

**EXH. CJP-8
DOCKETS UE-240004/UG-240005
2024 PSE GENERAL RATE CASE
WITNESS: CRAIG J. POSPISIL**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**Docket UE-240004
Docket UG-240005**

**SEVENTH EXHIBIT (NONCONFIDENTIAL) TO
THE PREFILED DIRECT TESTIMONY OF**

CRAIG J. POSPISIL

ON BEHALF OF PUGET SOUND ENERGY

FEBRUARY 15, 2024

Expectations for Renewable Energy Finance in 2023-2026

**HOW COMPANIES ARE REALIZING THE
POST-IRA OPPORTUNITY WHILE
NAVIGATING HEADWINDS**

JUNE 2023



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Acronyms

ACORE	American Council on Renewable Energy	LMI	Low-to-Moderate Income
CRA	Community Reinvestment Act	MWBE	Minority or Women-Owned Business Enterprises
EMT	Equity Materiality Threshold	OECD	Organisation for Economic Co-operation and Development
ESG	Environmental, Social and Governance	PAM	Proportional Amortization Method
GW	Gigawatt	PPA	Power Purchase Agreement
HLBV	Hypothetical Liquidation at Book Value	PTC	Production Tax Credit
IRA	Inflation Reduction Act	PV	Photovoltaic
ITC	Investment Tax Credit	PWI	Public Welfare Investment

PHOTO Siemens AG



Executive Summary

The Inflation Reduction Act (IRA) presents the U.S. clean energy sector with an unprecedented opportunity for growth through new and expanded tax incentives and bonus credits, more flexible options for monetizing tax credits, and supportive federal funding initiatives — such as new Department of Energy grants and loans. While timelines and final guidance details remain uncertain as the Treasury Department interprets these incentives, early analysis forecasts they could spur trillions of dollars in private-sector investment.

However, headwinds prompted by grid-related constraints, supply chain challenges, trade restrictions, financing barriers, and inflation continue to impact the renewable energy sector. These challenges threaten the rate of clean energy development and the pace of power sector decarbonization.

To assess the impacts of these developments on investment and deal flow, the American Council on Renewable Energy (ACORE) surveyed companies that actively develop or finance U.S. renewable energy projects about their companies' plans for 2023 and their outlooks for growth over the next three years. The survey results contained in this report represent the near- and mid-term outlooks of some of the most prominent companies in the sector. This report also reflects companies' expectations for the availability of project financing sources in a post-IRA implementation landscape, including transferability, direct pay, and traditional tax equity.

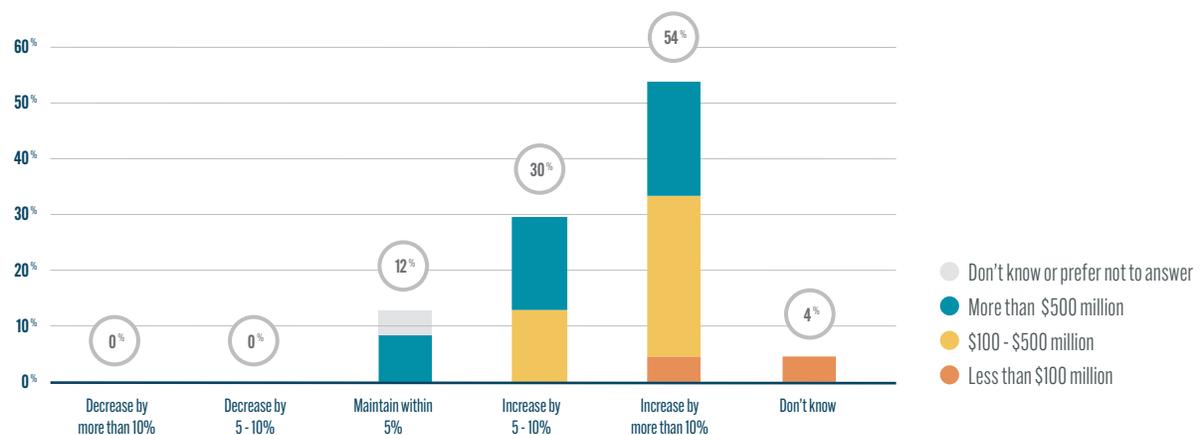


Our findings show expanded participation of companies in the market in 2023 compared to 2022, increased optimism in the U.S. market’s attractiveness, and appreciation of the long-term policy certainty created by the IRA. However, many of the same market challenges that existed in the sector before the IRA’s enactment continue to affect companies’ risk profiles.

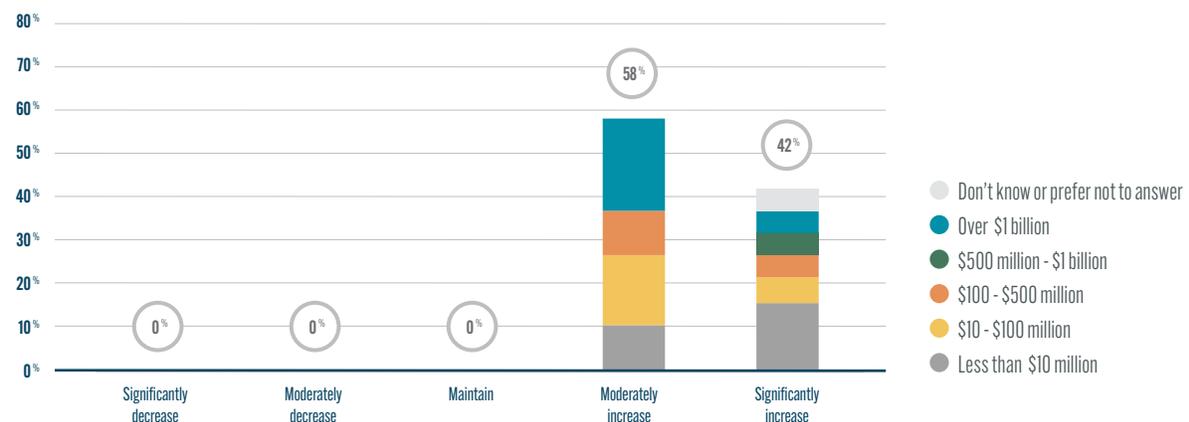
Investment in the U.S. renewable energy and energy storage sectors in 2022 remained steady at \$54.8 billion, while still falling short of the annual investment needed to achieve the administration’s objective for power sector decarbonization by 2035. Notably, investment in solar projects decreased by 8%, and investment in wind projects fell by 25%, while investment in energy storage projects increased to a record \$5.3 billion.

The IRA has already increased companies’ participation in the market in 2023. All developers and most investors plan to **increase** their activity in the U.S. renewable energy sector compared to last year. Eighty-four percent of investors plan to increase their renewable energy investment by **5% or more**.

How Investors Plan to Change Their Renewable Energy Investment in 2023 Compared to 2022, by Annual U.S. Sector Investment



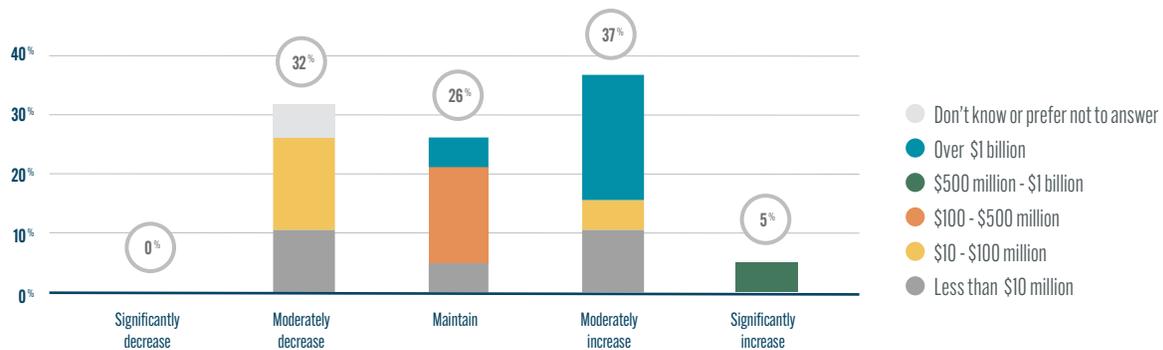
How Developers Plan to Change Their Renewable Energy Development in 2023 Compared to 2022, by Total Revenue of U.S. Renewable Energy Business



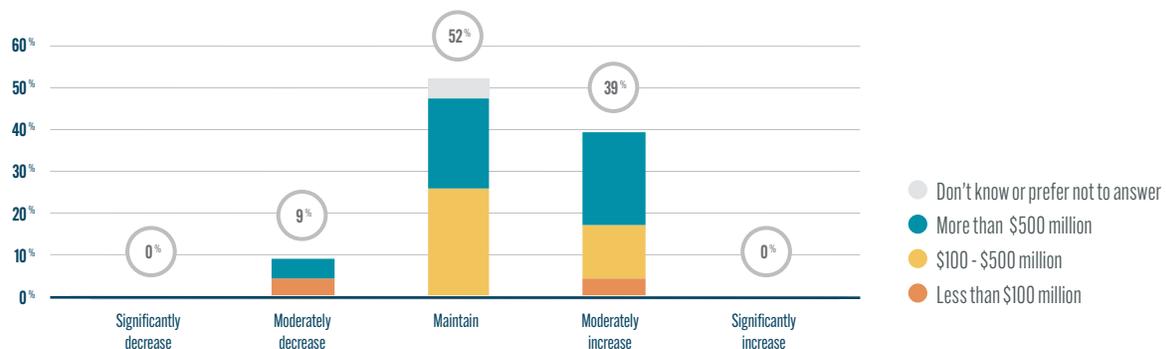
However, many companies are proceeding cautiously. Survey respondents commented that headwinds such as supply chain constraints, trade restrictions, interconnection queue delays, and insufficient transmission capacity create significant risk challenges. These challenges can lead to delays in deal flow, longer lead times, and increased project costs, although the effects of these factors on their risk profiles are varied.

As a result, one-third of developers have reduced their risk profiles in 2023. However, most large developers and many investors are willing to take on increased risks. Forty-two percent of surveyed developers report an increase in risk profile compared to last year. And among larger developers that operate U.S. renewable energy businesses with revenues of \$500 million or greater, 83% report their risk profile has increased. Thirty-nine percent of surveyed investors indicate a moderate increase in their risk profile this year compared to 2022, while 52% report no change.

