

Opportunity and Complexity: U.S. Clean Energy Financing in 2023



INTRODUCTION

At the outset of 2023, it appears likely that this will be a year in which the U.S. renewable energy market may be defined by the juxtaposition of tremendous momentum from recent changes in U.S. policy and uncertainty stemming from upheavals in global markets.

The U.S. renewable energy market is poised for unprecedented growth. The [passage of the Inflation Reduction Act](#) (IRA) in August 2022 presents many opportunities for developers and investors. The IRA contains \$369 billion in investments to boost clean energy and curb greenhouse gas emissions. One of the biggest wins is the IRA's long-term extension and expansion of federal tax credits. As a result, the U.S. should accelerate the deployment of wind, solar, energy storage, electrified transportation, and carbon-capture projects.

2,400 GW

New renewable capacity additions (2022-2027)



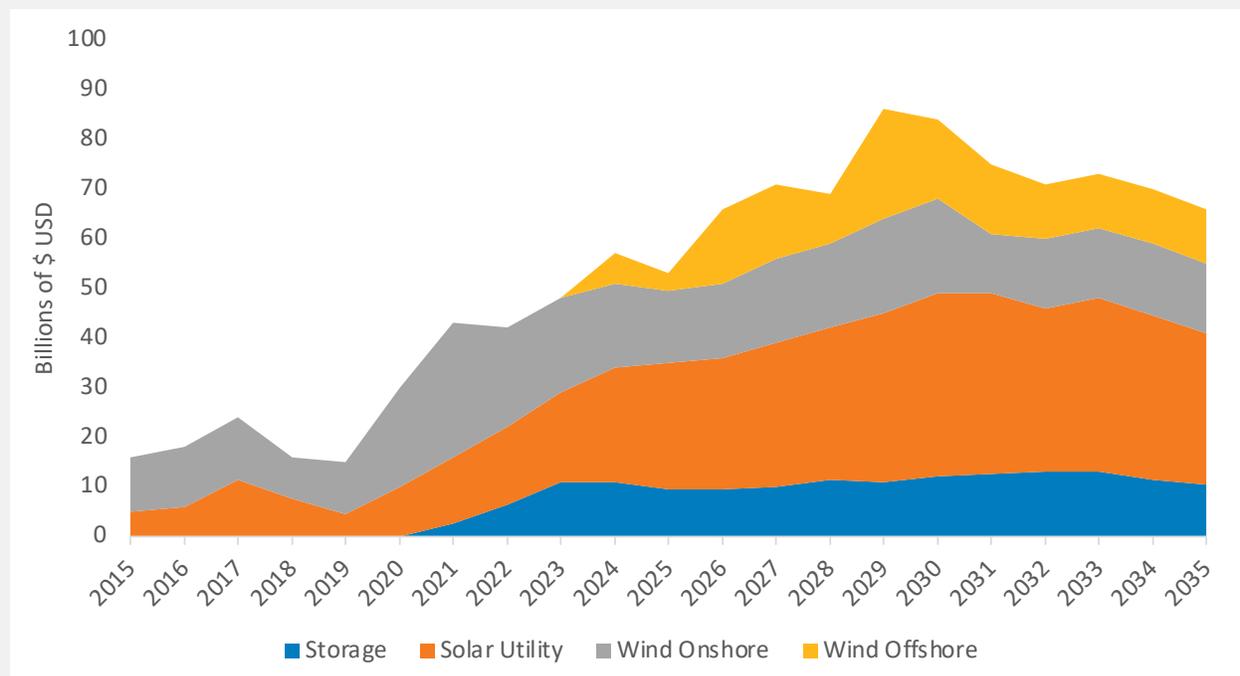
Source: [IEA](#)

The war in Ukraine has sparked a global energy crisis that has reinforced the need for energy security in the form of homegrown clean energy. The [International Energy Agency](#) forecasts that the world will add as much renewable power in the next five years as it did in the past two decades.

