

## The Inflation Reduction Act: Year One Review

WHITEPAPER

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### Highlights

The Inflation Reduction Act of 2022 (“IRA”) passed its one-year anniversary in August 2023. In this paper, we review the Act, the results from year one, its potential implications, the opportunities for US investors, and where bottlenecks may lie.

- The IRA marks the most significant action the US government has taken on clean energy and climate change in US history.
- The IRA provides incentives for clean-energy manufacturing and production within the US.
- Estimates of IRA-related spending and private sector investment have increased substantially since its initial announcement.
- By one estimate, IRA investments are projected over the next 10 years to add an average of 912,000 jobs per year through combined annual public and private investments of an estimated total of \$98 billion.<sup>1</sup>
- The IRA prompted some governments abroad to increase their clean energy stimulus programs.
- There are likely to be compelling investment opportunities arising from the IRA’s provisions.
- Many potential risks exist that could slow implementation of the IRA and negatively affect investment risk-adjusted returns.

### CONTRIBUTORS

Sarah Bernstein, PhD

Sabina Panthi, CFA

Lauren Giordano

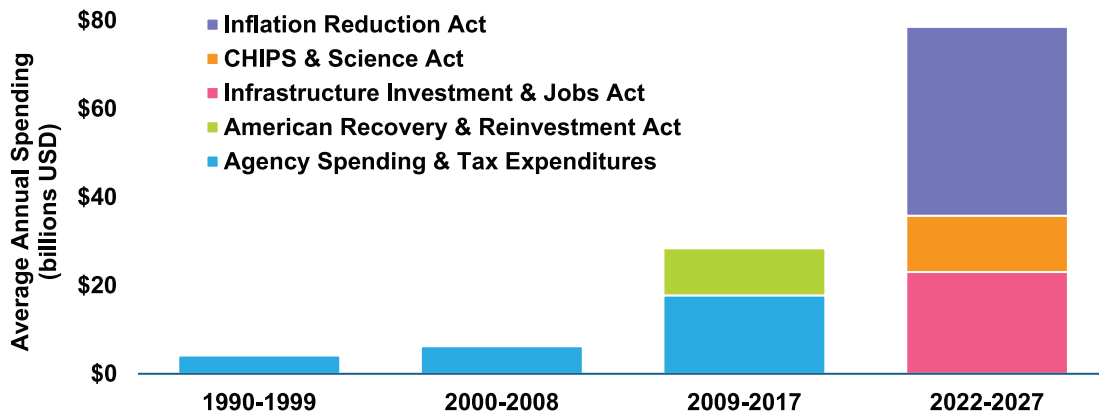
<sup>1</sup> Source: Political Economy Research Institute of UMass Amherst, “Job Creation Estimates Through Proposed Inflation Reduction Act,” August 2022.

### What is the Inflation Reduction Act?

The Inflation Reduction Act of 2022 marks the most significant action the US government has taken on clean energy and climate change. The IRA concentrates on providing incentives for clean energy and mitigating climate change across the economy, rather than on disincentives for carbon emissions, such as a carbon tax. A major focus of the bill is incentivizing clean-energy manufacturing and production within the US.

The IRA is the largest investment in reducing and mitigating the effects of climate change in US history (see Figure 1). It was initially estimated to contain \$500 billion in new spending over 10 years. While there are non-climate parts of the IRA, roughly \$394 billion, or 80%, is dedicated to climate and energy provisions across the economy, including the building, industrial, transport, and power sectors.<sup>2</sup>

<sup>2</sup> Source: McKinsey, "The Inflation Reduction Act: Here's what's in it," October 2022.



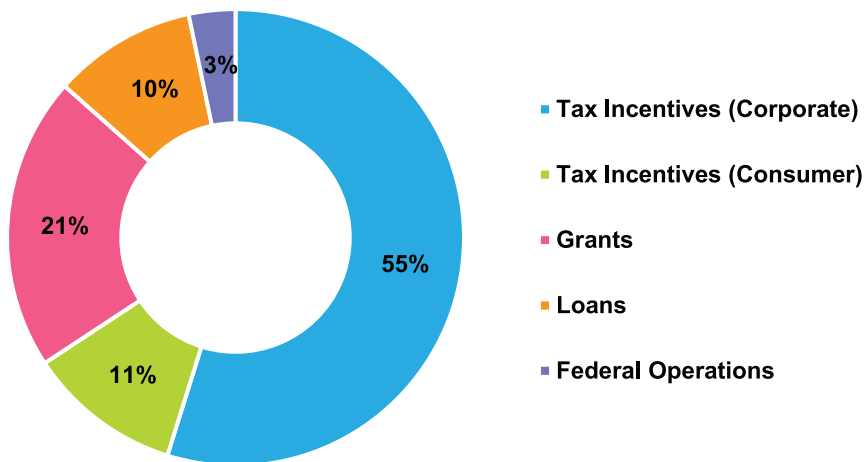
**FIGURE 1**  
Federal Climate Spending

Source: RMI, "Federal Spending 1990-2029," August 2022.

Because the IRA's tax incentives are open-ended, estimates vary. As one example, in April 2023, Goldman Sachs estimated that the total incentives the IRA will provide adds to \$1.2 trillion by 2032, driving an estimated \$2.9 trillion of cumulative private sector investment opportunity.<sup>3</sup>

<sup>3</sup> Source: Goldman Sachs, "The US is poised for an energy revolution", April 17, 2023.