Change in Developer Risk Profiles in 2023 Compared to 2022, by Total Revenue



Change in Investor Risk Profiles in 2023 Compared to 2022, by Annual Investment



Investors unanimously expect the U.S. to increase in attractiveness for renewable energy investment in 2023-2026 compared to other countries. For the first time in the six years ACORE has conducted investor surveys, 100% of surveyed investors report they perceive the attractiveness of the U.S. to increase as a venue for renewable energy investment compared with other leading countries.

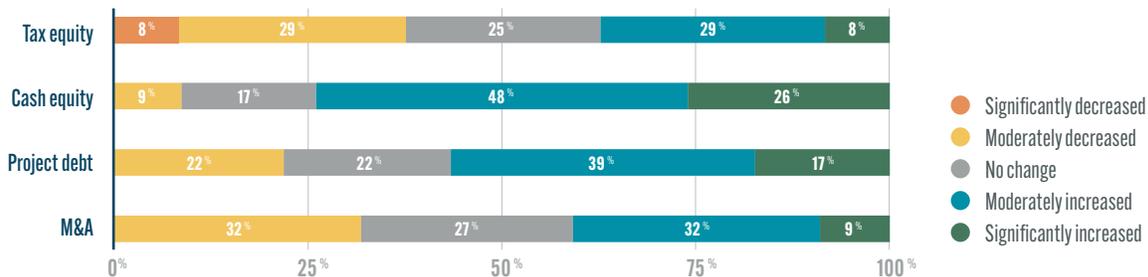


Percentage of Investors that Perceive the U.S. to Increase in Attractiveness Compared to Other Leading Countries in 2023-2026

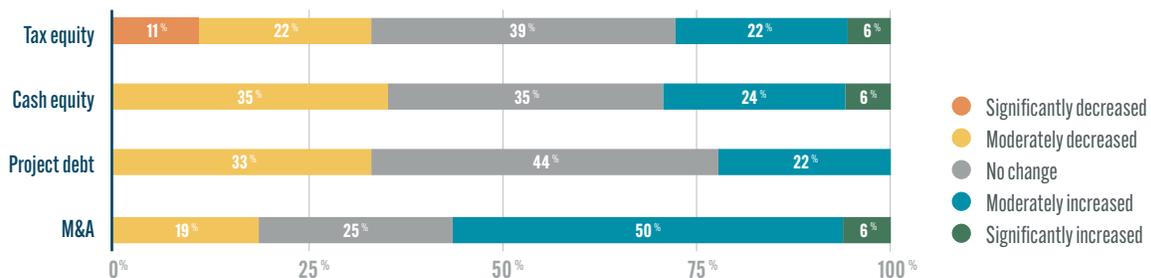
Most investors expect the attractiveness of renewable energy to increase compared to other asset classes over the next three years. The majority of investors (83%) expect the attractiveness of renewable energy to **moderately** or **significantly increase** compared to other asset classes in their portfolios in 2023-2026. No investors expect the attractiveness of renewable energy to **decrease**.

More than one-third of investors and developers expect a decrease in tax equity accessibility this year, while others expect an increase. ACORE asked investors to report on their observations of the market’s availability of project financing sources, and developers on their businesses’ experiences attracting those sources. Notably, of the surveyed investors who specifically invest in tax equity, 36% report a **decrease** in tax equity this year compared to 2022, while 45% see an **increase**.

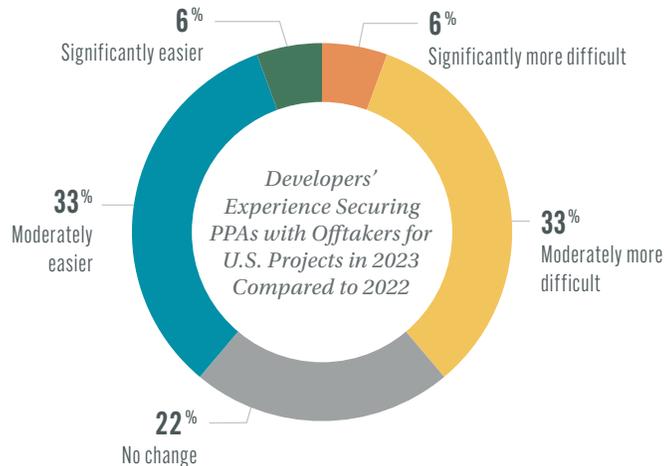
Change in the Availability of Project Finance in 2023 Compared to 2022 for Investors



Change in the Availability of Project Finance in 2023 Compared to 2022 for Developers



Many developers also cite difficulties in attracting offtakers for their projects. Thirty-nine percent report securing power purchase agreements (PPAs) with offtakers has become moderately or significantly **more difficult** over the past year, while an equal percentage report that securing PPAs has become **easier**.



Developers expect tax equity to be the most available financing source over the next three years, while investors rank tax equity in fourth place. Both groups expect transferability to play a sizable role in the market. ACORE asked investors and developers to rank the market's expected availability of different financing sources over the next three years. Investors, on average, anticipate project-level debt and cash equity to be the most available project financing sources in the market in 2023-2026, while developers rank tax equity and transferability as the top financing sources.

Ranking of the Expected Availability of Project Financing Sources in the Market in 2023-2026

	Investors	Developers
1	Project-level debt	Tax equity
2	Cash equity	Transferability
3	Transferability	Project-level debt
4	Tax equity	M&A
5	Direct pay	Cash equity
6	M&A	Direct pay

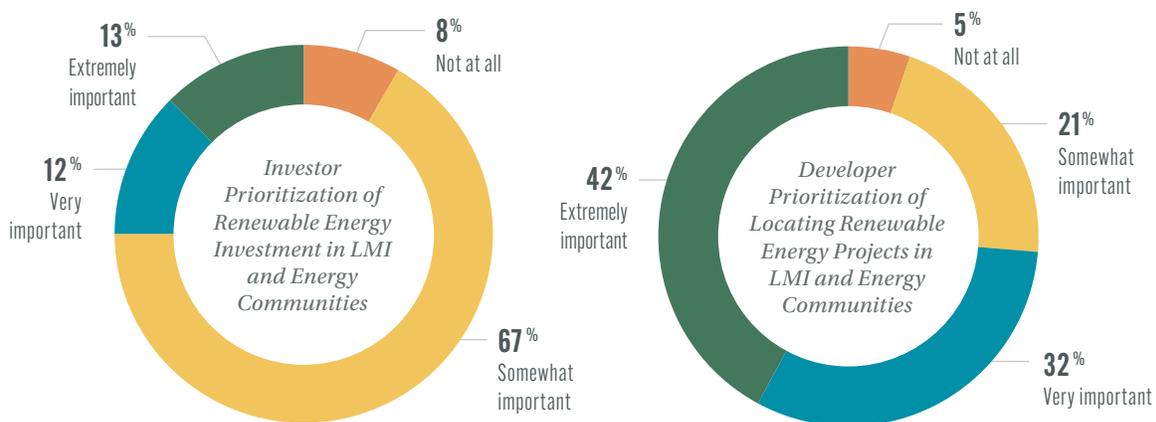
Over 80% of surveyed investors plan to utilize transferability or direct pay. Most investor respondents (61%) report plans to utilize **both** the transferability and direct pay provisions of the IRA. Most respondents think corporations and banks — including existing tax equity investors — will be the most likely entities to purchase transferable tax credits. Others also mentioned insurance companies, equity firms, and oil and gas companies as potential purchasers.

Investors' Plans to Use Transferability or Direct Pay



Investors warn the tax equity market must nearly triple in size to meet heightened demand. Survey participants agree that tax equity will remain an essential part of the capital stack over the next three years and must increase from an \$18-20 billion annual market to over \$50 billion to meet post-IRA demand. New investors must enter the market to increase supply, and existing investors may need to expand their commitments. However, the complexity of tax equity arrangements and looming policy and regulatory challenges could limit the market’s potential.

Over 90% of surveyed investors and developers prioritize low-to-moderate income (LMI) or energy communities (as defined by the IRA) to some extent in their renewable investment or development decisions. Companies cite supportive IRA provisions for low-income and energy communities, other federal and state policies, and internal Environmental, Social, and Governance (ESG) priorities as informing their behavior.



Investors collectively rank utility-scale solar, energy storage, and commercial solar as the top three most attractive clean energy sectors for investment over 2023-2026. Investors also selected these technologies as most attractive in ACORE’s 2022 surveys, demonstrating continued investor preferences for proven technologies experiencing significant recent growth.

Ranking of Sectors Most Attractive for Investment in 2023-2026



PJM, MISO, ERCOT, and CAISO dominate the top power markets for renewable energy investment and development in 2023-2026. Investors’ and developers’ top preferences for regional power markets also mirror ACORE’s 2022 surveys. In phone interviews, companies cited permitting and grid-related issues as frequent hindrances to investing in and developing renewable projects in specific markets.

Ranking of U.S. Regional Power Markets Most Attractive for Renewable Investment or Deployment in 2023-2026

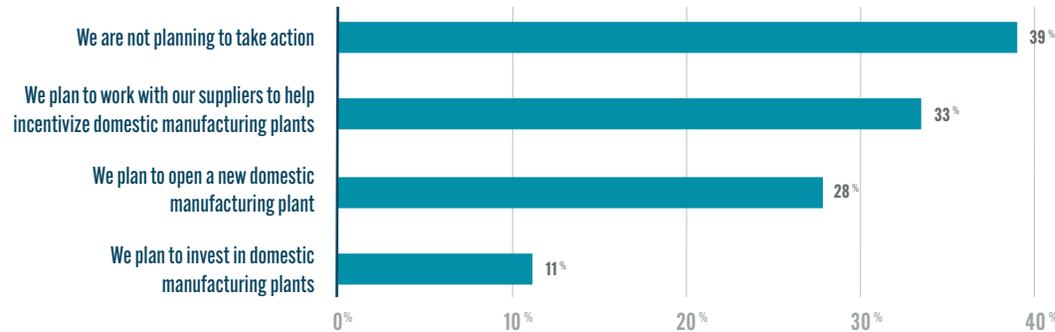
	Investors	Developers
1	PJM	PJM (tie)
2	MISO	ERCOT (tie)
3	CAISO	MISO
4	ERCOT	CAISO
5	ISO-NE	ISO-NE
6	NYISO	SPP
7	Non-RTO West	Non-RTO West
8	SPP	NYISO
9	Non-RTO Southeast	Non-RTO Southeast



Many companies plan to participate in domestic efforts to expand clean energy manufacturing.

