



**12<sup>th</sup> India - U.S. Track II Dialogue on Climate Change and Energy**  
**April 17-19, 2023 | Washington, D.C.**

**STATE OF PLAY - BACKGROUND PAPER U.S.**

*(As on 10th March, 2023)*

[Overview of Federal Climate Action](#)

[Federal Climate Legislation, NDC, Emissions, and Energy Trends](#)

The past year has seen the historic passage of the Infrastructure Investment and Jobs Act of 2021 (IIJA, also known as the Bipartisan Infrastructure Law, or BIL) and the Inflation Reduction Act of 2022 (IRA), representing the largest climate investments in U.S. history. These accomplishments, combined with anticipated regulatory action and state-level initiatives, puts the U.S. on a pathway to meet its [updated nationally determined contribution \(NDC\)](#), which as of 2021 sets an economy-wide target of reducing net GHG emissions by 50-52% below 2005 levels by 2030 and commits the U.S. to achieving net-zero emissions by 2050. This target is substantially enhanced from the previous NDC established during the Obama administration of decreasing national GHG emissions by 25% below 2005 levels by 2025, and though annual emissions slightly increased by [1.3% over the previous year, the GHG intensity of the U.S. economy declined overall](#). With President Biden's continued prioritization of ambitious climate goals, the U.S. is in a strong position to see a continued decline.

The Biden administration continues to develop its whole-of-government approach to tackling the climate crisis, attempting to improve collaboration between federal agencies, departments, and offices to design and implement policies and programs to decrease national GHG emissions while bolstering the domestic economy. Significant efforts have been made in transportation, energy, agricultural and building sectors, with significant investments promised for clean energy infrastructure, energy efficiency and weatherization measures in buildings and homes, and sustainable farming practices.

[Emissions and Energy Trends](#)

The share of renewable energy sources continues to grow in the U.S., with a [12% rise in 2022](#) over the previous year, such that it now comprises 22% of total utility-scale electric power. [In 2022, fossil fuels still made up 60.2% of this total power mix](#), with natural gas and coal comprising 39.8% and 19.5% respectively, but for the first time renewables surpassed

coal with its growth to 22% of the energy mix. Nuclear energy sources also made up 18.2%, and renewables were broken down between 10.2% wind, 6.2% hydropower, and 3.4%. The U.S. Energy Information Administration (EIA) [expects renewables to provide 24%](#) total electricity generation in 2023, up even further from 20% in 2021. Energy-related CO2 emissions rose by 6% in 2021 compared to 2020 levels, but were 5% lower than pre-pandemic levels in 2019.

The deployment of renewables must increase in the coming years to meet the Biden administration's target of 80% renewable energy generation by 2030 and a "clean electricity" power system by 2035. [Analysts are optimistic](#) that market forces will allow for the expanded penetration of long-duration energy storage (LDES) and technologies to enhance reliability. A [study](#) conducted by the National Renewable Energy Laboratory (NREL) in late 2022 evaluated several pathways to a net-zero power grid by 2035, identifying necessary actions to achieve this goal, including [but not limited to](#): rapid scale-up of technology deployment and continued research, development and deployment (RD&D) to bring emerging technologies into the market;<sup>1</sup> significant additional transmission capacity (requiring new energy infrastructure installments nationwide); and acceleration of electrification and increased efficiency in demand.

### [Domestic Political Landscape for Energy and Climate Action](#)

With the success of the passage of IRA, the IIJA, and the CHIPS and Science Act, the Biden administration now faces the difficult task of implementation, with the additional challenge of a divided Congress that promises slower legislative action on partisan issues, as well as unfriendly [House oversight](#), which threatens to [undermine some of the measures](#) put forth in climate and energy initiatives.

Democrats currently hold a slim majority in the U.S. Senate, while Republicans regained a majority in the House of Representatives after the 2022 midterm elections, with Representative Kevin McCarthy elected Speaker of the House following a lengthy and contentious process. Some House Republicans support agenda items that advance bipartisan clean energy objectives, including those that decrease domestic dependence on foreign countries for critical supply chains and those that streamline permitting processes to accelerate construction of energy infrastructure. However, other Republicans in Congress are seeking to include climate and energy measures to boost domestic oil and gas production drilling. For example, [the Lower Energy Costs Act, introduced as H.R. 1](#) was identified as one of the top legislative priorities by Republicans and its provisions largely [exemplify their Party's positions on domestic energy priorities](#), including increases in domestic energy production by boosting production of sales of oil and gas, reforms to permitting processes that limit the timespan allowed for environmental impact statements

---

<sup>1</sup> It was noted that further work is required to better understand what the manufacturing and supply chain implications will be amidst an unprecedented deployment of renewable energy sources, a contentious relationship with China, and the ongoing Russian war on Ukraine.

for major projects, cuts in funding for climate projects and the elimination of incentives that target investments to disadvantaged communities.