The IRA incentivizes and subsidizes the scale, adoption, and deployment of renewables and alternative energy, primarily with tax credits, loan guarantees, and grants as shown in Figure 2. The IRA is designed to co-exist with traditional, non-renewable energy for decades to come. It aims to allow clean energy to grow and develop such that it can eventually provide the affordable and reliable characteristics of traditional energy.

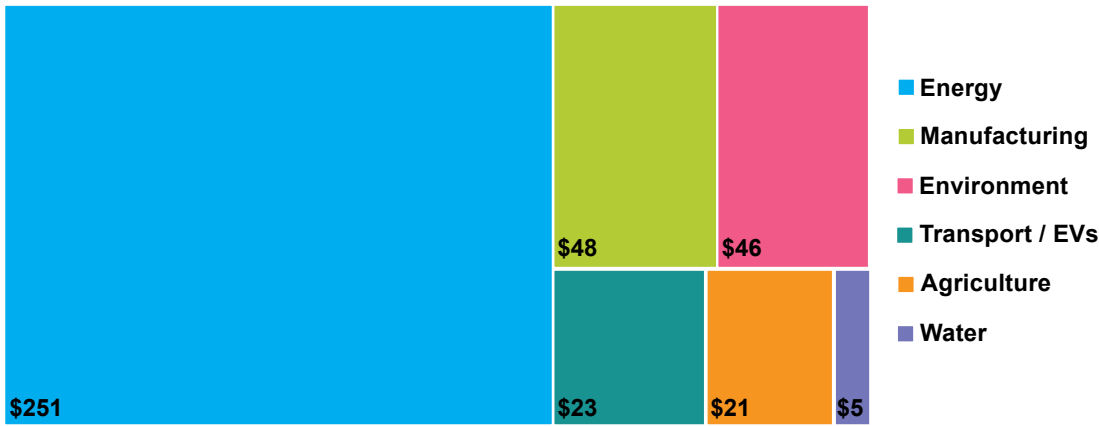


**FIGURE 2**  
Breakdown of IRA by Type of Climate Funding

Source: McKinsey, "The Inflation Reduction Act: Here's what's in it," October 2022.

The bulk of the Inflation Reduction Act's budget lies in corporate tax incentives. These are followed by grants, loans, and other federal programs estimated to provide roughly \$135 billion.<sup>4</sup> We summarize the IRA's loans, grants, and tax credit provisions in the appendix.

<sup>4</sup> Source: McKinsey, "The Inflation Reduction Act: Here's what's in it," October 2022.



**FIGURE 3**  
Breakdown of IRA Climate Spending by Sector (in billions of USD)

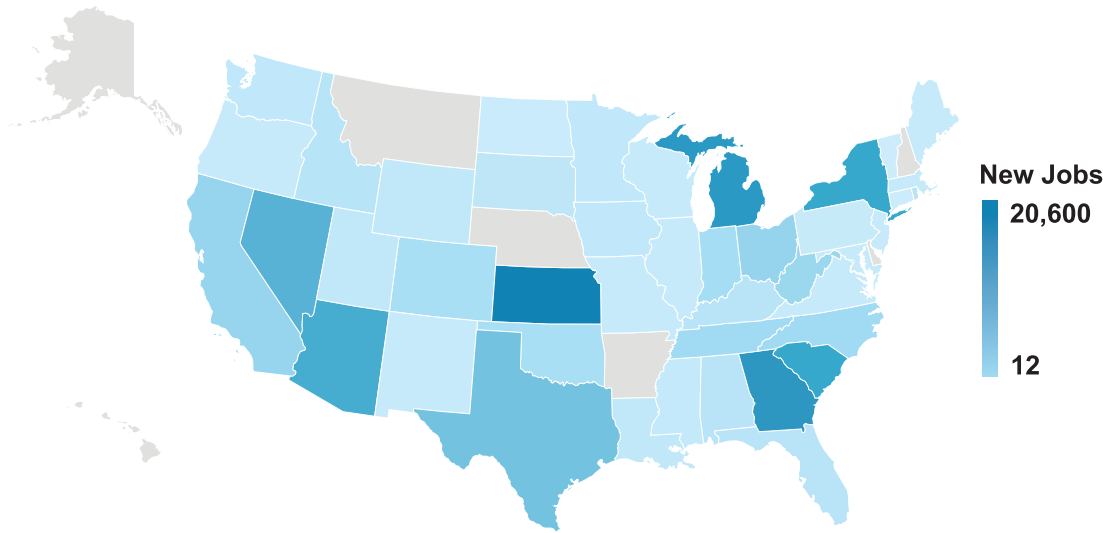
Source: McKinsey, "The Inflation Reduction Act: Here's what's in it," October 2022.