More than one-third of investors (38%) report plans to invest in domestic clean energy manufacturing facilities in the U.S. to take advantage of government incentives designed to reduce reliance on imported solar, wind, and energy storage equipment. Twenty-eight percent of developers report plans to open a new manufacturing plant, and 33% plan to incentivize their suppliers to open domestic facilities. Eleven percent of developers intend to invest in domestic manufacturing plants.

Developers' Plans to Participate in Domestic Clean Energy Manufacturing Buildout



Disclaimer: The results of ACORE's surveys reflect only the perceptions of company respondents and should not be used to extrapolate the opinions of all companies in the sector.



ACORE is strategically deploying its resources to promote policy reforms and market drivers that support accelerated renewable energy growth to maximize the impact of the IRA and reduce the effects of sector headwinds. Specifically, we are pursuing the following priorities in 2023:

IRA Implementation

Through active engagement with federal agencies and programmatic initiatives, ACORE promotes a range of policies that maximize the deployment of renewable energy and storage under the IRA and guard against rollbacks by future administrations.

Project Finance

ACORE connects existing investors, non-traditional investors, and policymakers to help expand traditional tax equity and build markets for transferability and direct pay.

Just Transition

ACORE leverages our public and private networks to build opportunities for renewable energy companies owned and operated by women, Black, Indigenous, and people of color leaders while also advocating for national policies and industry best practices to promote social and economic justice as a part of the nation's transition to renewable energy.

Trade Policy

ACORE works to strengthen, shore up, and secure clean energy supply chains through trade and regulatory policy by providing analysis and engaging with federal agencies.

Transmission and Power Markets

ACORE advocates for cost-effective investment in transmission infrastructure through our Macro Grid Initiative, and electricity marketplace reforms to promote greater access to and delivery of renewable resources. ACORE also promotes energy storage and other grid-enabling technologies through policy advocacy, market reforms, and financing solutions.

Siting and Permitting

ACORE works to streamline the backlogs associated with transmission and renewable energy development by supporting federal legislation, power market reforms, and administrative actions.

Sustainable Investing

ACORE works with its members to increase the standardization, transparency, and use of material indicators in sustainability disclosures and standards to attract sustainable and ESG investment to the renewable sector.

Workforce

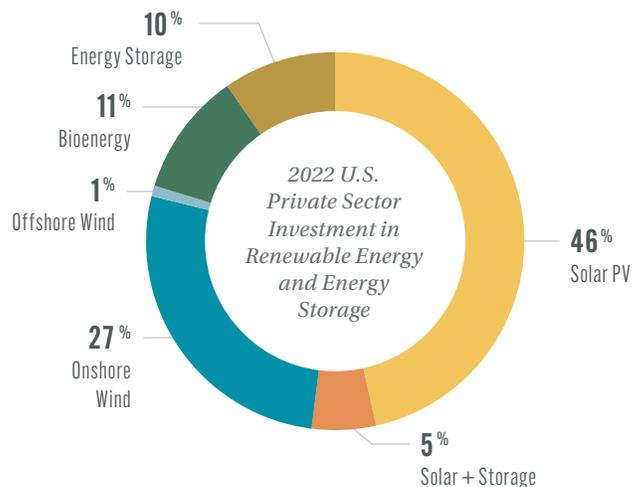
In partnership with our members and industry stakeholders, ACORE identifies opportunities to address labor shortfalls and bolster national efforts to help develop the clean energy workforce.

Introduction

Investment in 2022

U.S. clean energy sector investment has remained robust through an extended period of policy uncertainty and economic challenges, while still falling short of the annual investment needed to achieve the administration’s objective for power sector decarbonization by 2035.¹ In 2022, the U.S. renewable energy and energy storage sectors attracted **\$54.8 billion** in asset finance,² representing a 9% decrease from 2021 as the sector weathered trade investigations, supply chain challenges, and delays extending the federal tax credits.³ Investment in solar photovoltaic (PV) projects decreased by 8%, and total investment in wind projects fell 25%, as offshore wind financings dropped to \$0.5 billion (down from a record \$4 billion in 2021). However, energy storage attracted a record \$5.3 billion, and other renewable energy sources, like bioenergy, increased by 35%.

	\$USD billion
Solar PV	25.5
Solar + Storage	3
Onshore Wind	14.7
Offshore Wind	0.5
Bioenergy	5.8
Energy storage	5.3
Total	54.8



1 ACORE. “Expectations for Renewable Energy Finance in 2022-2025: Progress and Challenges on the Path to Decarbonization”. June 2022. <https://acore.org/wp-content/uploads/2023/01/ACORE-Expectations-for-Renewable-Energy-Finance-2022-2025.pdf>.

2 BloombergNEF. “Investment and Valuation”. Accessed May 22, 2023. <https://www.bnef.com/interactive-datasets/2d5d59acd9000022>

3 SEIA. “Trade and Supply Chain Barriers Delay Impact of Historic Clean Energy Law”. Last modified December 13, 2022. <https://www.seia.org/news/trade-and-supply-chain-barriers-delay-impact-historic-clean-energy-law>

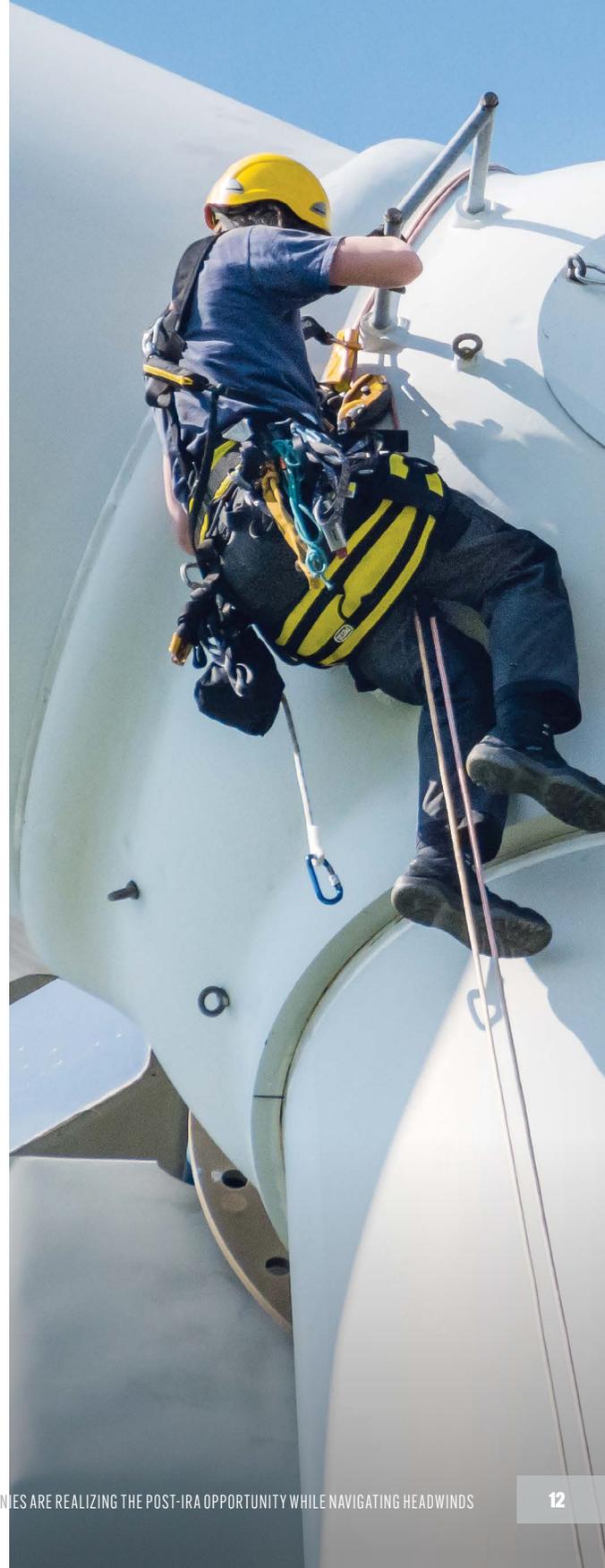
New Drivers for Growth

Looking forward, the clean energy provisions of the Inflation Reduction Act (IRA), enacted in August 2022, will drive unprecedented growth across clean energy technologies through the next decade, further expanding wind and solar and propelling forward emerging markets such as hydrogen and energy storage. Specifically, the IRA dedicates \$369 billion in incentives and support for the clean energy sector through:

- **Long-term tax credits:** The full-value solar investment tax credit (ITC) and wind production tax credit (PTC) are extended until 2025 and will then transition to a tech-neutral ITC or PTC for all zero-carbon generation facilities;
- **New tax credits:** A new ITC for standalone energy storage and new PTC provisions through 2025 for offshore wind, geothermal, hydropower, and clean hydrogen;
- **Bonus credits:** Additional incentives for taxpayers who develop renewable projects in historically fossil fuel-based communities (“energy communities”) and low-to-moderate income (LMI) communities, use domestically manufactured components in renewable projects, and meet the wage and apprenticeship requirements;
- **Transferability and direct pay:** Provisions that will open the market for monetizing tax credits to more investors; and
- **Federal funding initiatives:** Initiatives to fund technological innovation, including grants and loans under the Department of Energy’s Office of Energy Efficiency and Renewable Energy,⁴ the Loan Programs Office, and other offices.⁵

4 U.S. Department of Energy. “EERE Partnerships and Projects”. Accessed May 22, 2023. <https://www.energy.gov/eere/eere-partnerships-and-projects>

5 U.S. Department of Energy. “Loan Programs Office”. Accessed May 22, 2023. <https://www.energy.gov/lpo/loan-programs-office>



The Department of Treasury is issuing guidance regarding the implementation of these clean energy provisions throughout 2023. While timelines and final guidance details remain uncertain as the Treasury interprets these incentives, early analysis forecasts they could spur trillions of dollars in private-sector investment.⁶

Rising clean energy demand from corporations, states, and utilities also continues to fuel new project development. Corporate PPAs increased to a record level of 19.9 gigawatts (GW) in 2022 — up from 17.1 GW the previous year. However, while the average deal size increased, the number of deals and the companies signing the contracts were lower than in 2021.⁷ Due to state demand and utility decarbonization goals, the top five investor-owned utilities generated more than half of their energy mixes from zero-carbon energy sources in 2022.⁸ Connecticut and Minnesota joined the impressive list of states seeking to achieve 100% carbon-free electricity, and Maryland announced a new target to attain economy-wide net-zero emissions by 2045.⁹

While tremendous opportunity awaits, macro trends such as supply chain constraints, trade restrictions, interconnection queue delays, insufficient transmission, tax credit monetization uncertainty, continued inflation, and anti-Environmental, Social, and Governance (ESG) actions threaten to hinder the sector's realization of its potential. This report presents the results of ACORE surveys analyzing how renewable energy investors and developers are responding to these developments in 2023 and their outlooks for sector investment through 2026.