In addition, H.R. 1 seeks to repeal several measures set forth in the IRA, including the methane fee, the electric home rebate program, and the Greenhouse Gas Reduction Fund. And while H.R.1 is currently characterized as “dead on arrival” in the Senate, the provisions in this Bill will in all likelihood be offered again for consideration during the upcoming debt ceiling negotiations. And lastly, it is notable that the House Oversight Committee has already [launched a probe into the U.S. Department of Energy climate spending](#) via the IIJA, IRA, and the CHIPS and Science Act, in late March 2023, indicating an already high level of scrutiny from House Republicans.

### [Infrastructure Investment and Jobs Act](#)

The [Infrastructure Investment and Jobs Act](#) (IIJA, also known as the Bipartisan Infrastructure Law, or BIL) was signed into law in November 2021, with a record-setting \$1.2 trillion dedicated to improving and developing domestic infrastructure, and [billions dedicated to low-carbon or clean energy infrastructure development](#) in key sectors such as transportation, buildings, and energy transmission, in addition to investments in climate resiliency, water infrastructure, and legacy pollution. [Estimates](#) predict the IIJA will fund \$864 billion in spending over five years, authorizing over 400 programs throughout the U.S. government to oversee funding to various state and local entities, with approximately \$591 billion going towards transportation programs and \$54 billion towards drinking and clean water programs via the US EPA.

Over a year since the passage of IIJA, the U.S. government is tracking subnational funding and projects, publishing [state-by-state fact sheets](#) and a [“map of progress”](#) to illustrate already announced infrastructure funding. While the majority of IIJA implementation falls under the executive branch of the U.S. government, annual appropriations from a currently divided Congress have the potential to influence future size and scope of programs under the IIJA.

### [Inflation Reduction Act](#)

Signed into law on August 22, 2022, the Inflation Reduction Act (IRA) is the largest single step that Congress has ever taken to address climate change. It includes [nearly \\$370 billion](#) in investments in disadvantaged communities, prioritizing projects that repurpose retired fossil fuel infrastructure and employ displaced workers, setting the U.S. on a course toward a fair, equitable and economic clean energy transition. The IRA has the potential to decrease national emissions by [42 percent](#) by 2030 compared to 2005 levels. This, in conjunction [with complementary regulations from the executive branch and aggressive action at the state level](#), puts the United States on the path toward reaching its commitment to reduce emissions by 50-52% by 2030.

The Inflation Reduction Act builds on the initial climate funding opportunities passed into law in the IIJA to support the build out of electric vehicle (EV) charging stations and power infrastructure, as well as climate resilience. The legislation provides new funding to accelerate the growth of clean energy and support consumer rebates for home

electrification, as well as tax credits for EVs and direct fiscal support for domestic manufacturing, including provisions that support labor and energy, and environmental justice communities.

The IRA extends [two tax credits](#) which support renewable energy systems: the investment tax credit (ITC) which reduces federal income tax liability on a percentage of the cost of a new system that is installed during the tax year, and the production tax credit (PTC) which is a per kilowatt-hour (kWh) tax credit for electricity generated by qualifying technologies for the first 10 years of a system's operation. The PTC also applies to "applicable critical minerals" which constitute clean energy components, and reduces the federal income tax liability and is adjusted annually for inflation. The ITC and PTC require projects to adhere to wage and apprenticeship requirements in order to receive the full credit amount. If wage and apprenticeship requirements are met, there are several [credit enhancements](#) that projects can receive. There is a bonus credit of +10% of the cost incurred if domestic content requirements are met, and another +10% bonus credit if the project is sited in an energy community that has historically been reliant on fossil fuels (see below). Both of these tax credits will become technology-neutral in 2025, and apply to all zero-carbon electricity sources.

