60 million in consumer savings

"The extension of tax credits for both wind and solar provide economic certainty and lowers costs for our robust renewable backlog," said Garrick Rochow, CEO of Jackson, MI-based CMS Energy. CMS Energy estimated the new PTC will reduce solar deployment costs by 15%, compared to the original estimated cost of the deployment plan. The plan includes 8 GW of new solar development. [Read more](#)

Duke Energy Florida plans to decrease rates, saving customers \$56 million annually

As a result of the Inflation Reduction Act (IRA), there is an immediate impact to Duke Energy Florida involving changes to the production tax credits (PTCs) associated with solar investments. "We understand our customers need some relief, and this is an opportunity for Duke Energy to pass tax savings to our customers," said Duke Energy Florida State President Melissa Seixas. [Read more](#)



Florida Power & Light Company plans to refund customers nearly \$400 million

Florida Power & Light Company (FPL) will refund its 5.8 million customers nearly \$400 million in savings as a result of the PTC for the development of solar energy centers in the IRA. FPL is planning a one-time, \$25 million refund in the month of January 2023. Through 2025, the company plans to phase in nearly \$360 million in additional federal tax savings for future planned solar projects. [Read more](#)

WEC Energy Group projects customer savings of \$2 billion

WEC Energy Group added \$2.4 billion to its five-year capital plan, targeting nearly 3,300 MW in new renewable resources for regulated utility customers – including roughly 1,900 MW of solar, 720 MW of storage, and 670 MW of wind. Thanks to the IRA, WEC is projecting long-term customer savings of nearly \$2 billion. [Read more](#)

MidAmerican to deliver Wind PRIME at no net cost to customers

The Wind PRIME project will allow MidAmerican to deliver renewable energy that exceeds 100% of its Iowa customers' usage annually. The project will be delivered at no net cost to customers and has the potential to provide an immediate decrease in bills. [Read more](#)

Michigan utility switches to more renewables, saves customers \$500 million over two decades

DTE Energy remodeled its 20-year plan post IRA. "The IRA just makes the plan so much more affordable for our customers," said President and COO Trevor Lauer. "If you take the 20-year plan with the renewables, the IRA lowers the cost of the plan by about \$500 million." [Read more](#)

Offshore Wind energy price drops again from previous record

The Massachusetts Department of Public Utilities (DPU) approved amendments to the 2020 power purchase agreements (PPAs) for the Shell-Ocean Winds-owned Mayflower Wind that cut its rate from \$77.76/MWh to \$70.26/MWh, making it the lowest price of U.S. offshore wind to date. The rate reduction was made possible by the IRA, which allows developers to claim a 30% ITC for offshore wind projects. [Read more](#)

Xcel Energy to save customers over \$1.4 billion over next decade

Xcel Energy aims to save Minnesota customers over \$1.4 billion in costs over the next 10 years and accelerate the transition to clean energy through provisions in the federal IRA. Savings on projects in wind, solar, energy storage, electric vehicle chargers and more will help the company reach its goal of reducing carbon emissions from electricity 85% by 2030 in Minnesota.

Xcel Energy outlined how it intends to leverage new and extended tax credits and grant programs in the IRA to pass savings on to customers in a filing to the Minnesota Public Utilities Commission. The company estimates \$490 million in incremental savings for existing projects through 2027 and an estimated \$1 billion in additional savings for new projects through 2034 under the IRA. Many of the anticipated savings were made possible by the PUC's recent approval of the company's 2020-2034 Upper Midwest Energy Plan. [Read more](#)



Photo credit: AES

This report covers public announcements made between August 16, 2022 – March 31, 2023. ACP will release future versions of this report to reflect further project and investment announcements through 2023.

An updated version of this report was published on May 5, 2023 to include missing data.

American Clean Power is the voice of companies from across the clean power sector that are powering America's future, providing cost-effective solutions to the climate crisis while creating jobs, spurring massive investment in the U.S. economy and driving high-tech innovation across the nation. We are uniting the power of America's renewable energy industry to advance our shared goals and to transform the U.S. power grid to a low-cost, reliable, and renewable power system. Learn more about the benefits clean power brings to America at www.cleanpower.org.



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