6 Goldman Sachs. "The US is poised for an energy revolution". Last modified April 17, 2023. <https://www.goldmansachs.com/intelligence/pages/the-us-is-poised-for-an-energy-revolution.html>

7 BloombergNEF. "1H 2023 Corporate Energy Market Outlook". Last modified February 9, 2023. <https://www.bnef.com/insights/30725/view>

8 National Public Utilities Council. "Annual Utility Decarbonization Report 2022". Accessed May 22, 2023. <https://decarbonization.visualcapitalist.com/wp-content/uploads/2022/11/NPUC-Annual-Utility-Decarbonization-Report-2022-Sep-22-final.pdf>

9 Clean Energy States Alliance. "Table of 100% Clean Energy States". Accessed May 22, 2023. <https://www.cesa.org/projects/100-clean-energy-collaborative/guide/table-of-100-clean-energy-states/>



2023 Survey Results

Introduction

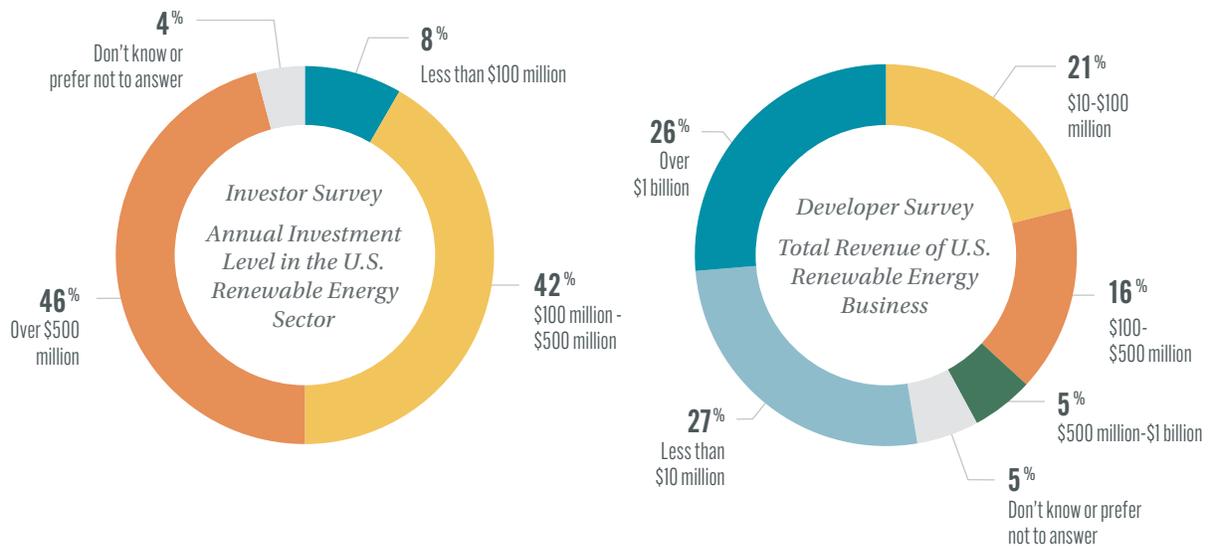
ACORE surveyed the opinions of senior professionals representing companies that actively finance or develop projects in the U.S. renewable energy sector in April 2023. The surveys assess respondents' experiences in the market over the past year and their expectations for project finance and development over the next three years.

This year is the sixth year ACORE has surveyed investors, and the fourth year ACORE has collected responses from developers. The responses outlined in this section reflect the perspectives of representatives from 43 companies. **A complete profile of survey respondents appears in the Appendix.**

- Ninety percent of the investor respondents invest \$100 million or more annually in the U.S. renewable energy sector.
- Nearly half of the developer respondents operate U.S. renewable energy businesses with total revenues of \$100 million or more.
- The majority of respondents occupy a senior role at their companies as a CEO, President, Managing Director, Partner, or similar title.

Survey results reflect how the IRA is already influencing deal activity and expanding company plans in 2023. However, grid-related constraints, supply chain challenges, trade restrictions, tax credit monetization uncertainties, anti-ESG actions, and inflation are hindering the rate of sector growth. Project financing, in particular, will be constrained over the mid-term as it faces unprecedented demand from developers. Survey respondents share their observations on the roles of different financing sources in the market over the next three years, the companies likely to engage in transferable tax credits, and methods to expand the traditional tax equity market.





Near-Term Outlook

All surveyed developers and most investors plan to increase their U.S. renewable energy sector activity in 2023 compared to 2022. No companies plan to decrease their activity.

Eighty-four percent of investors plan to **increase** their renewable energy investment by **5% or more** in 2023 compared to their investment levels in 2022, and only 4% of investors express **uncertainty**, down from 16% last year. Notably, 82% of the companies that invest \$500 million or more annually intend to **increase** their investment by **5% or more**.

The renewable energy provisions in the IRA have already increased deal activity and demand for financing, particularly tax equity. Investors cite the long-term tax credit extensions, solar PTC, standalone storage ITC, direct pay, and transferability as shaping their investment behavior in 2023.

"[The] solar PTC has opened doors for us to pursue more deal flow than we ordinarily would have done. It burns a fraction of the tax capacity that ITC [does] within a particular year."

- INVESTOR

"The standalone ITC transformed the market for energy storage. We are now in a position to purchase larger battery assets and invest in companies developing battery management software."

- INVESTOR

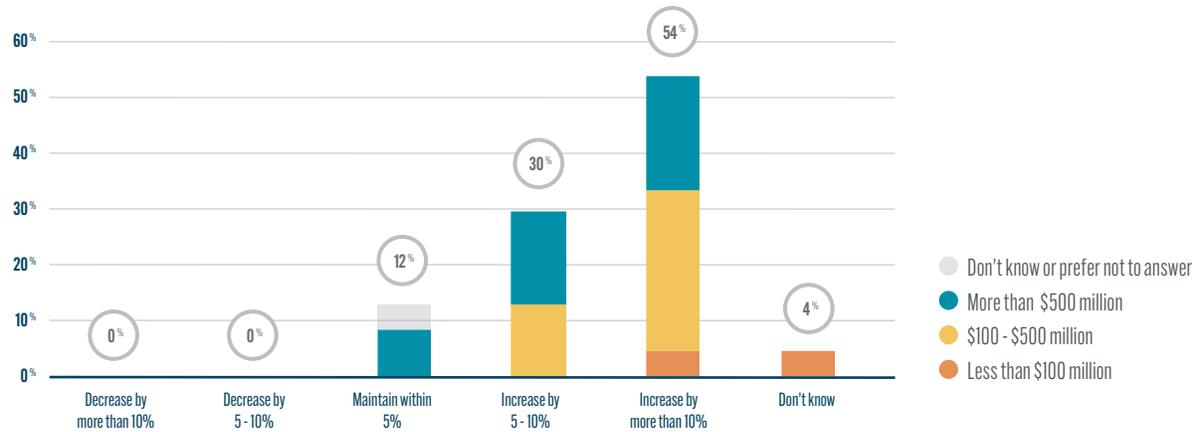
"The IRA is going to... make markets that have not historically been available, available."

- INVESTOR

"Direct pay, transferability, and long-term tax extensions have transformed uneconomic projects into ones with healthier margins and are allowing us to expand our portfolio."

- INVESTOR

How Investors Plan to Change Their Renewable Energy Investment in 2023 Compared to 2022, by Annual U.S. Sector Investment



All surveyed developers report plans to **moderately** or **significantly increase** their development activity in 2023 compared to 2022.

"[The IRA] gives us more confidence in the U.S. in the long-term."

- DEVELOPER

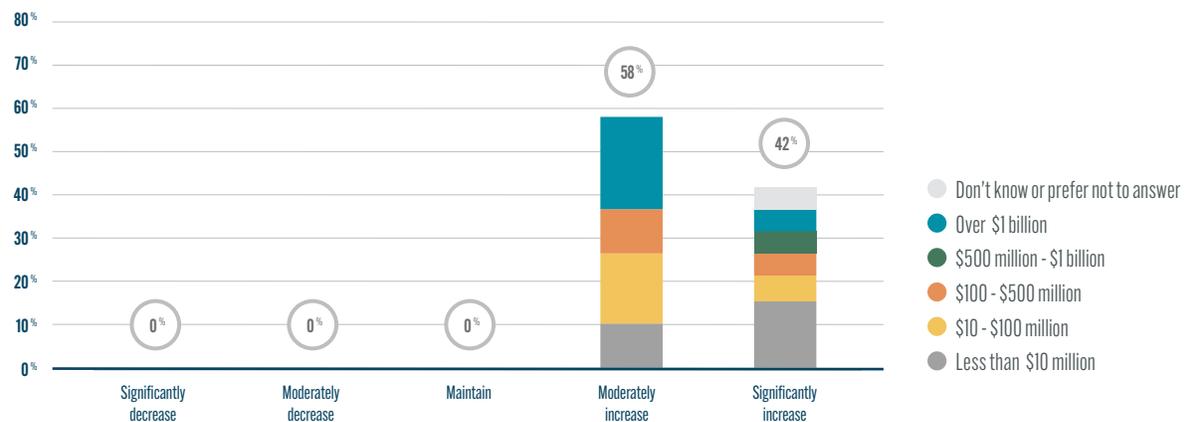
"We expect our project pipeline to continue to grow."

- DEVELOPER

"2H 2021 and 2022 were full of equipment delays. In 2023, we're finally catching up and deploying megawatts that were planned for 2022."

- DEVELOPER

How Developers Plan to Change Their Renewable Energy Development in 2023 Compared to 2022, by Total Revenue of U.S. Renewable Energy Business



One-third of developer respondents have reduced their risk profiles in 2023 compared to 2022 because of supply chain issues, grid constraints, and other headwinds. Conversely, larger developers and many investors are willing to take on increased risks.