Among all the provisions in the IRA, the EV tax credits requirements have raised the greatest [concern among U.S. trading partners](#) because it is the only provision in the IRA that mandates a certain percentage of domestic content. This provision provides financial incentives for purchasing an EV including a maximum \$7,500 [clean vehicle tax credit](#) for the purchase of a new electric vehicle. However, half of the EV tax credits are contingent on a threshold percentage of [critical minerals used in the batteries](#) having been extracted or processed in the U.S. or in a country with which the U.S. has a free trade agreement or having been recycled in North America.<sup>2</sup> The other half of the tax credit focuses on the [battery component requirement](#) wherein the value of the components contained in a clean vehicle's battery must meet the law's percentage requirements for manufacturing or assembly in North America.<sup>3</sup> Lastly, starting in 2024, tax credits will not be available under the law for vehicles that have any battery components sourced from a foreign entity of concern, and starting in 2025, tax credits will not be available for EV batteries with any critical minerals sourced from a foreign entity of concern – including China.

The IRA opens up opportunities to support [environmental justice and just transition efforts](#) at home through the provision of [enhanced ITCs and PTCs](#) for projects built in low-income communities, as well as energy communities that are heavily reliant on fossil fuels as their

---

<sup>2</sup> Starting in 2023, at least 40% of the critical minerals used in the battery must be extracted or processed. In the case of a vehicle placed in service after the proposed battery guidance date and before January 1, 2024, the applicable percentage is 40%. In the case of a vehicle placed in service during the calendar years 2024, 2025, and 2026, the applicable percentage is 50%, 60%, and 70%, respectively. In the case of a vehicle placed in service after December 31, 2026, the applicable percentage is 80%.

<sup>3</sup> In the case of a vehicle placed in service after the proposed battery guidance date and before January 1, 2024, the applicable percentage is 50%. In the case of a vehicle placed in service during the calendar years 2024 or 2025, the applicable percentage is 60%. In the case of a vehicle placed in service during the calendar years 2026, 2027, and 2028, the applicable percentage is 70%, 80%, and 90%, respectively. In the case of a vehicle placed in service after December 31, 2028, the applicable percentage is 100%.

major economic driver, or communities where coal has been an economic driver, or in disadvantaged communities where the unemployment rate was at or above the national average in the previous year. The law includes a \$3 billion allocation for environmental and climate justice block grants, which can be used for community-led monitoring and remediation to mitigate the effects of urban heat islands and facilitate community engagement in federal and state policymaking. The IRA also establishes a Greenhouse Gas Reduction Fund – a [\\$27 billion green bank](#) – that provides funding to support rapid deployment of low- to zero-emission technologies.

### Implementation Status and Permitting

Building renewable energy and transmission projects in the U.S. to match the speed and scale of the climate crisis will require reforms to the way they are sited and permitted at the federal, state and local levels. For the U.S. to achieve power sector decarbonization by 2035 and mitigate the worst impacts of climate change, the U.S. must [double or triple](#) the level of renewable energy deployment and [double the expansion of transmission](#). With the passage of the IRA, the need to streamline permitting and siting processes, and the ways through which climate smart investments are mobilized, have become salient political issues, with permitting reform shaping up to be a key bipartisan issue in the 118<sup>th</sup> Congress.

Congress and the administration are focused on clean energy permitting reform at the federal level, most notably those that involve inter-regional transmission and power lines that extend across states, which have historically been very challenging to build. The IIJA made a number of policy changes to expedite permitting and siting, particularly for transmission and offshore wind projects. These provisions included financing assistance for transmission projects and efforts to clarify and strengthen the backstop siting authority of the Federal Energy Reform Commission (FERC) for interstate transmission lines within certain corridors (known as National Interest Electric Transmission Corridors). These changes allow FERC to issue permits if states fail to complete the permitting process within one year for a transmission line within these priority corridors. While this was an important step forward, significant barriers to building interstate transmission remain that could result in years or delay in the building of new interstate transmission lines, most notably the myriad of factors that impact the financing and building of interstate transmission such as siting and cost allocation.

The most visible Congressional effort to expedite permitting is the currently stalled Manchin permitting reform [proposal](#). This bill would create a streamlined permitting system for energy assets, including renewable energy and fossil fuel projects, and authorize construction or completion of specific projects like the Mountain Valley gas pipeline. The proposal also would authorize the U.S. Department of Energy (DOE) to designate transmission lines in the national interest and enable FERC to allocate the costs of these projects to ratepayers across the region who would benefit from them. While this bill contained controversial provisions and ultimately stalled, transmission issues are understood to be a critical area of needed reform that must be addressed. Debates on this issue are expected to continue in the 118th Congress.