## What happened in year one?

The IRA was signed into law in August 2022. Since then, the Act spurred the announcement of \$278.7 billion in new clean energy investments across the country. Over 270 new clean energy projects have been announced, which are anticipated to result in 170,000 new jobs, of which a breakdown by state is shown in Figure 4.<sup>5</sup> Some of the projects announced include 91 new battery manufacturing sites, 65 new and expanded electric vehicle ("EV") manufacturing facilities, and 84 plans to develop wind and solar manufacturing.<sup>6</sup>

<sup>5</sup> Source: Climate Power, "One Year of Our Clean Energy Boom," as of July 25, 2023. Climate Power's report tracks public announcements from the private sector between August 16, 2022 and July 25, 2023.

<sup>6</sup> Source: Climate Power, "One Year of Our Clean Energy Boom," as of July 25, 2023.



**FIGURE 4**  
New Green Jobs Announced Since the IRA Began, by State

Source: Climate Power, "One Year of Our Clean Energy Boom," as of July 25, 2023. Grey states indicate no data.

The anticipated wave of investment appears to be positively affecting employment. The US Department of Energy's annual report found that clean energy sector jobs grew by nearly 4% in 2022, outpacing total US employment by roughly 1% and slightly outpacing the general US energy sector.<sup>7</sup> Overall, there were 3.1 million clean energy jobs meeting the "net-zero" definition<sup>8</sup> in 2022. These jobs made up roughly 40% of the total 8.1 million energy jobs in 2022.

While most of the employment in the transportation sector remained in gasoline and diesel vehicles at 2.0 million jobs in 2022, clean energy transportation job growth

<sup>7</sup> Source: US Department of Energy, "Energy & Employment Report 2023."

<sup>8</sup> "Net-zero" refers to achieving an overall balance between greenhouse gas emissions produced, avoided, and removed from the atmosphere. In the 2023 Energy & Employment report, "clean energy jobs" are reported at the national and state levels with slightly different definitions due to data availability. Nationally, clean energy jobs include jobs in the technologies that align with this "net-zero" future.

was faster, resulting in approximately 389,000 new jobs for hybrid/battery/natural gas/hydrogen in the automotive sector in 2022. Non-renewable energy vehicles added 31,000 jobs (+1.6%), while battery electric vehicle (“BEV”)<sup>9</sup> employment grew almost 17 times faster (+26.8%), adding 28,000 jobs in 2022. Employment in “other vehicles” declined by 16,000 workers, or -13.6%.<sup>10</sup>

Between enactment of the IRA in August 2022 and March 2023, a cumulative \$52 billion was invested in the US EV supply chain.<sup>11</sup> Roughly half of that investment is for battery manufacturing, with the rest split between battery components and EV manufacturing. For example, General Motors announced the first fully EV-dedicated assembly plant will open in the US,<sup>12</sup> Tesla is opening a new battery production facility in Mexico, and Hyundai is building a new US factory specifically for EVs.<sup>14</sup> Some companies were planning to build plants across the supply chain regardless of the IRA. However, the site and locations to build these plants in North America and free trade partner countries have been attributed to the IRA.

Solar, wind, and other clean energy electricity technologies accounted for the vast majority (over 80%) of new electric power generation jobs. In 2022, this relatively new industry still accounted for fewer jobs than the traditional power generation industry.<sup>15</sup>

## Estimates of future growth

The IRA could spur record-setting US growth in wind and solar capacity. Predictions show that in 2026, wind could generate ~2x the amount of power and solar could be ~5x the power relative to 2020, with solar growth rates increasing thereafter.<sup>16</sup> Since the IRA was enacted in August 2022, several projects have already been announced. For instance, the largest community solar equipment purchase in US history was announced between solar hardware builder Qcells and project developer Summit Ridge Energy with domestic factories.<sup>17</sup> The loan guarantees in the IRA improve the attractiveness of brownfield conversion projects that retool, repower, repurpose, or replace energy infrastructure that has ceased operations.

As of 2022, the US was the fourth largest steel producing country, with global production growth rates projected to rise.<sup>18</sup> With the IRA's new bonus credits and designated financial support, green commercial steel production<sup>19</sup> could become economically viable. The transportation industry could also be positively impacted with environmental and cost benefits as the leading buyer of ore-based steel.<sup>20</sup>

Carbon capture is significantly incentivized. The IRA nearly doubled the carbon capture tax credit for some facilities/industries, and more than doubled the credit for others. The IRA provides companies in typically emissions-heavy industries an appealing financial motive to reduce their CO<sub>2</sub> pollution. These tax credit increases can make carbon capture projects more cost efficient and viable in industries where they previously were not.

<sup>9</sup> A battery electric vehicle (“BEV”) is a type of electric vehicle that exclusively uses energy stored in rechargeable batteries, with no secondary source of propulsion.

<sup>10</sup> US Department of Energy, “Energy & Employment Report 2023.”

<sup>11</sup> Source: International Energy Agency, “Global EV Outlook 2023.”

<sup>12</sup> Source: GM, “Factory ZERO, Our First Fully Dedicated EV Assembly Plant.”

<sup>13</sup> Source: Bloomberg, “New Tesla Gigafactory Marks Mexico’s Manufacturing Golden Moment,” March 7, 2023.

<sup>14</sup> Source: Bloomberg, “Hyundai Considers Speeding Up Building New US Factory for Electric Cars,” September 30, 2022.

<sup>15</sup> Source: US Department of Energy, “Energy & Employment Report 2023.”

<sup>16</sup> Source: Princeton University’s REPEAT Project, “Electricity Transmission is Key to Unlock the Full Potential of the IRA,” September 2022.