Thirty-nine percent of surveyed investors report a **moderate increase** in their risk profile this year compared to last year, while 52% report **no change**. Notably, 55% of the companies that invest \$500 million or more annually in the U.S. renewable energy sector report an **increase** in risk profile, while no companies in this category report a **decrease**.

Investors with enhanced risk profiles cite the IRA and the increased certainty in the U.S. renewables sector. As a result, some investors say they are now more willing to invest in earlier-stage projects and take on more opportunities.

Investors comment that headwinds such as supply chain constraints, trade restrictions, interconnection queue delays, and insufficient transmission capacity create significant risk challenges. These challenges can lead to delays in deal flow, longer lead times, and increased project costs. However, the effects of these factors on investors' risk profiles are varied.

"We have been focusing more on earlier-stage investments, and I expect that to be the case going forward."

- INVESTOR

"I'm taking on more opportunity because the ITC can cover 50% or 60% of a deal."

- INVESTOR

"[Headwinds are causing a] delay in deal closings, [but] no change in appetite."

- INVESTOR

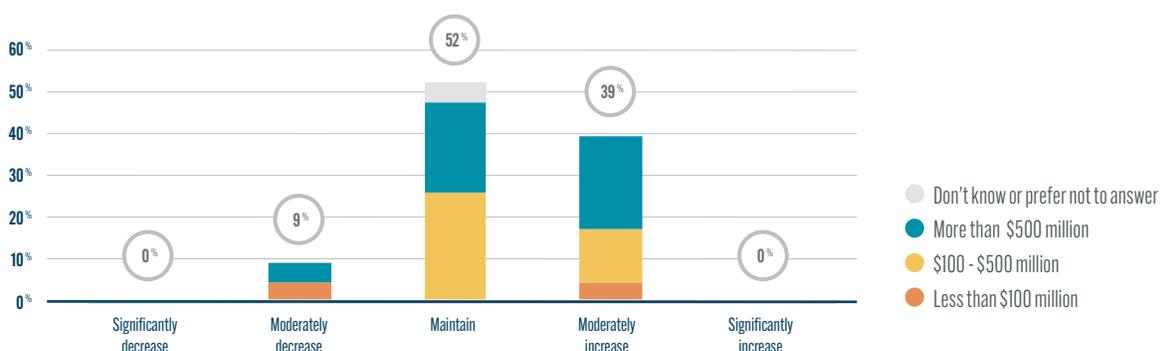
"We're focusing more on operational projects with limited supply chain risks."

- INVESTOR

"We have no change in plans right now, but that can change fast depending on market conditions."

- INVESTOR

Change in Investor Risk Profiles in 2023 Compared to 2022, by Annual Investment



Forty-two percent of developers report a **moderate to significant increase** in their risk profile compared to last year, but 32% say their risk profile has **moderately decreased**. However, among larger companies that operate U.S. renewable energy businesses with revenues of \$500 million or greater, 83% report their risk profile has moderately to **significantly increased** compared to last year, while no developers in this category report a **decrease**.

Developers also cite similar sector headwinds as creating development challenges and affecting their appetites for risk.

“Future trade restrictions on Chinese or Southeast Asian products will be very challenging. Inverters now are becoming quite constrained, and chips are in a supply chain crunch.”

- DEVELOPER

“Supply chain issues (primarily tariff and other trade restrictions in the solar supply chain) and interconnection queues are our two biggest challenges, followed by the absence of much-needed transmission upgrades to existing systems; and new transmission build-out”

- DEVELOPER

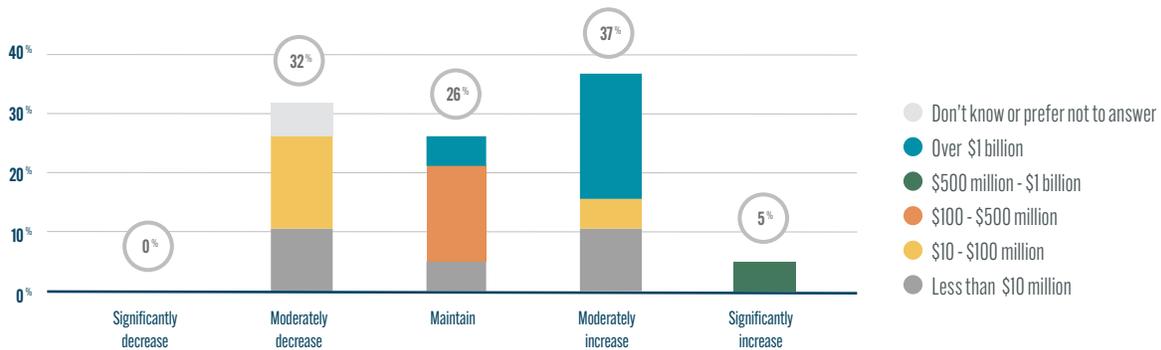
“Our risk profile has stayed relatively the same. There have been risk increases due to supply chain constraints and inflation, but risk decreases due to the certainty provided in the IRA and subsequent guidance released on tax credits.”

- DEVELOPER

“The appetite is there, and well-funded sponsors can get access to whatever they need. Queue delays are a huge issue now, although I think they’re shaking out.”

- DEVELOPER

Change in Developer Risk Profiles in 2023 Compared to 2022, by Total Revenue



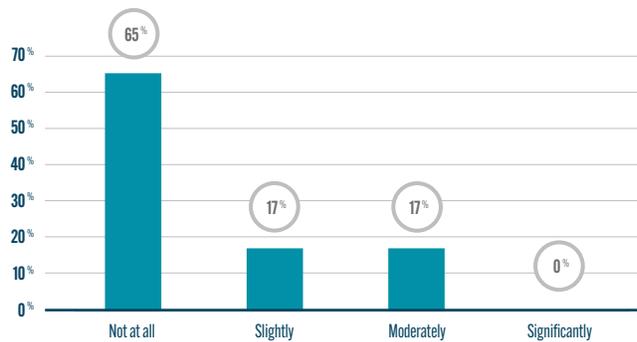
Recent attempts to limit ESG investment have affected one-third of investors and developers.

Thirty-four percent of investors report that recent legislation and other state-level political actions taken against ESG investment have **negatively** affected their investment plans in the renewable sector. Those negatively affected comment that anti-ESG political sentiment can limit the variety of partners their companies can attract.

“[Anti-ESG political action] limits the partners we can attract due to politicizing the issue.”

- INVESTOR

Negative Effect of Anti-ESG Political Actions on Investors' Plans in the U.S. Renewables Sector

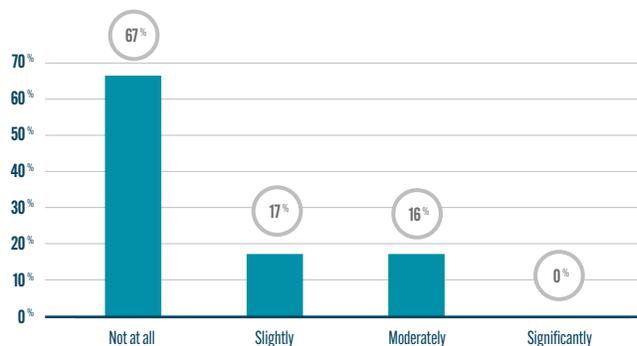


Thirty-three percent of developers believe that anti-ESG political actions have a **slight** or **moderate negative** effect on their ability to attract investment. One developer, from a tribal nation, reports that due to already limited investment options, anti-ESG political activities can have a notably negative impact.

“Funding in tribal nations has never been at this level, so limitations [in ESG investment] would have a direct negative effect.”

- DEVELOPER

Negative Effect of Anti-ESG Political Actions on Developers' Abilities to Attract Investment



While most surveyed companies observe increases or no change in the availabilities of different financing sources this year, more than one-third of respondents expect a decrease in tax equity accessibility.

ACORE asked investors to report on their observations of the market’s availability of project financing sources, and developers on their businesses’ experiences attracting those sources, in 2023 compared to 2022.

Tax equity has the widest split in investor responses, with an even number of responses reporting an **increase** or a **decrease** in availability since last year. Notably, of the surveyed investors who specifically invest in tax equity, 45% expect an **increase** in tax equity this year, while 36% report a **decrease**. Those who report a reduction cite the still-unreleased Treasury guidance on specific tax-related provisions of the IRA as causing a slowdown.

While 39% of developers observe **no change** in the availability of tax equity this year, one-third of respondents expect a **decrease** — expecting a sharp rise in demand for tax equity without additional supply. Meanwhile, more than half the developers report **increased** mergers and acquisitions (M&A).

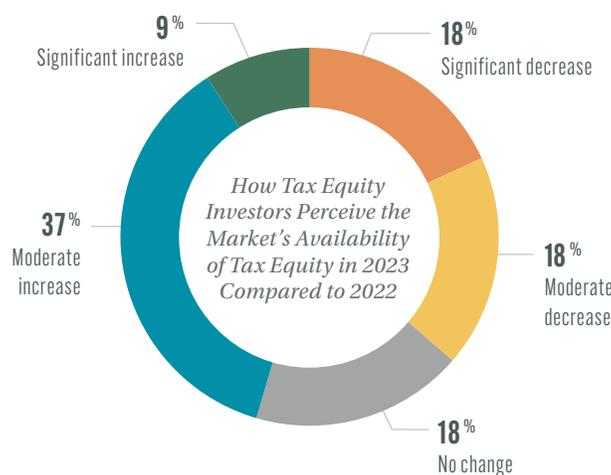
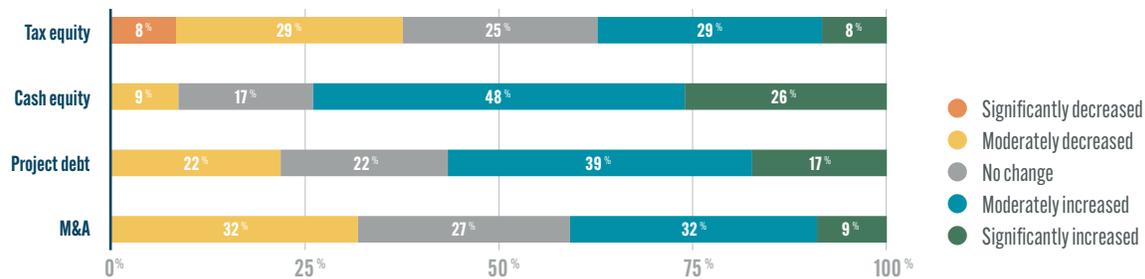
“Tax equity supply is about the same, but demand for tax equity is rising significantly.”