Key to any reforms are mechanisms for early and effective community engagement, as well as consideration of the cumulative impacts within communities. A recent [Data for Progress memo](#) found high support for community benefits as part of renewable energy project development, such as funding for the cleanup of polluted sites, funding for community centers, and programs for youth and seniors. As a result, policymakers are being strongly encouraged to create forums for local stakeholder engagement as part of any centralized permit review process including efforts to facilitate early meetings between communities and project developers.<sup>4</sup>

### CHIPS and Sciences Act

Signed into law on August 9th, 2022, the [“Creating Helpful Incentives to Produce Semiconductors \(CHIPS\) and Science Act”](#) aims to directly address U.S. supply chain vulnerabilities by [providing funding and incentives](#) to increase semiconductor manufacturing within the U.S., while also [barring investment in high-tech investments in China](#) or “other countries of concern” for the next decade. The CHIPS and Science Act provides \$52.7 billion for domestic semiconductor R&D, manufacturing, and “workforce development,” with \$39 billion dedicated to manufacturing incentives, and \$500 million to provide for international information communications technology security and semiconductor supply chain activities.

Seeking not only to bolster national security by developing domestic production of critical technologies, the Act also emphasizes the creation of millions of new semiconductor manufacturing jobs, as well as an overarching sentiment that Americans must become leaders in the tech space. To these ends, the law creates a \$10 billion fund to invest in regional innovation and technology hubs across the country as a way to spur innovation at subnational levels. U.S. Secretary of Commerce, Gina Raimondo, has described the program as [foremost a national security initiative](#), seeking to redistribute the manufacturing of semiconductors onto U.S. soil and to decrease U.S. dependency on foreign manufacturers that currently produce more than 90% of the world’s most advanced chips. While competition for CHIPS funding is robust, it is expected that the bulk of available resources will be allocated to leading manufacturing companies, such as Taiwan’s TSMC (that has already built a [facility in Arizona](#)), Samsung, Micron, and Intel.

Over the next five years, the CHIPS and Science Act has the potential to direct an [estimated \\$67 billion](#) toward accelerating the growth of zero-carbon industries and climate related research, [including nanotechnology, clean energy, quantum computing, AI, and disaster-resilient research](#).

### International Climate Engagement and Challenges

#### COP28 and the Global Stocktake

For parties to the Paris Agreement, COP28 will mark the first [global stocktake \(GST\)](#), a 2-year comprehensive review process to assess collective progress toward meeting the long-term goals set forth in the Agreement. Designed to be one element of a larger climate ambition

---

<sup>4</sup> Content extracted from [WRI Insights](#) by Lori Bird and Katrina McLaughlin, February 2023.

cycle, holding parties accountable while seeking to raise ambition, the 2023 GST is expected to give a landscape view of where nations stand and evaluates international efforts to limit the rise of global temperature to well below 2°C (ideally 1.5°C).

In addition to the GST, [fossil fuel phasedown](#) is expected to be a top priority for countries at COP28, following upon the COP26 Glasgow Climate Pact agreement to phase down coal, and [India's push at COP27](#) for parties to agree to phase down all fossil fuels—including oil and gas—which ultimately failed to pass and was excluded from the cover text [package of decisions](#). The EU has publicly stated that parties are [considering a potential agreement](#) around fossil fuel phasedown as part of their overall climate diplomacy efforts prior to COP28. It's currently unclear what the U.S. stance is on such a phasedown agreement.

Despite unprecedented action underway domestically, the U.S. has underdelivered on international climate finance commitments. The 2009 pledge made by developed nations to provide \$100 billion annually to support developing countries in reducing emissions and adapting to climate change remains unmet, falling short by delivering \$83.3 billion by the original end-year, 2020. While the pledge has been extended to 2025, the wealthiest nations – and some of the largest historical emitters, including the U.S.—continue to [contribute well below their “fair share.”](#) While President Biden has pledged an overall \$11.4 billion in climate finance per year by 2024, it seems unlikely that the [currently divided Congress will approve of this level of funding](#). The President's Budget for fiscal year 2022 and 2023 requested around \$7 billion in climate finance, however Congress only appropriated approximately \$1billion/year.

Meanwhile, the [Loss and Damage Fund](#), which was agreed to [at COP27](#) remains in flux, as parties continue to discuss how this fund will be operated, and how much funding wealthy nations will provide. The U.S., initially hesitant to commit during early talks on the creation of a L&D fund at the COP, ultimately signed on. However, U.S. contributions to the fund will likely be very limited due to lack of awareness and support in Congress.