<sup>17</sup> Source: NPR, “A new solar energy deal will bring power to 140,000 homes and businesses in 3 states,” April 6, 2023.

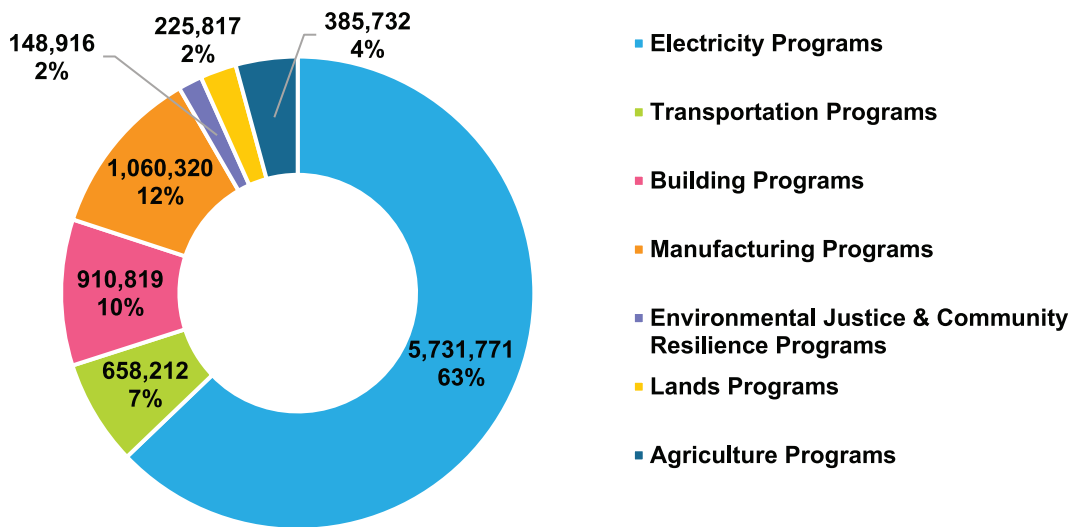
<sup>18</sup> Source: World Steel Association, “2023 World Steel Figures.”

<sup>19</sup> Green steel production would entail substantially reducing or eliminating CO<sub>2</sub> emissions from the equivalent process in a traditional blast furnace, most likely by using hydrogen instead of coal.

<sup>20</sup> Source: Energy Transitions Commission, “Unlocking the First Wave of Breakthrough Steel Investments,” April 2023.

By one estimate, the IRA could add a total of nine million jobs over the next 10 years.<sup>21</sup> More than half of the IRA's projected job creation is expected to be centered on electricity programs, translating to roughly 5.7 million projected jobs created in that sector alone. The second and third largest sectors receiving job creation benefits from the IRA are manufacturing and construction, respectively. Figure 5 details the IRA's projected job creation by sector over the following 10 years.

<sup>21</sup> Source: Political Economy Research Institute of UMass Amherst, "Job Creation Estimates Through Proposed Inflation Reduction Act," August 2022.



**FIGURE 5**  
**Breakdown of Total Projected IRA Job Creation Over Next 10-Years**

Source: Political Economy Research Institute of UMass Amherst, "Job Creation Estimates Through Proposed Inflation Reduction Act," August 2022.

The launch of the IRA prompted changes in the policies of a number of countries. The IRA focuses on incentives, much of them tied to domestic production. Some countries called the IRA US protectionism based on green criteria.<sup>22</sup> Since the launch of the IRA, some governments have announced similar stimulus programs.<sup>23</sup> For example, the EU launched a Green Deal Industrial Plan that relaxes its state aid laws to make it easier for EU member countries to subsidize clean energy projects. Canada also announced significant clean energy tax credits in its 2023 federal budget.

<sup>22</sup> Source: Carbon Brief, "Media Reaction: US Inflation Reduction Act and the Global Clean Energy Arms Race," March 2022.

<sup>23</sup> Source: Europe Just Launched the World's First Carbon Tariff. Will the United States Follow Suit? - Inside Climate News, October 2023.

In contrast to the IRA, several leading governments have been focused on implementing disincentives to emitting carbon. Moreover, roughly 40 countries and more than 20 cities, states, and provinces already use carbon pricing mechanisms, with more planning to implement them in the future.<sup>24</sup> In total, these carbon pricing schemes in place cover about half of their emissions, which translates to about 13% of annual global greenhouse gas emissions.<sup>25</sup>

<sup>24</sup> Source: World Bank, "Carbon pricing." Carbon pricing mechanisms refers to the dollar pricing of the "real-world" cost of carbon emissions.

<sup>25</sup> Source: World Bank, "Carbon pricing."

While the IRA sparked new stimulus policies in some countries, efforts in other geographies are also prompting international discussion for potential adoption. The EU enacted the world's first Carbon Border Tax.<sup>26</sup> It aims to level the emissions playing field between domestic production and imports. Carbon Border taxes are also being considered in other geographies. Some US states have carbon pricing schemes. At the federal level, the US does not currently have a carbon pricing policy or carbon tariff, although the concept of a carbon tariff has recently emerged as a rare opportunity for bipartisan support.<sup>27</sup>

<sup>26</sup> Source: European Commission, "Carbon Border Adjustment Mechanism."