- DEVELOPER

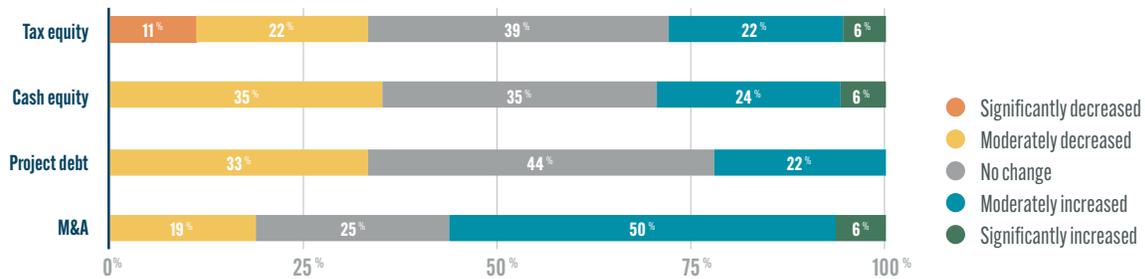
“There was a peak in M&A last year that was more willing to take risk.”

- DEVELOPER

Change in the Availability of Project Finance in 2023 Compared to 2022 for Investors



Change in the Availability of Project Finance in 2023 Compared to 2022 for Developers



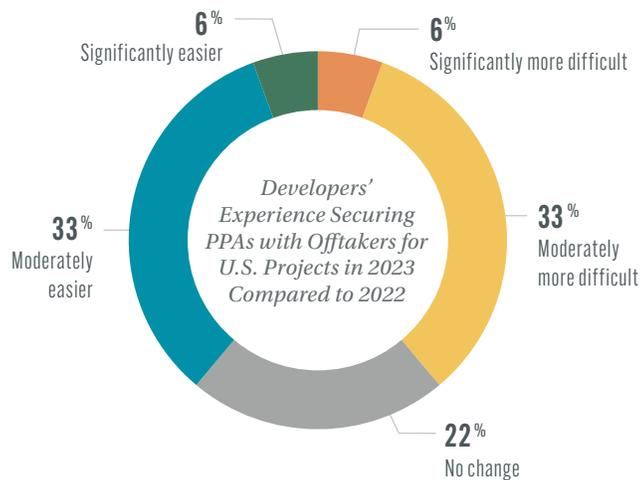
Many developers also cite difficulties in attracting offtakers for their projects. Thirty-nine percent report securing PPAs with offtakers has become **moderately** or **significantly more difficult** over the past year, while an equal percentage report that securing PPAs has become **easier**.

“Depending on which state you’re in, it’s harder to find sleeved PPAs right now.”

- DEVELOPER

“Inflation and trade created challenging dynamics in 2022. The concerns of more of the same are carrying over into negotiations and buyer’s timing of procurement.”

- DEVELOPER



Over 90% of surveyed investors and developers prioritize LMI or energy communities to some extent in their renewable investment or development decisions.

Most investors (92%) consider investing in low-to-moderate income (LMI) or “energy communities” (as defined by the IRA) to some extent in their decision-making. The most significant portion of investor respondents reports that LMI and energy community investing is **somewhat important** (67%). Investors cite supportive IRA provisions for low-income and energy communities, other federal and state policies, and internal ESG priorities as informing their behavior.

“We realize that it is important to direct investment to LMI communities because they are the most vulnerable to the impacts of climate change. The IRA also [provides] financial incentives to do so. We recently invested in a community solar company developing projects in the Southeast and expect to pursue similar opportunities, with an emphasis on the residential solar space.”

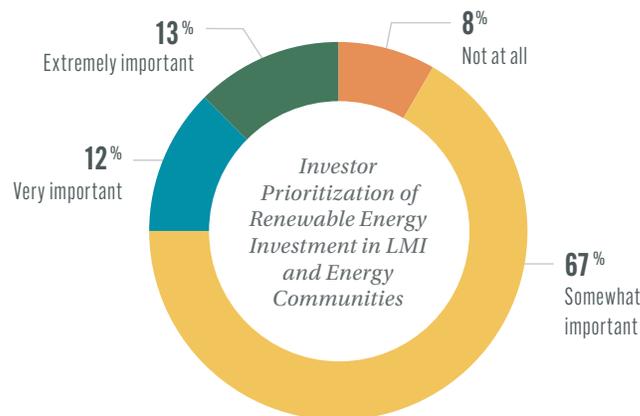
- INVESTOR

“We’ve done a couple of renewable energy transactions that received Community Reinvestment Act (CRA) credit. Our operating footprint is mostly along the eastern seaboard. If a project in that area happens to fit, it can get CRA credits... but it’s not the driving force behind [pursuing the transaction].”

- INVESTOR

“We launched a solar school...on the west side of Chicago - one of the most dangerous neighborhoods in the country. We’re going to invest in the community, so those people get the jobs [opened up due to the IRA], and they get to participate in the [energy] transition.”

- INVESTOR



Most developers (95%) consider developing projects in LMI or energy communities to some extent in their decision-making. Forty-two percent of respondents consider siting projects in these communities to be **extremely important**.

“Generational job creation and education, home finance, and support businesses are critical for us to consider for local development [in an LMI community] to build an economic base that currently doesn’t exist.”

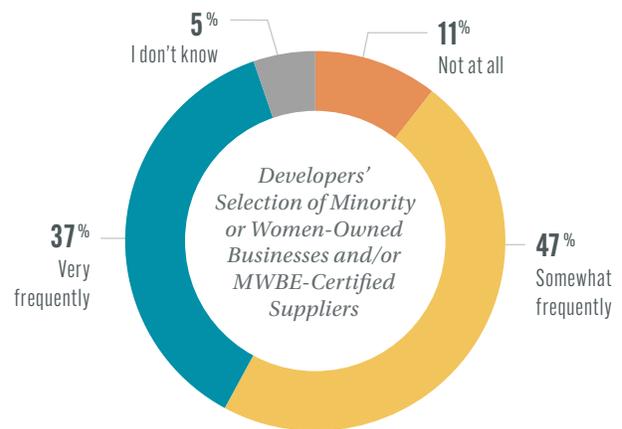
- DEVELOPER

“There are ample opportunities for development in energy communities that provide a significant competitive and pricing advantage to projects located in these communities that can take advantage of the [IRA] tax credit adders.”

- DEVELOPER

Developers report they consider diverse businesses in their supply chain selection behavior.

The majority of developers (84%) **consider** the inclusion of minority or women-owned business enterprises (MWBEs) to some extent when selecting suppliers. However, 11% report **not considering** MWBEs during their supplier selection process, and 5% report being **unsure** of their company's strategy regarding MWBE supplier selection.



Mid-Term Outlook

Investors unanimously expect the U.S. to increase in attractiveness for renewable energy investment in 2023-2026 compared to other countries.

For the first time in the six years ACORE has conducted surveys, 100% of surveyed investors report they perceive the attractiveness of the U.S. to **increase** as a venue for renewable energy investment over the next three years compared with other leading countries. Forty-six percent expect a **moderate increase**, and 54% expect a **significant increase** in U.S. attractiveness.

“[There are] more opportunities in the U.S. than other parts of the world at more attractive risk-adjusted returns.”

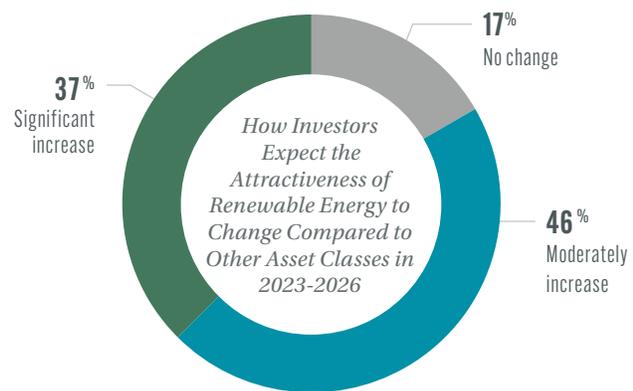
- INVESTOR



Percentage of Investors that Perceive the U.S. to Increase in Attractiveness Compared to Other Leading Countries in 2023-2026

Most investors expect the attractiveness of renewable energy to increase over the next three years compared to other asset classes.

The majority of investors (83%) expect the attractiveness of renewable energy to moderately or significantly **increase** compared to other asset classes in their portfolios in 2023-2026. No investors expect the attractiveness of renewable energy to **decrease**.



Investors collectively rank utility-scale solar, energy storage, and commercial solar as the top three most attractive clean energy sectors for investment over 2023-2026.

Investors also selected these technologies as the most attractive for investments in ACORE's 2022 surveys,¹⁰ demonstrating continued investor preferences for proven technologies experiencing significant recent growth.

Several investors also expressed optimism about the growth of the offshore wind sector as an area of future investment.

"Solar and onshore wind are the main focus areas of our practice. That's because there is an extension of tax credits for those projects. There's more than enough opportunity in just solar and wind to take up all of our tax appetite."

- INVESTOR

"We do not traditionally invest in early-stage pilot technologies."

- INVESTOR

"Offshore wind is a technology that we are highly interested in [because] projects have the potential to exceed the combined value of our other assets. We would like to target segments of the offshore wind supply chain, such as port vessels."

- INVESTOR

Ranking of Sectors Most Attractive for Investment in 2023-2026



PJM, MISO, ERCOT, and CAISO dominate the top power markets for renewable energy investment and development in 2023-2026.

Investors' and developers' top preferences for regional power markets also mirror ACORE's 2022 surveys. Companies cite permitting and grid-related issues as frequent hindrances to investing in and developing renewable projects in specific markets.

Ranking of U.S. Regional Power Markets Most Attractive for Renewable Investment or Deployment in 2023-2026

	Investors	Developers
1	PJM	PJM (tie)
2	MISO	ERCOT (tie)
3	CAISO	MISO
4	ERCOT	CAISO
5	ISO-NE	ISO-NE
6	NYISO	SPP
7	Non-RTO West	Non-RTO West
8	SPP	NYISO
9	Non-RTO Southeast	Non-RTO Southeast

"[There are] a lack of opportunities due to permitting and interconnection challenges."

- INVESTOR

"Projects are taking longer to deliver due to grid constraints and permitting changing [from] state to state."