This forward movement is not without speed bumps, however. In 2022, global supply-chain disruptions were an acute problem, and they will remain an issue in 2023. These supply-chain issues have forced renewables developers to change their suppliers and rethink how to hedge supply risk. Permitting and interconnection queues are another hurdle. And, while not insurmountable, inflation has made financing projects more difficult across the board.

However provisions in the IRA, in conjunction with state-level policy incentives for clean energy and corporations' increasing focus on environmental, social, and governance (ESG), provide tailwinds that will help the renewable energy market flourish.

Projected U.S. Renewable Energy Investment Under the Inflation Reduction Act



Renewable energy deployment will likely see exponential growth over the next decade bringing tremendous opportunity to investors.

Source: [Wood Mackenzie](#)

This paper will explore some of the opportunities, complexities and nuances that CohnReznick and CohnReznick Capital are seeing in clean energy at the beginning of 2023, including:

- The M&A landscape
- The implications of the renewed Investment Tax Credit and Production Tax Credit
- The outlook for stand-alone storage and carbon capture
- What to expect in 2023 and beyond



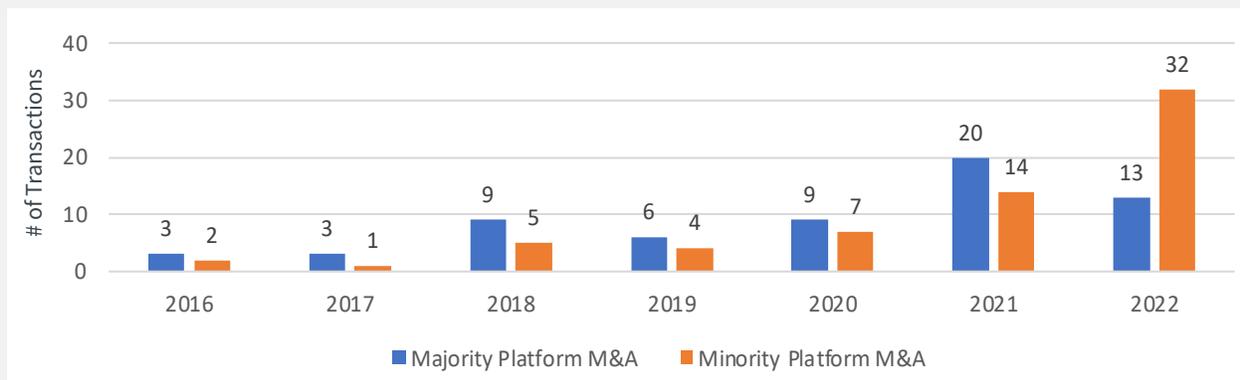
SECTION 1

Global M&A steadies and prices rise

Platform acquisitions have slowed while minority investments are increasing to provide growth capital to fast growing companies.

Throughout 2020 and 2021, platform M&A for U.S. renewables surged. Valuations for platforms, which include portfolios of projects and the teams that manage them, reached all-time highs. With rising rates for capital, there is now a shift to minority investments. Investors are providing growth capital in the form of a minority stake, often receiving preferred equity in a company that has the potential to grow and expand in the post-IRA world, in which company value could increase substantially over the next few years.

Platform M&A



With high cost of capital and inflation rates, platform acquisitions have slowed, but there is growing interest in providing growth capital for emerging developers.

Source: Announcements tracked from Sparksread.com, Renewablesnow.com, and available press releases through Jan. 3, 2023