<sup>27</sup> Source: World Bank, "Carbon pricing."

## Investment opportunities

The IRA tax credits, and other incentives for clean energy production are expected to create investment opportunities in the renewable energy sector. Since more than half of the IRA incentives are uncapped, the private investment stimulated by the IRA is expected to be significant. For example, the REPEAT project<sup>28</sup> estimates the IRA could spur roughly \$3 trillion of investment in renewable energy technology.<sup>29</sup>

Investing in renewable energy infrastructure projects could potentially be attractive due to expected relative growth compared to traditional energy infrastructure. While this may not be applicable to all renewable energy sources, it should include many companies involved in wind and solar farms. Because solar and wind energy is intermittent, investing in energy storage solutions can help mitigate the variability and improve grid stability. As hydrogen begins to develop, infrastructure surrounding the development of hydrogen infrastructure may gain momentum.

While Carbon Capture and Storage (“CCS”) projects are generally unproven at scale today, the IRA helps incentivize further investment in and development of this technology by making carbon capture projects more cost efficient and viable in industries where they previously were not.

The IRA makes investing in companies involved in electric vehicle manufacturing, charging infrastructure, and battery technology potentially more attractive. This includes established automakers as well as companies focused on EV components and charging networks.

There are several “upstream” sectors that may benefit from the IRA. The expected increase in EVs, EV batteries, charging stations, etc., is expected to also increase the global demand for input materials such as nickel, copper, lithium, graphite, and cobalt. This can produce additional investment opportunities to develop and ensure mining and processing capabilities domestically or in like-minded partner countries, as currently much of this is done in China. There are likewise several “downstream” sectors that could also benefit from the IRA, such as those companies that provide services to the larger anticipated number of clean energy power providers.

## Where are the potential risks?

Many factors could slow the expansion of clean energy projects in the US and undermine the long-term profitability of investors in clean energy. These include economy wide factors, such as potentially disruptive macroeconomic factors, geopolitical shifts, physical climate risks, and clean energy transition-specific risks, including supply chain constraints, particularly for critical minerals, and slower than anticipated sales.

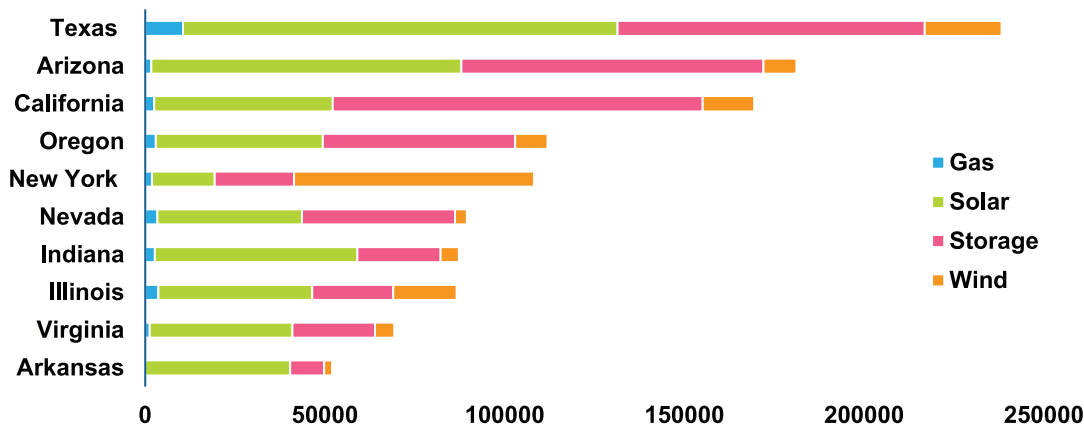
<sup>28</sup> The REPEAT Project is compiled by the Princeton ZERO Lab with the intention of providing regular, timely, and independent environmental and economic evaluation of federal energy and climate policies.

<sup>29</sup> Source: Goldman Sachs, “The US is Poised for an Energy Revolution,” April 17, 2023.

**State and municipal permitting regulations may slow implementation.** One of the largest current bottlenecks is that many clean energy projects face a long wait for interconnection (i.e., building the resource and connecting to the grid).<sup>30</sup> The figure below depicts the states with the largest “interconnection queue,” or the largest list of projects (as measured by units of power) waiting to be or currently being studied and tested before they are eligible for construction and linked to the grid. In total, the projects in Figure 6 account for 1.2 TW of electricity.<sup>31</sup>

<sup>30</sup> Electric transmission system operators require projects seeking to connect to the grid undergo a series of impact studies before they can be built. The lists of such projects in this process are known as “interconnection queues.” Many projects that apply for interconnection are ultimately withdrawn, and those that are built are taking longer on average to complete the required studies and become operational.

<sup>31</sup> One terawatt (“TW”) is equivalent to 1 million megawatts.



**FIGURE 6**  
Top 10 States with Projects in the Interconnection Queue (in megawatts)

Source: Electricity Markets & Policy Group, “Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection,” data is through 2022.

**Insufficient transmission capacity to support the growth in renewable energy.** Over 80% of the potential emissions reductions delivered by the IRA in 2030 will be lost if the future pace of electricity transmission expansion isn’t more than double the average historical expansion rate.<sup>32</sup> Building out sufficient grid capacity is expected to be energy intensive, requiring a great deal of steel and copper and may face additional risks of dependency on China for solar and wind parts manufacturing.