- DEVELOPER

¹⁰ ACORE. "Expectations for Renewable Energy Finance in 2022-2025: Progress and Challenges on the Path to Decarbonization". June 2022. <https://acore.org/wp-content/uploads/2023/01/ACORE-Expectations-for-Renewable-Energy-Finance-2022-2025.pdf>.

Many investors and developers plan to participate in domestic efforts to expand clean energy manufacturing.

More than one-third of investors (38%) report plans to invest in domestic clean energy manufacturing facilities in the U.S. to take advantage of government incentives designed to reduce reliance on imported solar, wind, and energy storage equipment.

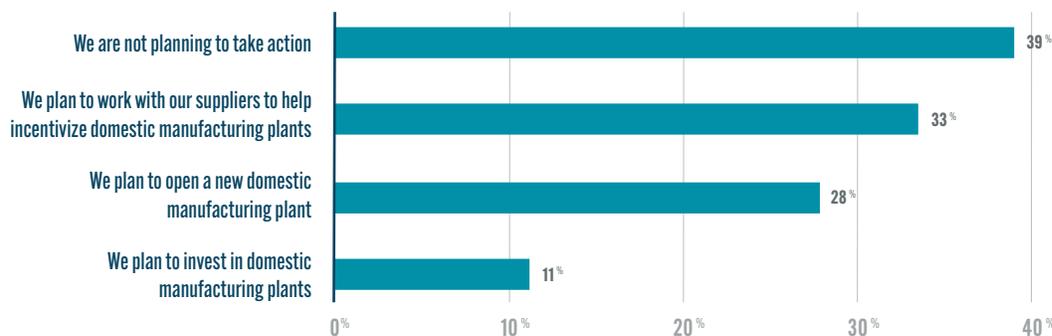
“There will be a number of opportunities in the onshoring of manufacturing, particularly around [storage] battery plants and wind energy manufacturing and assembly facilities.”

- INVESTOR



Twenty-eight percent of developers report plans to open a new manufacturing plant, and 33% plan to incentivize their suppliers to open domestic facilities. Eleven percent of developers intend to invest in domestic manufacturing plants.

Developers' Plans to Participate in Domestic Clean Energy Manufacturing Buildout



Outlook for Project Finance

Developers expect tax equity to be the most available financing source over the next three years, while investors rank tax equity in fourth place. Both groups expect transferability to play a sizable role in the market.

Ranking of the Expected Availability of Project Financing Sources in the Market in 2023-2026

	Investors	Developers
1	Project-level debt	Tax equity
2	Cash equity	Transferability
3	Transferability	Project-level debt
4	Tax equity	M&A
5	Direct pay	Cash equity
6	M&A	Direct pay

“Transferability will compete with traditional tax equity. Traditional tax equity cannot fund all the demand, so it is great the IRA has introduced an alternative source of tax equity liquidity.”

- INVESTOR

“While the majority of future deals will be under tax equity, transferability will grow much faster than the traditional tax equity market.”

- INVESTOR

ACORE asked investors and developers to rank the market’s expected availability of different financing sources over the next three years. Investors, on average, anticipate project-level debt and cash equity to be the most available project financing sources in the market in 2023-2026, while developers rank tax equity and transferability as the top financing sources. While investors rank transferability in third place, they rank it one spot higher than tax equity, while both groups see a less significant role for direct pay.

Over 80% of surveyed investors plan to utilize either transferability or direct pay.

Most investor respondents (61%) report plans to utilize **both** the transferability and direct pay provisions of the IRA. Twenty-two percent of investors plan to use transferability only, and only 17% do not intend to use either option.

Investors’ Plans to Use Transferability or Direct Pay



“We will probably [use] both transferability and direct pay depending on the nature of the investment. You need to have enough cash to support a higher ITC, depending on the structure. When there’s not as much cash, you might use transferability.”

- DEVELOPER

Most respondents think corporations and banks — including existing tax equity investors — will be the most likely entities to purchase transferable tax credits. Others also mentioned insurance companies, equity firms, and oil and gas companies as possible purchasers.

While companies are preparing deals worth billions of dollars to be traded for transferability, those deals will likely remain on the sidelines until Treasury guidance is released. Investors express concern that transferring tax credits could pass on risks to the transferee, which could limit the pool of tax credit buyers.

Investors warn the tax equity market must nearly triple in size to meet heightened demand.

Survey participants agree that tax equity will remain an essential part of the capital stack over the next three years and must increase from an \$18-20 billion annual market to over **\$50 billion** to meet post-IRA demand. New investors must enter the market to increase supply, and existing investors may need to expand their commitments. However, the complexity of tax equity arrangements and looming policy and regulatory challenges could limit the market's potential.

Surveyed companies describe the administrative process of undergoing tax equity transactions as a complex, slow and bureaucratic process that increases barriers to entry into the sector. Some investors are calling for the government to make a concerted effort to bring more banks, insurance companies, and other potential tax equity investors into the sector. Furthermore, the tax equity process could also be made more accessible by making documents and information about the process more accessible to potential new investors.

Investors recommend regulatory and accounting changes to help expand tax equity investment.

Additionally, Basel III implementation and the Organisation for Economic Co-operation and Development (OECD's) Pillar Two tax could dampen the participation of existing tax equity investors in the sector. Under the current U.S. implementation of Basel III bank regulatory capital rules, renewable energy tax equity investments attract punitive risk weights and capital requirements if a bank breaches the Equity Materiality Threshold (EMT) for its equity investments. Public Welfare Investments (PWI), such as investments in Low-Income Housing Tax Credits, are exempt from the heightened risk weights, and investors are urging federal agencies to designate renewable energy as a PWI.

Another looming issue that may impact banks and multinational companies who invest in tax equity or tax credit transfer is the OECD global anti-base erosion corporate minimum tax, i.e., the "Pillar Two" tax. The global minimum tax only provides a partial exemption for tax credits obtained through partnership

"When a transferee buys the tax credits, the audit of the recapture risk goes to them rather than staying with the project company that created the ITC in the first place. If we could change that so the risk of recapture stayed with the transferor rather than going to the transferee, we would have a larger market."

- INVESTOR

"Significant education is needed for corporate taxpayers... Tax equity investing is a critical activity to enable new green energy."

- INVESTOR

"Tax equity is quite complex, and the whole transaction is quite expensive to structure."

- DEVELOPER

"What if you have a tax appetite for \$200 million [but] you have never done tax? Then it would be valuable for you not to go through some sophisticated process to enter the marketplace. It should be streamlined, and the information decentralized."

- INVESTOR

transactions, and no exemption for tax credits obtained through tax credit transfers. For multinational companies who pay taxes in other OECD countries, if their investments in tax credits reduce their effective tax rate to below 15% in the U.S., they can be assessed a “top-up” tax by other jurisdictions, negating the economic benefit of those credits. This potential issue has caused some companies to consider slowing their investments in the renewable sector. The OECD has issued guidance in 2023 intended to exempt renewable tax equity investments from Pillar Two, but investors are pushing for further guidance to ensure all renewable energy projects will qualify for the exemption.

Another barrier to entry is the passive activity limitations set forth by the Tax Act reforms in 1986. This law effectively limits entities that can invest in tax equity to corporations, excluding other entities with large tax capacities, such as retail investors and individuals.

Investors comment that the Financial Accounting Standards Board (FASB’s) accounting standards update this year to open the proportional amortization method (PAM) of accounting to renewable tax equity investments will reduce accounting complexity for certain projects. Still, they note continued challenges with the Hypothetical Liquidation Book Value (HLBV) method of accounting for ITC investments.

Lastly, surveyed companies acknowledge that potential investors in tax equity and transferability, such as corporates, may seek ESG credit when engaging in the renewable energy sector. It may be challenging to convince corporates who currently purchase renewable energy to obtain RECs and lower their Scope 2 greenhouse gas emissions to shift to financing projects, in which they may not keep the RECs or receive ESG credit.

“The banking sector risk weight for tax equity and Basel III implementation [will constrain the tax equity market].”

- INVESTOR

“What would make a huge difference is removing the passive activity limitations on who can invest in tax equity. If you eliminated the passive loss rules, it would open [the sector] up to retail investors.”

- INVESTOR

“Right now, [tax equity] is just open to corporations. It’s tough for high-net-worth individuals to get active in that market.”

- INVESTOR

“According to PAM rules, only PTC projects qualify, and ITC projects are still going to be stuck in HLBV, so it would be nice if FASB could relax the rules within PAM...to include the ITC.”

- INVESTOR

“Some of the largest taxpayers in the country are only going to make investment decisions that support their ESG goals. It’s [currently] unclear whether buying a tax credit from solar or wind projects counts toward ESG goals. It would be nice if there were a governmental body overseeing what counts toward sustainability goals.”

- INVESTOR

“There needs to be a willingness to accept tax equity as a means to enhance global ESG mandates.”

- INVESTOR

Conclusion

Our findings show expanded participation of companies in the market in 2023, increased optimism in the U.S. market's attractiveness, and appreciation of the long-term policy certainty created by the IRA. However, many of the same market challenges that existed in the renewable energy sector before the IRA's enactment — such as supply chain issues, grid constraints, and uncertainties around monetizing tax credits — continue to affect companies' risk profiles and hinder the sector in ways that make it difficult to realize the full potential of the IRA.

ACORE is strategically deploying its resources to promote policy reforms and market drivers that support accelerated renewable energy growth to maximize the impact of the IRA and reduce the effects of sector headwinds. Specifically, we are pursuing the following priorities in 2023:

IRA Implementation: Through active engagement with federal agencies and programmatic initiatives, ACORE promotes a range of policies that maximize the deployment of renewable energy and storage under the IRA and guard against rollbacks by future administrations.

Project Finance: ACORE connects existing investors, non-traditional investors, and policymakers to help expand traditional tax equity and build markets for transferability and direct pay.

Just Transition: ACORE leverages our public and private networks to build opportunities for renewable energy companies owned and operated by women, Black, Indigenous, and people of color leaders while also advocating for national policies and industry best practices to promote social and economic justice as a part of the nation's transition to renewable energy.

Trade Policy: ACORE works to strengthen, shore up, and secure clean energy supply chains through trade and regulatory policy by providing analysis and engaging with federal agencies.

