2023 Energy Transition Outlook

Dustin Stolz

440 Cobia Dr • Ste 1704 • Houston • TX 77494 • (281) 506-8234
www.adi-analytics.com • info@adi-analytics.com

2023 Energy Transition Outlook: A transformative year

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The energy transition continued to move full steam ahead in 2022 with passage of the Inflation Reduction Act (IRA) in August 2022 kicking it into full gear. This monumental legislation supplemented the previous Infrastructure, Investments and Jobs Act (IIJA), passed in 2021 and provided unprecedented funding to clean energy and climate initiatives. These incentives include billions for wind, solar, carbon capture utilization and storage (CCUS), hydrogen, electric-vehicles, and more.

Beyond policy and investments pushing the energy transition forward, Russia's invasion of Ukraine in 2022 caused heightened attention on energy security, particularly for Europe. Following the invasion, global energy markets were thrown into turmoil and Europe was, and continues to be, confronted with a serious energy crisis. Through the use of increased LNG imports and the return of coal as a fuel source, Europe restocked its gas reserves and survived without Russian natural gas. However, as a result, we see a stronger push in Europe for increased renewable energy projects to develop sustainable and secure energy. In fact, investment in renewable energy surpassed investment in oil & gas for the first time in 2022.

The news has not all been positive and tightening economic policy, rampant inflation, and supply chain shortages are some headwinds for energy transition. Given this background here is what the team at ADI Analytics expects for the energy transition (we exclude hydrogen here, which we cover in its own outlook) in 2023 and beyond.

Renewable energy investments will continue outpacing oil & gas investments as budgets remain below pre-pandemic levels

Renewable energy will continue to see high investment and outpace oil and gas

For the first time ever, in 2022 we saw capital investments in in renewables (wind and solar) exceed that of investments in oil & gas, with investments totaling $494 billion versus $446 billion, respectively. The IEA reports that record clean energy investment in 2022 would exceed $1.4 trillion and account for nearly 75% of the growth in energy investments. Given the advances in clean energy policy, the energy crisis, and that this spend is not considered high enough for the energy transition, 2023 and beyond are likely to see

record investments into renewables and clean energy. Moreover, given that many oil and gas budgets remain below their pre-pandemic highs, despite higher commodity prices, investments in renewable energy projects are likely to outpace fossil fuels for some time.

Policy support for the energy transition in the U.S. will slow and might find itself in conflict with new European policies

EU lawmakers will seek to counteract some of the negative effects of the IRA on European companies

A divided U.S. Congress may slow new energy transition policies like the IIJA and IRA for at least two years. Across the Atlantic, European lawmakers are not thrilled with the IRA and are will likely seek to advance legislation to counteract aspects of the IRA that discriminate against European firms. Europe is likely to work towards their own version of the IRA that supports their domestic renewable and EV industries. One potential response is through the form of net zero enterprise zone tax breaks. In December, European Commission President Ursula von der Leyen called on European leaders to "boost European public investment to accelerate the energy transition", and there are fears that the IRA's American-made policies will become the standard for climate policy, leaving European firms behind. While not all leaders are on board in Europe, we are likely to see some advancement in policy for European energy transition investment.

Fossil fuels will be less at odds with the energy transition, at least temporarily

The energy crisis forced law makers to accept, at least temporarily, that fossil fuels are necessary for energy security

The global energy crisis sparked by the Russio-Ukranian war sent the world scrambling for access to energy from any source necessary. We saw reactivation of shuttered coal plants, new coal mines permitted in U.K., countries burning oil for energy, and massive imports of LNG into Europe. This energy crisis has reiterated that all energy is good energy and forced policymakers to, at least temporarily, accept an "all of the above approach" to energy supply and security that will likely persist through 2023.

While fossil fuel suppliers are likely to remain at odds with policymakers; the growing energy needs of the world shows that fossil fuels must and will remain part of the energy mix to ensure energy security, and policymakers will need to keep that in mind. Going forward, we will see fossil fuel companies focused on carbon

capture and eliminating fugitive emissions as they attempt to decarbonize their industry.

Renewable energy projects will see better returns due to higher energy costs

The war in Ukraine threw Europe into an energy crisis that saw energy prices skyrocket. Electricity prices peaked in August, exceeding €500 per MWh in some areas. Prices have since retreated, with maximum prices floating between €200 and €300 per MWh, still far above historical highs of less than €80 per MWh. As Europe mulls price caps on both gas and electricity significantly above their historical norms, it is apparent that these high prices will remain for some time. As such, the economic return on renewable projects like solar and wind will significantly improve and drive new investment in them going forward.