<sup>32</sup> Source: Princeton University’s REPEAT Project, “Electricity Transmission is Key to Unlock the Full Potential of the IRA,” September 2022.

**Obtaining the necessary minerals required in green technology may pose difficulties.** While the IRA incentivizes investment in the production of green materials, having the minerals (such as copper, lithium, and cobalt) available to meet demand could be a risk. This is partially due to the fact that opening new mines is usually a long process that often faces opposition and is emissions heavy. It could also be a challenge because of the geographic locations of these minerals. Currently, a handful of countries dominate the mining and processing of green minerals, and the US is not one of them. As the demand for green mineral increases, the availability and location of these minerals will become increasingly more important.

**Domestic production requirements may pose a near-term constraint.** In the short term, the Inflation Reduction Act could negatively affect EV adoption because of the many requirements needed to make an EV and its buyer eligible for the full or partial tax credits. Some such requirements include battery components, mineral components, vehicle MSRP, and buyers’ income. In addition, there are requirements for the EVs to be made by a qualified manufacturer, have a particular minimum percentage of content manufactured domestically, as well as undergo final assembly in North America.

**Several of the IRA's tax credits have not been solidified and therefore cannot be utilized yet.** For example, the implementation of the clean hydrogen tax credit is still being decided as there is a need for clarity around accounting for greenhouse gas emissions from the electricity generation used to make electrolytic or "green" hydrogen. Some argue for strict rules in the hydrogen production process while others say that adhering to restrictive rules to claim the credit may hamper the scale and pace of production.<sup>33</sup>

**US skilled blue-collar labor force shortages could increase in growing clean industries.** Another potential bottleneck to the IRA is a shortage of skilled blue-collar workers, hindering the effort to reindustrialize America. For example, Ford and its South Korea-based partner secured one of the largest loans in US history from the DOE at \$9.2 billion for the creation of several new US EV manufacturing facilities in the US. However, finding skilled workers to fill these new jobs poses a challenge. Some companies, like a chip manufacturer in Arizona, are bringing people from other countries such as Taiwan to train American workers.<sup>34</sup> To help address this issue, in September 2023 the Biden Administration announced the formation of the American Climate Corp, which aims to train young people in the skills needed for the clean energy economy. The Climate Corp hopes to train 20,000 individuals in its first year.<sup>35</sup>

**Due to the relatively new nature of green technologies, there may not be a demand for some technologies at this time and some may not yet (or ever) be successful.** A few examples of such instances are listed below.

- Carbon capture and storage projects have fallen short of their emissions capturing goals.<sup>36</sup> Today, an estimated 60% of carbon capture is not stored but rather used to extract more oil.<sup>37</sup> These projects have successfully captured and stored carbon, though not at the levels initially estimated. This may partially be attributed to CCS technology still being relatively new. The challenges of bringing CCS to mass scalability and its high costs has cast some skepticism on the assumptions in Princeton University's "Net Zero America" study, which relies on large scale and rapid growth of carbon capture and storage by 2030 to achieve the US' net-zero emissions goal.<sup>38</sup> However, private capital investment in the CCS space continues to accelerate as new technologies emerge and tax incentives increase.<sup>39</sup>
- Despite sustainable aviation fuels' ("SAF's") \$1.25/gallon tax credit, its price is still well above that of traditional jet fuels. This hinders the widespread use of sustainable jet fuel, with SAF accounting for less than 0.1% of total jet fuel used by major US airlines.<sup>40</sup>
- The global demand for clean hydrogen fuel is still low and many technologies are unproven at scale and expensive, especially in transportation. The current production of hydrogen is mainly used in chemical and petrochemical sectors.<sup>41</sup> New technology applications are projected to scale up hydrogen demand rapidly after 2030 in the "Net Zero Scenario."<sup>42</sup>

<sup>33</sup> Sources: Clean Air Task Force, et al., "Implementation of the IRA 45V clean hydrogen tax credits," February 23, 2023. CNBC, "Inside the fierce debate over clean hydrogen, with \$100 billion in federal subsidies on the line," March 3, 2023.

<sup>34</sup> Source: Wall Street Journal, "US Faces Electrician Shortage as it Tries to go Green," March 2023.

<sup>35</sup> Source: The White House, "Fact Sheet: Biden-Harris Administration Launches American Climate Corps to Train Young People," September 20, 2023.

<sup>36</sup> Source: Reuters, "Chevron says world's largest carbon capture project has 'a ways to go' to meet goals," May 2022.

<sup>37</sup> Source: Washington Post, "Companies Capture a Lot of CO<sub>2</sub>. Most of it is going into New Oil," October 25, 2023.

<sup>38</sup> Source: Princeton University, "Net-Zero America," October 2021. The Net Zero America study provides an analysis of what getting to the US' net-zero emissions goal will require.

<sup>39</sup> Source: BloombergNEF, "Carbon Capture Investment Hits Record High of \$6.4 Billion," February 15, 2023.

<sup>40</sup> Source: Government Accountability Office, "Sustainable Aviation Fuel," March 2023.