Transmission and Power Markets: ACORE advocates for cost-effective investment in transmission infrastructure through our Macro Grid Initiative, and electricity marketplace reforms to promote greater access to and delivery of renewable resources. ACORE also promotes energy storage and other grid-enabling technologies through policy advocacy, market reforms, and financing solutions.

Siting and Permitting: ACORE works to streamline the backlogs associated with transmission and renewable energy development by supporting federal legislation, power market reforms, and administrative actions.

Sustainable Investing: ACORE works with its members to increase the standardization, transparency, and use of material indicators in sustainability disclosures and standards to attract sustainable and ESG investment to the renewable sector.

Workforce: In partnership with our members and industry stakeholders, ACORE identifies opportunities to address labor shortfalls and bolster national efforts to help develop the clean energy workforce.

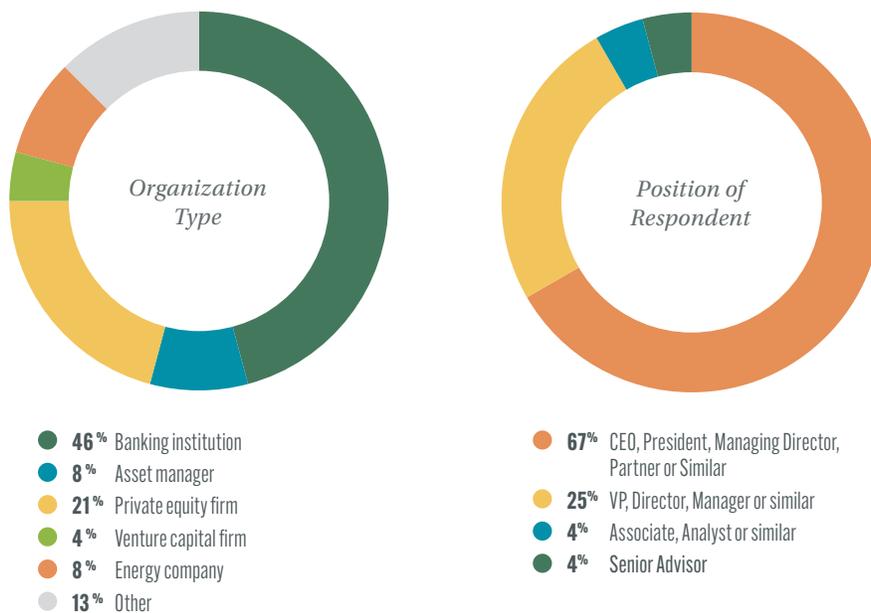
Appendix

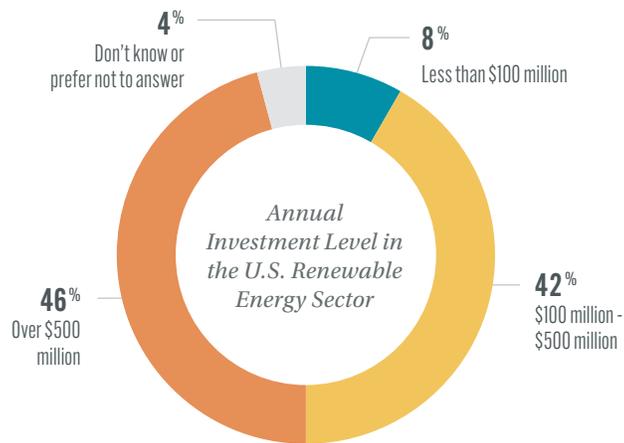
Survey Methodology

ACORE conducted two online, anonymous surveys in April 2023 targeting select professionals from companies active in the U.S. renewable energy sector that: (1) finance, invest in, or financially advise renewable projects, technologies, or companies and (2) actively develop renewable energy projects that third parties finance. Surveyed professionals represent both ACORE member and non-member companies. ACORE compiled the findings of this report via online surveys, phone interviews, and secondary online research. ACORE contacted over 100 financial institutions and more than 100 development companies, surveying 24 investors and 19 developers. Phone interview quotes have been lightly edited for clarity.

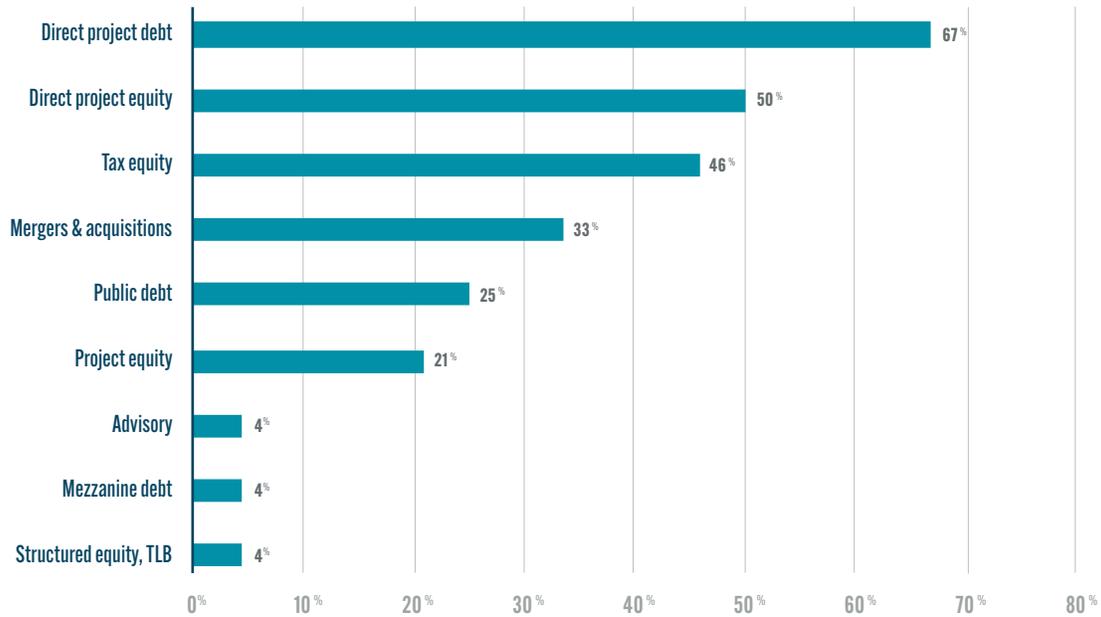
Profile of Respondents

Investor Survey



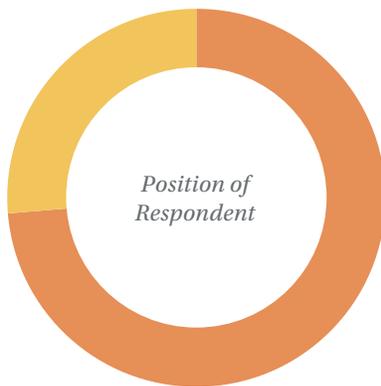
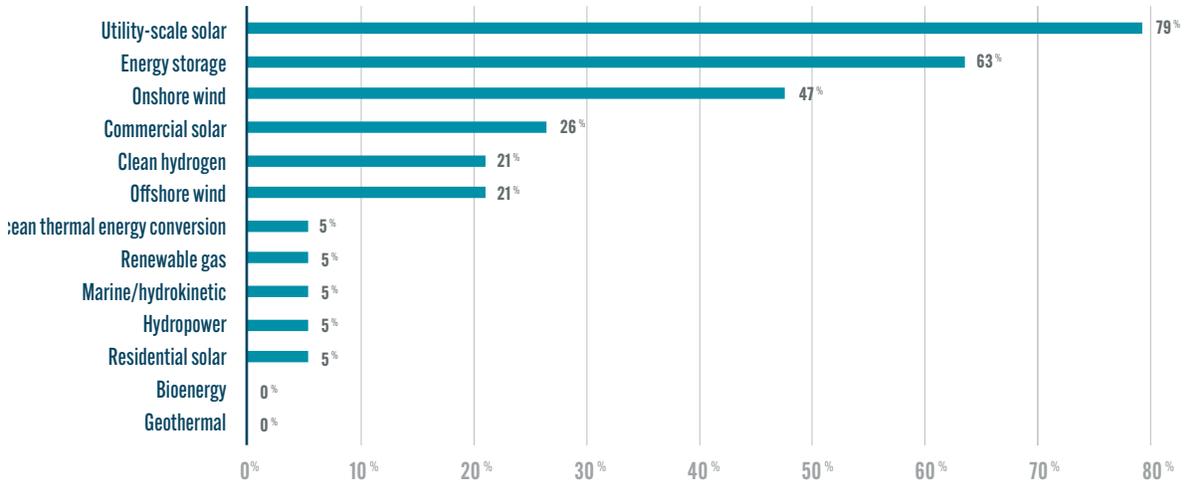


Financing Vehicles Used for Renewable Energy

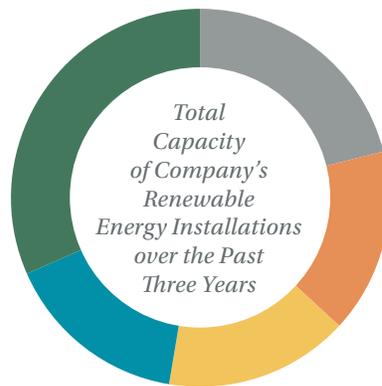


Developer Survey

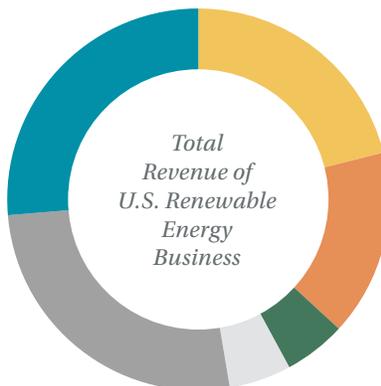
Renewable Energy Technologies Developed by Companies Over the Past Three Years



- 74% CEO, President, Managing Director, Partner or Similar
- 26% VP, Director, Manager or similar



- 21% Less than 50 MW
- 16% 50 MW - 100 MW
- 16% 100 MW - 500 MW
- 16% 500 MW - 1 GW
- 31% Over 1 GW



- 21% \$10-\$100 million
- 16% \$100-\$500 million
- 5% \$500 million-\$1 billion
- 5% Don't know or prefer not to answer
- 27% Less than \$10 million
- 26% Over \$1 billion

Acknowledgments and About ACORE

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About ACORE

The American Council on Renewable Energy is a national nonprofit organization that unites finance, policy, and technology to accelerate the transition to a renewable energy economy. For more information, please visit www.acore.org.

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