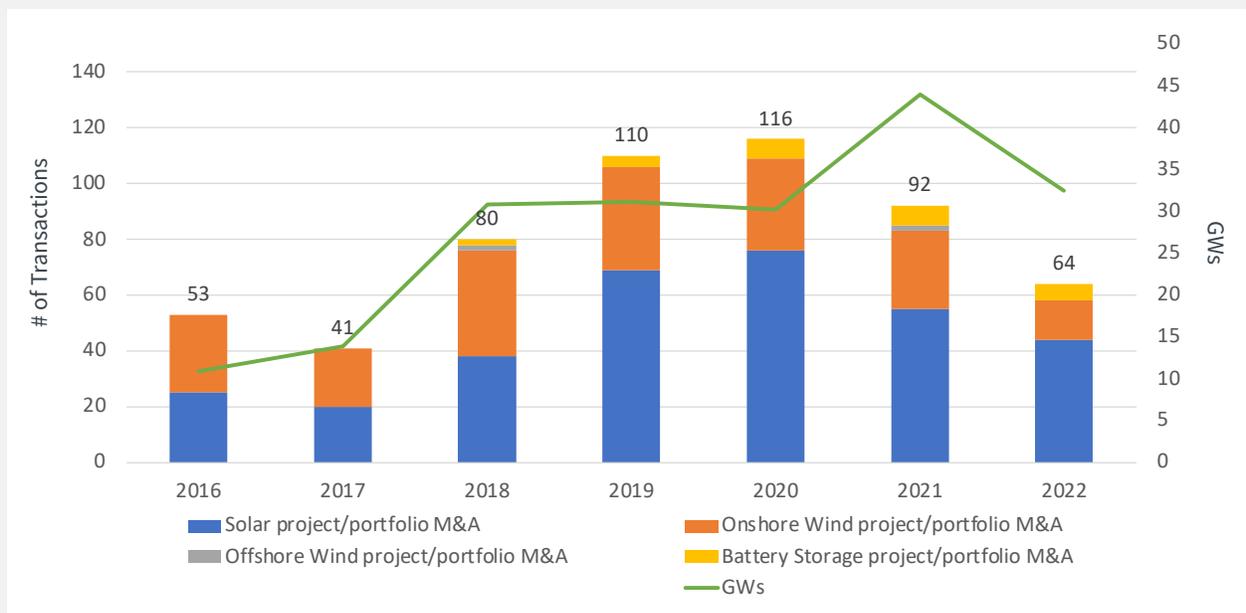
Despite inflation and the rising cost of capital, M&A continues

There is a robust trend of international players acquiring experienced U.S. developers with strong project portfolios. This trend shows no sign of abating in 2023; here's why:

- Foreign independent power producers and infrastructure funds see acquisition as an efficient tool to enter or expand their presence in the growing North American market.
- Before the IRA passed, the Investment Tax Credit and Production Tax Credit were either being stepped down or phased out. As a result, potential acquirers were focused on a short development window. Now that the ITC and PTC have been extended for projects that begin construction before 2034, independent power producers and infrastructure funds are looking to access a much larger project pipeline through acquisition.
- Corporate M&A activity that provides development experience and a portfolio of projects in key U.S. markets delivers scale and transaction efficiency that the acquisition of individual projects can't match.

M&A asset activity will continue to focus on solar and wind companies and projects. However, the vital role of storage in a renewables-dominated power system, along with a new ITC for stand-alone storage, will also drive more M&A activity. For example, Mercom Capital reported that there were [23 energy storage](#) M&A transactions in the first nine months of 2022 compared to 15 in the same period of 2021, a trend that will grow in parallel with the storage market.

Asset and Portfolio M&A



Asset sales have slowed but are expected to pick up as developers look to sell down projects and recycle capital.

Source: Announcements tracked from Sparksread.com, Renewablesnow.com, and available press releases through Jan. 3, 2023

Energy storage M&A transactions (Q1-Q3)