<sup>41</sup> Source: IEA, "Hydrogen: Energy System Overview," September 2022.

<sup>42</sup> The Net Zero Scenario is a collective goal amongst many countries where emissions need to be reduced by 45% by 2030 and reach net zero by 2050.



**The rapid growth of renewable energy production could undermine market pricing and the current regulatory construct.**

As argued in a recent S&P Global report,<sup>43</sup> a challenge to the US achieving a net zero power grid and net zero economy that often gets overlooked is a basic question of revenue adequacy for renewable energy power, and therefore investment risk. The hypothesis is that should the electrical grid get flooded with solar and wind power generation bids that are very low (reflecting their minimal variable operating costs), energy revenue from competitive markets will decline as prices drop. In effect, once it hits an unknown tipping point, renewable energy generation could undermine the wholesale energy market that it will be most reliant on. The IRA's tax credits are both substantial and time-limited – the boost to wind and solar financials phase out once the US power sector's CO<sub>2</sub> emissions decline 75% from 2022 levels. A lack of tax credits, combined with lower market revenues, is likely to deter wind and solar projects at some point in the future. Hence there is a risk that the current wholesale market structure plus the current IRA tax credits may be inadequate to successfully transition US power generation away from a primary reliance on fossil fuels.

<sup>43</sup> Source: S&P Global Commodity Insights, "Renewable energy's financial challenge in a net zero future," August 21, 2023.

**Finally, US political shifts may result in a reversal of some IRA provisions.** Should 2024 US elections shift the bipartisan compromise that allowed the IRA to be passed into law, some IRA provisions could be reversed.

## Conclusion

The Inflation Reduction Act is the largest investment in climate action in US history. Coupled with the Infrastructure Act and other policies, the Department of Energy estimates a 40% reduction in economy-wide greenhouse gas emissions can be achieved. This would translate to US greenhouse gas emissions falling below 2005 levels by 2030.<sup>43</sup>

<sup>43</sup> Source: Congressional Research Service, "IRA of 2022: provisions Related to Climate Change," October 3, 2022.

The IRA supports investments focused on the energy transition in both public and private markets for established and newer companies. The IRA aims to make clean energy and technologies more attractive and cost effective, leading to their widespread adoption. The IRA is expected to have a positive impact on low-carbon energy and climate solutions as well as boost domestic manufacturing.

Given the pace of policy and technology changes, it is understandable that there will be challenges to implementation, such as grid connections, supply chain and skilled labor shortages, and the current US power market structure. Still, it appears likely that investors will find compelling investment opportunities arising from the IRA's provisions.

# Appendix

Theme	Overview
Deploying Domestic Clean Energy Technologies	<ul style="list-style-type: none"> <li>• Clean Energy Production and Investment Tax Credits.</li> <li>• \$27 billion to the Greenhouse Gas Reduction Fund.</li> <li>• \$40 billion in loan authority to guarantee loans for innovative clean energy projects.</li> </ul>
Domestic Manufacturing to Build the Clean Energy Economy	<ul style="list-style-type: none"> <li>• Up to \$250 billion in new loan authority for Energy Infrastructure Reinvestment Financing. \$10 billion to the Advanced Energy Project Credit.</li> <li>• Extension and Expansion of the Advanced Energy Project Credit.</li> <li>• A new Advanced Manufacturing Production Credit.</li> </ul>
Domestic Electricity Grid	<ul style="list-style-type: none"> <li>• \$2 billion for transmission facility financing.</li> <li>• \$760 million in grants to facilitate the siting of interstate transmission lines.</li> </ul>
Affordable and Reliable Clean Energy in Domestic Rural and on Tribal Lands	<ul style="list-style-type: none"> <li>• \$97 billion for the US Department of Agriculture (“USDA”) electric infrastructure loan and loan guarantee program for rural electric cooperatives.</li> <li>• \$1 billion for electric infrastructure loans for renewable energy in Rural America.</li> <li>• More than \$2 billion to expand USDA’s Rural Energy for America Program (“REAP”).</li> <li>• \$150 million to the Tribal Electrification Program.</li> </ul>
Deployment of Clean Vehicles	<ul style="list-style-type: none"> <li>• Clean Vehicle Credit.</li> <li>• Previously Owned Clean Vehicles Credit.</li> <li>• Commercial Clean Vehicles Credit.</li> <li>• Advanced Technology Vehicle Manufacturing Loan Program.</li> <li>• Domestic Manufacturing Conversion Grants.</li> <li>• Advanced Manufacturing Production Credit.</li> <li>• \$1 billion for the Clean Heavy-Duty Vehicle Program.</li> </ul>
Development and Use of Cleaner Transportation Fuels	<ul style="list-style-type: none"> <li>• \$500 million for the Higher Blend Infrastructure Incentive Program.</li> <li>• Extension of existing tax incentives for alternative fuels and creation of a new Clean Fuel Production Credit.</li> <li>• Historic incentives and support for sustainable aviation fuels.</li> </ul>
Domestic Industrial Decarbonization and Carbon Management	<ul style="list-style-type: none"> <li>• \$58 billion for the new Advanced Industrial Facilities Deployment Program.</li> <li>• Expansion of the Advanced Energy Project Credit to include industrial emissions reduction.</li> <li>• Extension and expansion of the 45Q tax credit for carbon capture, utilization, and sequestration (“CCUS”).</li> <li>• \$1.55 billion to cut methane pollution from oil and gas industry operations.</li> <li>• \$38.5 million to implement the American Innovation and Manufacturing (“AIM”) Act.</li> </ul>
Clean Hydrogen	<ul style="list-style-type: none"> <li>• Clean Hydrogen Production Tax Credit.</li> </ul>
Science and the Department of Energy’s Core Research Mission	<ul style="list-style-type: none"> <li>• \$1.55 billion to the Department of Energy’s Office of Science to support national laboratory infrastructure improvements.</li> <li>• \$450 million to support infrastructure improvements at three key national laboratories.</li> </ul>
Cutting Air Pollution that Harms Public Health and the Climate	<ul style="list-style-type: none"> <li>• \$3 billion for Environmental and Climate Justice Block Grants.</li> <li>• \$5 billion for Climate Pollution Reduction Grants.</li> <li>• \$4 billion to reduce harmful air pollution from the transportation sector.</li> <li>• More than \$3.2 billion for the Neighborhood Access and Equity Grant Program.</li> <li>• \$1.55 billion to cut methane pollution from oil and gas industry operations.</li> </ul>
Pollution Monitoring and Tracking	<ul style="list-style-type: none"> <li>• Programs to help communities and state, local, and Tribal air agencies add new pollution monitors.</li> <li>• Provides the White House Council on Environmental Quality new resources to enhance the availability of national level data sets on the impacts of pollution, climate change, and more.</li> </ul>