Global battery demand is projected grow by nearly 10x, and the share of North American battery manufacturing is projected to double

Electrification will drive investments in battery technology and supply chains

Advancements of battery technology and the buildout of battery supply chains will be a major theme of 2023 and beyond. Through 2030, global battery demand is projected to grow by nearly 10x, and the North American market share of battery manufacturing is projected to double. This growth has significant implications for critical mineral supplies as well as battery manufacturing. Massive investments of public and private dollars are being spent on advancing battery technology, building battery supply chains, and sourcing critical minerals necessary for the energy transition. Moreover, the rising demand for non-Russian sourced energy in Europe is likely to result in faster growth in renewables, and in-turn, grid-scale battery storage.

The battery industry, however, faces some headwinds. Inflationary pressures over the last year caused the prices for lithium-ion batteries to increase for the first time ever. Critical mineral shortages are likely to keep pressure on prices in the short term, although in the long-term, prices are likely to decrease. These higher costs may slow the adoption of electrification in some applications.

The electric vehicle market will see significant growth

Policy changes have drastically changed the U.S. EV market outlook

The electric vehicle market in the U.S. is set to have significant growth due to passage of the IRA and revised fuel-economy regulations. This IRA revamped the EV tax credit to $7,500 for new light-duty EV purchases, $4,000 for used EVs, and $40,000 for heavy-duty commercial EVs. Due to these changes, the U.S. EV market outlook has drastically changed over the last year. Estimates are that the U.S. EV fleet will be 20% larger by 2030 than previously forecast. Currently, EV markets in parts of Europe exceed 20% while the U.S. remains below 7%. The coming year should be a big year for EV adoption in the U.S., and these policies are likely to counteract some of the headwinds produced by higher lithium-ion battery prices.

More homes will integrate energy storage systems (ESS) for energy security

Rising energy prices and growing concerns around grid infrastructure will lead to more residential adoption of solar and ESS. These systems will not only allow consumers to store energy produced from their own solar panels, but they also provide a bank of energy supplied from the grid that can be utilized at times of grid failure. At least one EV company currently provides ESS, while two others are considering offering residential ESS. As EV penetration increases, residential ESS also provides a secondary-use for end-of-life EV batteries.

CCUS will move from announcements to implementation and the industry will begin to see M&A activity

As more states take primacy for Class VI wells, we are likely to see more of these projects implemented at a quicker pace.

The IRA was a major boon to the CCUS industry through the boosting of 45Q credits to levels the industry views as economical and making the credits available through direct pay (allowing the value of credit to be claimed through a tax refund as if it were an overpayment of taxes), which many have considered a fundamental piece to garner investments in CCUS. Due these changes, the CCUS industry ramped up in 2022, and 2023 will see a lot of projects move from announcement to action. As more states seek to take primacy

for Class VI wells, we are likely to see more of these projects implemented at a quicker pace in the coming years.

CCUS is becoming more prominent outside the U.S. as well. Policies supporting CCUS are being finalized in Malaysia and Indonesia while Japan and China are expected to continue developing their CCUS framework. In Singapore, a consortium was formed between Air Liquide, Chevron, Keppel Infrastructure, and PetroChina to explore CCUS there.

As these projects move forward, we can expect an increase in M&A activity as companies seek to build first-mover advantages and be near favorable carbon hubs.

We will see significant advances in direct air capture (DAC)

ADI has launched a multi-client study on Direct Air Capture. Join us!

The IRA provided $3.5 billion in funding for four regional DAC hubs and enhanced the value of DAC 45Q credits that will promote advancement of this industry in 2023. The credits are valued at $180 per ton for DAC versus $85 per ton for industrial carbon dioxide, incentivizing the development and implementation of DAC technology. While no new facilities are expected to come online in 2023, we expect to see more announcements for new and expanding facilities as well as notable advances in DAC technology.

Carbon markets will continue to grow and become more regulated

The value of the voluntary carbon market has quadrupled since 2020

Throughout 2022, we saw announcements regarding further regulation of net-zero claims and the carbon markets. The U.S. Federal Trade Commission (FTC) is looking at “Green Guides” for use with environmental marketing claims, the U.S. Securities and Exchange Commission (SEC) is looking into rules to improve climate-related disclosures to investors, and one of the outcomes of COP 27 is greater scrutiny of the carbon markets and greenwashing. We expect these and more regulations to develop as more companies continue to make climate and ESG related pledges and as we move closer to some 2030 climate targets.

Even with these regulations, we see strong growth of the carbon markets in the long term. The value of the voluntary carbon market

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has quadrupled since 2020 and is now worth more than $2 billion. Some are calling for 10-20x growth by 2030. Inflationary pressures and recessionary fears kept prices in 2022 volatile but relatively flat year-over-year for compliance markets, while voluntary markets were suppressed, except for REDD+ credits. In 2023, we expect economic conditions to keep prices subdued while the overall size of the market continues to grow.

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ADI will continue to track energy transition markets globally through research, consulting, and analytics. Please contact us to learn more and discuss how we can be of help.