2021: 15 > 2022: 23

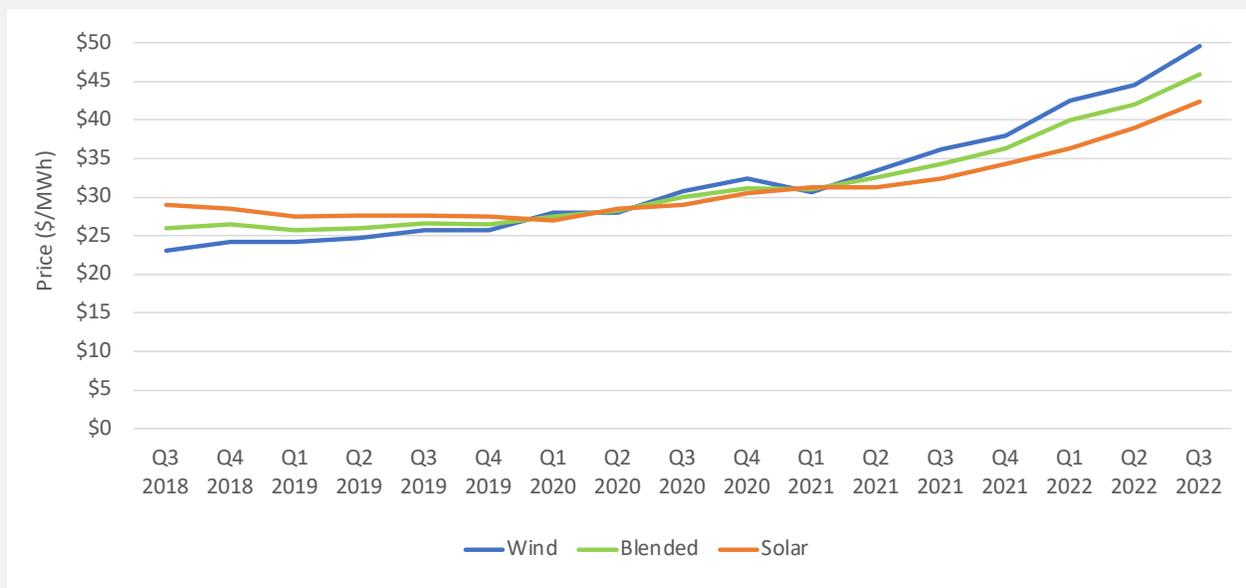


Source: Mercom Capital

Finance in a time of inflation, high interest rates, and a possible recession

In 2022, the cost of power-purchase agreements for renewable energy projects continued to rise. Marketplace operator LevelTen's PPA price [index](#) found that solar and wind prices increased almost 10% between the second and third quarter of 2022, and were up 34% year-over-year.

North American P25 PPA Price Index



PPA prices are trending higher for wind and solar due to rising capital and labor costs, and equipment shortages.

Source: [LevelTen](#)

The reasons for these price increases are well known and include a mix of supply-chain constraints, record-high commodity and labor inflation, and increasing demand for clean energy. CohnReznick Capital's analysis shows that average PPA prices will remain elevated due to high capex costs and high overall merchant prices. As long as labor and component costs remain high, compounded by supply-chain disruptions, PPA prices should also remain high.

While a potential recession would undoubtedly impact project finance, other macro trends may provide more favorable outcomes:

- **ESG drives demand.** ESG has gone from a nice-to-have to a need-to-have. Institutional stakeholders are now compelling corporations to do more than give a cursory nod to sustainability — many must now meet specific ESG targets. This shift has driven new companies to enter the renewable energy market as power buyers, minority investors in developers, or acquirers of entire development platforms.

As the impact of climate change becomes more apparent, ESG goals are emerging as a mainstay tool for companies. Over time, more companies will invest in renewables to meet ESG targets as these metrics gain more visibility and significance.

- **Tax credit flexibility.** Tax credits make clean energy projects more financially attractive in a recession because project developers and investors can still make money when tax credits are a significant part of their capital stack.

The IRA's extension and expansion of the tax credits are likely to significantly impact the capital stack, particularly in light of rising interest rates. For example, with solar projects, it is now possible to combine either the ITC or PTC tax credits with certain adders for using U.S.-sourced hardware or community-based projects, which could allow for half the capital stack to be made up by credits. This gives project developers more flexibility in their PPA pricing and can also replace more expensive debt. Elevated interest rates will also likely result in equity taking up a larger proportion of the capital stack.





SECTION 2

Transferability will bring new market stakeholders

The transferability of tax credits could significantly change the types of entities that get involved in clean energy tax equity deals.