FIGURE 7

## List of IRA Provisions

Source: Building a Clean Energy Economy: A Guidebook to the IRA’s Investments in Clean Energy and Climate Action, January 2023.

Theme	Overview
Lowering Energy Costs for Households	<ul style="list-style-type: none"> <li>• Nearly \$9 billion for states and Tribes for consumer home energy rebate programs.</li> <li>• The Energy Efficiency Home Improvement Credit provides up to \$3,200 annually in tax credits to lower the cost of energy efficient upgrades by up to 30%.</li> <li>• The Residential Clean Energy Credit provides a 30 percent tax credit to lower the installation cost of residential clean energy.</li> <li>• The New Energy Efficient Home Credit provides up to \$5,000 in tax credits for each new energy-efficient home and up to \$1,000 for each unit in a multi-family building.</li> </ul>
Supporting Investment in Energy-Efficient and Low-Carbon Buildings	<ul style="list-style-type: none"> <li>• \$1 billion for the Green and Resilient Retrofit Program.</li> <li>• \$1 billion for Department of Energy grants to state and local governments to adopt updated building energy codes.</li> <li>• Extension and expansion of the energy efficient commercial buildings deduction.</li> </ul>
Sustainable, Lower-Carbon Federal Government	<ul style="list-style-type: none"> <li>• Clean Postal Service Vehicles.</li> <li>• Environmental Product Declaration (“EPDs”).</li> <li>• Low Carbon Labeling for Construction Materials.</li> <li>• Procurement of Clean Construction Materials.</li> </ul>
Supporting Climate-Smart Agriculture and Rural Economic Development	<ul style="list-style-type: none"> <li>• \$8.45 billion for the Environmental Quality Incentives Program.</li> <li>• \$495 billion for the Regional Conservation Partnership Program.</li> <li>• \$3.25 billion for the Conservation Stewardship Program.</li> <li>• \$3.1 billion to provide relief to distressed farm loan borrowers.</li> </ul>
Preserving and Protecting Domestic Lands and Waters for Climate Mitigation and Resilience	<ul style="list-style-type: none"> <li>• \$2.6 billion to support coastal resilience and conservation, restoration, and protection of coastal and marine habitat and resources, including fisheries.</li> <li>• \$1.8 billion to complete hazardous fuels reduction projects on National Forest System land within the wildland-urban interface.</li> <li>• \$1.5 billion for the Urban and Community Forestry Assistance Program.</li> <li>• \$700 million for the Forest Legacy Program.</li> <li>• \$500 million to carry out conservation, habitat restoration, and resiliency projects.</li> </ul>
Communities' Resilience to Drought, Flooding, and Other Climate Impacts	<ul style="list-style-type: none"> <li>• \$4 billion for Bureau of Reclamation projects to mitigate the extreme drought conditions in the Colorado River Basin, and other basins with comparable levels of long-term drought.</li> <li>• \$550 million for Bureau of Reclamation projects to provide domestic water supplies to disadvantaged communities or households.</li> <li>• \$235 million to support Tribal climate resilience efforts, including fish hatcheries.</li> </ul>
Climate Science and Weather Forecasting	<ul style="list-style-type: none"> <li>• Investment in research and forecasting for Weather and Climate, the Computing Capacity and research for Weather, Oceans, and Climate, the acquisition of Hurricane Forecasting Aircraft, and the USGS 3D Elevation Program (“3DEP”).</li> </ul>
More Efficient and Effective Permitting of Energy Infrastructure	<ul style="list-style-type: none"> <li>• \$350 million for the Federal Permitting Improvement Steering Council.</li> <li>• \$30 million for the Council on Environmental Quality (“CEQ”).</li> <li>• \$625 million to multiple federal agencies.</li> </ul>

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