Developers of some types of clean energy projects will be allowed to make a one-time sale of tax credits to an unrelated party in exchange for cash starting in 2023. The cash earned from the sale is federally tax-exempt, and the purchaser cannot resell the tax credits. In traditional tax equity, the tax credits, depreciation, cash flow, and losses associated with the clean energy project are allocated to a tax equity investor in exchange for a capital contribution. In contrast, the sale of tax credits for cash means that the tax depreciation, and other benefits and liabilities, remain with the owner of the asset. With guidance from the U.S. Treasury on the transfer of credits, the first indicative pricing and term sheets for the transfer of tax credits will be available in early 2023. Transferability will provide a backstop to tax credit pricing in the U.S.

One goal of transferability is to provide small companies and those with little clean energy finance experience access to financing when they can't afford or fail to meet the criteria for tax equity financing. For example, corporate entities can purchase credits to simultaneously reduce their tax liability and achieve ambitious ESG goals without the due diligence necessary in traditional tax equity deals. The transferability provision is just one more way the IRA will bring an influx of new entrants into the market.

The transferability provision may also encourage corporations' direct ownership of clean energy assets and could incentivize real estate investment trusts (REITs) to invest in on-site clean energy. Starting in 2023, REITs can invest in clean energy technology at their properties and then sell the tax credits while still taking advantage of the depreciation.

The impact on tax equity

Transferability will not supplant traditional tax equity investing, but it will make it easier for developers and investors to acquire funding. It would be a mistake to assume that transferability will cause tax equity deals to dry up. In fact, the opposite is likely to be true. Traditional tax equity players continue to expand their allocations, and new investors — including midstream oil and gas companies and a growing array of corporations— will help maintain a high demand for tax equity. Overall, the demand for tax equity financing should remain high, especially from the rise of demand from energy storage and carbon capture, utilization, and storage.

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SECTION 3

A new choice for solar: PTC or ITC?

The option for financiers to elect the PTC or the ITC is a key development for utility-scale solar. The cost of building a project and its net capacity factor will be critical determinants of which tax credit to pursue.

A significant number of solar projects were paused in the weeks after the IRA passed. That's because the new law allows solar developers to use either the solar ITC or the PTC, which incentivizes power production over 10 years. As the costs of solar projects decline, the potential of the PTC to be more financially advantageous was enough to prompt some developers to halt projects and assess their options.

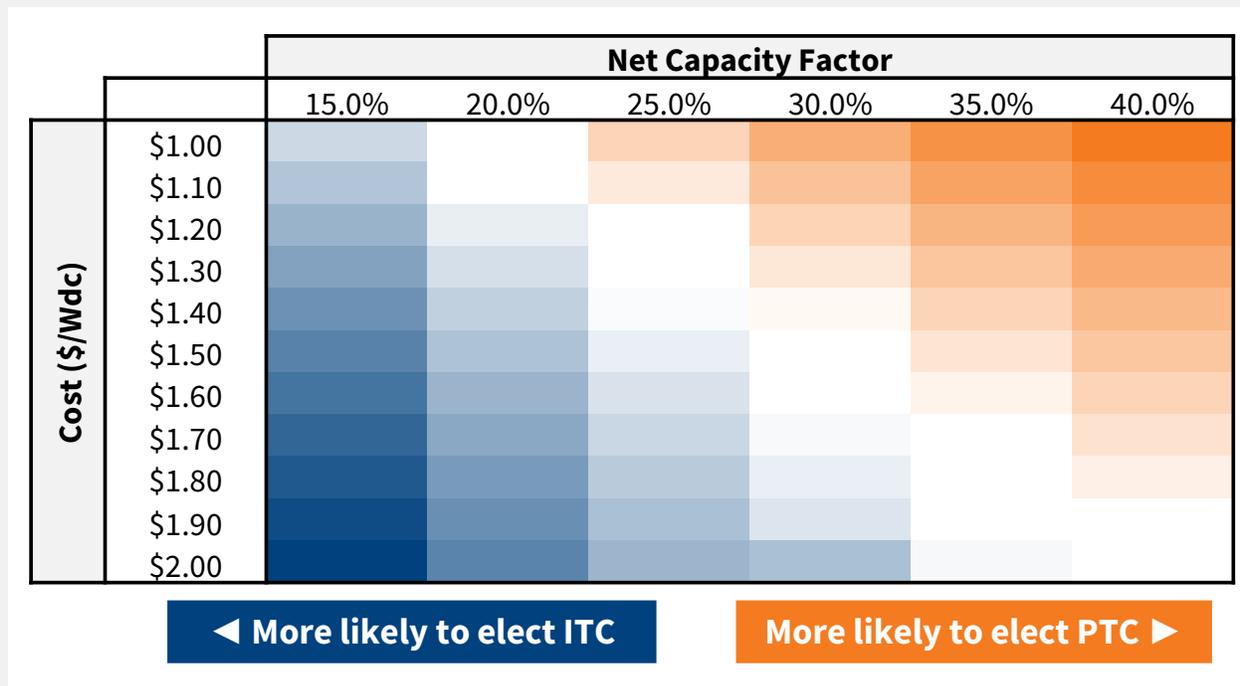
In many cases, the PTC is preferable to the ITC for large-scale projects. Solar projects with lower dollar-per-watt capital costs will tend to favor the PTC, making it more likely that utility-scale projects will elect the PTC and that residential and commercial projects will elect the ITC. Allowing renewable developers to choose between the ITC and PTC would result in up to eight times as much reduction in emissions by 2031 compared with a straight 10-year extension of the previous tax credit rules, according to [an analysis from the Rhodium Group](#).

Also, some investor-owned utilities are subject to tax normalization rules that require the tax credits to be realized over the life of the solar assets. The PTC, however, is not subject to the normalization rules, which is another benefit for those utilities.

Projects with higher net capacity factors will also favor the PTC over the ITC, meaning that projects in sunnier parts of the U.S., such as California and Texas, will be more likely to elect the PTC than those in regions such as the Northeast.

However, the devil is in the details, and every project needs to be [assessed individually](#) to determine whether the PTC or the ITC would provide greater returns. For instance, tax equity investors may prefer one credit's economic and accounting profile over the other. The ITC is determined upfront and may give investors more certainty around tax planning and exit timing.

Solar PTC vs. ITC Comparison Chart



Solar projects with low costs and lots of sun are better suited for PTC than ITC.

Source: [CohnReznick Capital](#)



SECTION 4

The outlook for energy storage and carbon capture

The new ITC for energy storage and the increased value of carbon capture tax credits could turbocharge investment in these technologies as well as alter the supply and demand of tax equity across the clean energy sector.

The IRA finally made the long-discussed possibility of a tax credit to support stand-alone energy storage a reality. Not surprisingly, market forecasts for U.S. storage installations are robust. According to American Clean Power and Wood Mackenzie, the U.S. will add nearly [60 gigawatts](#) of new energy storage capacity by 2026, and dozens of stand-alone large-scale storage projects are now in development.

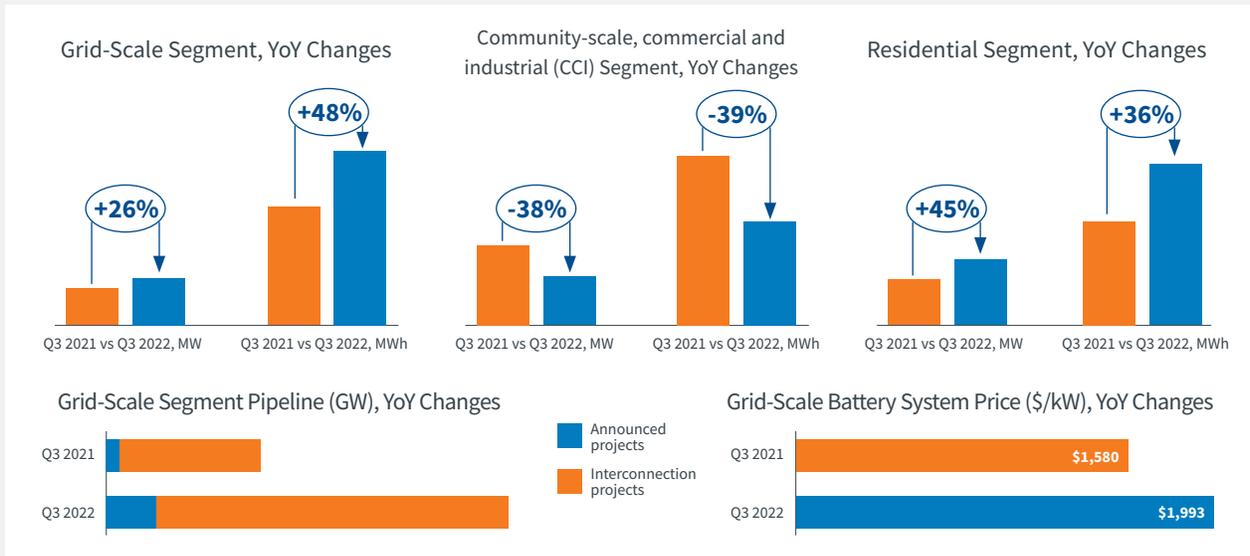
The surge in new energy storage projects will require investors to grow their knowledge of merchant power prices and various revenue streams available to energy storage projects. As the market expands, more complex revenue models will be required to remain competitive. The investors that understand the nuances and complexity of these revenue models will be the ones best situated to capture opportunities in the energy storage market. As the market expands, M&A activity is poised to rise.

In particular, the stand-alone storage ITC is a significant change likely to accelerate utility deployments.

In the past, some regulated utilities leveraging the ITC were required to retain a portion of the ITC's financial benefits exclusively for their shareholders. Because of this [tax normalization](#) requirement, those utilities could not pass along the ITC's full cost savings to their customers in the form of lower prices.

Utilities can now opt out of tax normalization for stand-alone storage projects, which should drive significant investments. The improved economics of storage should also accelerate M&A activity, particularly for companies with development experience and a portfolio of existing projects.

Q3 2022 U.S. Energy Storage Deployments Scorecard



The proliferating development pipeline for energy storage is expected to grow even more rapidly with the introduction of the storage ITC.

Source: [Wood Mackenzie](#)

Higher values for 45Q: While some carbon capture, utilization, and storage projects were operational before the passage of the IRA, the new law brings new tailwinds to the sector.

Recent changes in the tax credit incentivizing carbon capture, utilization, and storage (CCUS) projects will lead to more development. In particular, the 45Q tax credit [raises the value](#) per ton of carbon captured and permanently stored from \$50 to \$85.

As the energy storage market expands, more complex revenue models will be required to remain competitive.

The credit value for direct-air capture technologies has also increased to \$180 per ton. This increase could immediately impact projects that were already able to attract financing.

Novel technologies could also benefit from the 45Q credit. For example, sustainable aviation fuel is an area attracting a lot of research and development activity. One burgeoning solution that could benefit from the 45Q credit involves taking carbon dioxide and water from ambient air and splitting them to create a synthesis gas with hydrogen and carbon monoxide, which can then be processed into synthetic liquid fuel.

Beginning in 2023, CohnReznick Capital expects \$40 billion¹ in annual demand for tax equity funding from renewables and CCUS combined, with some investors moving away from solar and wind, and toward carbon capture.

1. Estimate based on Wood Mackenzie forecasts and fair market value estimates for renewable energy and CCUS capacity buildout.



SECTION 5

Potential for a banner year

The U.S. renewable energy market is poised for unprecedented growth.

More funding is available than ever before, demand for renewables is at an all-time high, and competition for new business may be fierce. There is no denying that 2023 and the next five years will most likely be banner years for renewable power. We expect new entrants from all angles, including investors, entrepreneurs, and tech companies drawn by the financial opportunity and the urgent need to address the climate crisis.

The headwinds of the volatile global economy, inflation, supply-chain disruptions, tariff threats, permitting delays, and transmission bottlenecks are likely to persist. Companies that can keep risk low but maximize returns on investment in an increasingly complex environment of tax incentives and revenue structures will come out ahead in the market. The winners will be those that can successfully mitigate the risk faced in the current market and adapt to changing conditions.

The global economy and energy crisis, along with fears of a recession in the U.S., also create headwinds for the energy transition. For tax equity investors, a U.S. recession threatens to reduce the number of entities with tax liabilities, as their overall tax bill may go down. A lack of transmission infrastructure and long interconnection queues are also significant hurdles to the clean energy deployment that is so essential to complete in this decade. While the IRA boosts incentives for domestic manufacturing of clean energy technologies, the increase in manufacturing investment will not meet the U.S. demand in the short term, so any [new tariffs on hardware such as solar modules](#) could hinder the industry, as they did in 2022.

There is no denying that 2023 and the next five years will most likely be banner years for renewable power.

While these problems need to be tackled, 2023 could be defined more by opportunity and progress than by challenges and setbacks. Here's why:

Long-term certainty and rising demand. The extension and expansion of tax credits, along with transferability, broaden the financing options available to investors and developers. These options may draw in new investors, allow existing investors to expand their activity, and channel enough investment to avoid sector cannibalization. Even though demand is rising, renewables platform M&A activity is expected to be moderate, given the global macroeconomic environment in the coming year.

Efforts to “electrify everything” will further spur renewables and energy storage development.

Investments in electrified transportation are one of the most evident manifestations of this undertaking, but many state-led policies and IRA provisions seek to encourage the electrification of buildings, particularly heating systems. As heating and transportation are electrified, more power will be needed — much of which will be supplied by new renewables capacity. Also, investments to scale and improve electric vehicles will involve research and development to improve battery technology, which could make grid-scale energy storage more cost-effective.

The IRA's complexity will only persist in the short term. There were many pauses in clean energy projects in 2022. Some were the result of tariffs and supply-chain issues and, more recently, uncertainty about provisions of the IRA that stalled project finance and development. The latter delays are to be expected as buyers and sellers analyze important changes in tax credits and other incentives. Investors and developers will likely soon become confident about their options — such as whether to choose the ITC over the PTC — and move aggressively, particularly toward the end of 2023. Navigating new financing options may require more time, but the long-term demand for renewable assets is high and expanding in a way that will drive steady growth over the next decade.



ABOUT US

COHNREZNICK AND COHNREZNICK CAPITAL

About CohnReznick

As a leading advisory, assurance, and tax firm, CohnReznick LLP helps forward-thinking organizations achieve their vision by optimizing performance, maximizing value, and managing risk. Clients benefit from the right team with the right capabilities; proven processes customized to their individual needs; and leaders with vital industry knowledge and relationships. Headquartered in New York, NY with offices nationwide, the firm serves organizations around the world through its global subsidiaries and membership in Nexia International.

Technical excellence and deep industry knowledge are the foundation of our Renewable Energy practice. Our team of over 100 professionals allows us to deliver holistic solutions to complex problems through our integrated service platform, which includes project finance consulting; tax equity accounting advisory; financial modeling and decision analytics; **IRA (Inflation Reduction Act) advisory**; M&A transaction advisory and due diligence; tax advisory and compliance; financial audits; valuation advisory; CFO advisory and managed services. Our clients include some of the largest renewable energy independent power producers, developers, infrastructure and private equity funds, and Fortune 500 corporations.

For more information on CohnReznick, visit www.cohnreznick.com, and to learn more about our Renewable Energy Industry Practice, visit www.cohnreznick.com/industries/renewable-energy.

About CohnReznick Capital

CohnReznick Capital is a renewable energy investment bank providing industry-leading financial services to the sustainability sector. Since 2008, the firm has executed over 265 project and corporate transactions for renewable energy assets, valued at over \$41.1 billion in aggregate. CohnReznick Capital is wholly committed to the clean energy transition and delivers innovative solutions to financial institutions, infrastructure funds, strategic participants (IPPs and utilities), and global clean energy developers. CohnReznick Capital helps clients break through the dynamic and evolving sustainability sector by simplifying project finance, M&A, capital raising, and special situations.

To learn more, please visit <https://www.cohnreznickcapital.com>.

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