#### U.S.-China Tensions, Supply Chains, and Trade

U.S. domestic climate and energy ambitions to accelerate economy-wide decarbonization while creating millions of jobs for Americans are influencing—and impacted by – ongoing geopolitical, supply chain, energy security, and trade dynamics.

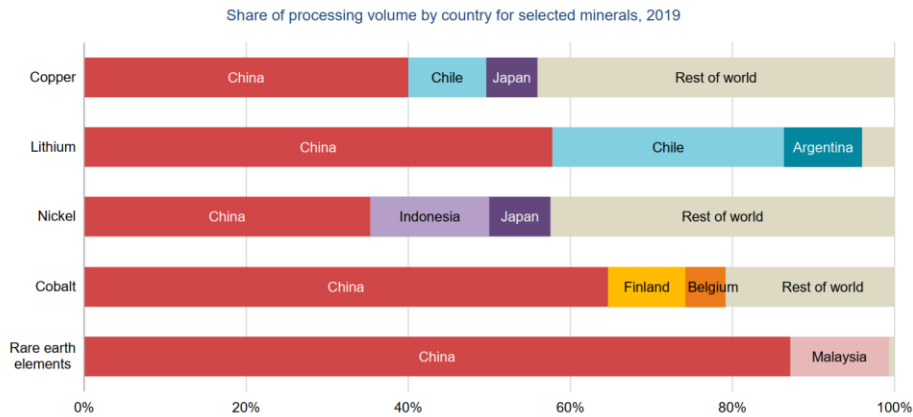
China's monopoly on much of the global refining and processing of materials critical to the production of EV and renewable energy technologies has come to the fore as an area of significant concern for domestic energy transition efforts, and increasingly – in part due to wider U.S. government relations with the Chinese government— national security concerns. U.S.-China relations remain strained, exacerbated by ongoing [tensions related to the Russian invasion of Ukraine](#), claims over Taiwan and the presence of Taiwanese politicians in both [China](#) and [the U.S.](#), and potential implications of [the TikTok case](#). In light of these tensions, the U.S. desire to “decouple” clean energy supply chains from China pervades most domestic supply chain rhetoric. While truly decoupling from China remains unrealistic,

the facts that China oversees the majority of global lithium and cobalt refining (responsible for 80% and 66%, respectively), as well as 66% of global aluminum refining and smelting processes and 80% of global graphite production and refinement, have prompted the U.S. to seriously reevaluate domestic supply chain vulnerabilities. To this end, several efforts are underway, including:

- The development of minerals clubs such as the U.S.-led [Minerals Security Partnership](#) among the U.S., Australia, Canada, Finland, France, Germany, Japan, Korea, Sweden, the U.K., and the EU and the recently announced U.S.-Canada one-year [Energy Transformation Task Force](#) to accelerate cooperation on critical clean energy supply chains including renewable energy and EV supply chains and critical minerals.
- Joint mapping efforts to locate resources and reserves, e.g., the Critical Minerals Mapping Initiative ([CMMI](#)) which seeks “to undertake research to develop a better understanding of critical mineral resources in known deposits, determine the geological controls on critical mineral distribution for deposits currently producing by-products, and identify new sources of supply through mineral prospectivity mapping and resource assessment.”
- Critical minerals specific free trade agreements (FTA) such as the recent [U.S.-Japan Critical Minerals Agreement](#) (though there was some [pushback](#) against this action). It is anticipated that the [minerals club](#) envisioned in the recent [Joint Statement by President Biden and President von der Leyen](#) will set the stage for a similar FTA.

To meet the demand created by the IRA, in conjunction with policies in other countries that are encouraging a similar green transition, the rate of mining will need to increase significantly in the short term. At present, [the U.S. does not mine or produce significant quantities](#) of any of the relevant critical minerals, but mineral exploration is on the uptick in the U.S. and it is believed that at least for [lithium](#), the U.S. has the potential to supply a significant portion of its needs. Currently though, the U.S. remains [100% net import reliant](#) for 12 critical minerals and 50% net import reliant for another 31 critical minerals. Australia mines 52% of all lithium and Chile mines another 22%; Indonesia mines 33% of all nickel, China mines 64% of all graphite; the Democratic Republic of Congo mines 69% of all cobalt; and China mines 60% of all rare earth elements. While China corners the market in production of only two of these minerals, the [processing](#) situation is very different, with China processing over 80% of all rare earth elements, over 60% of all cobalt, over 50% of all lithium, and over 30% of all nickel.

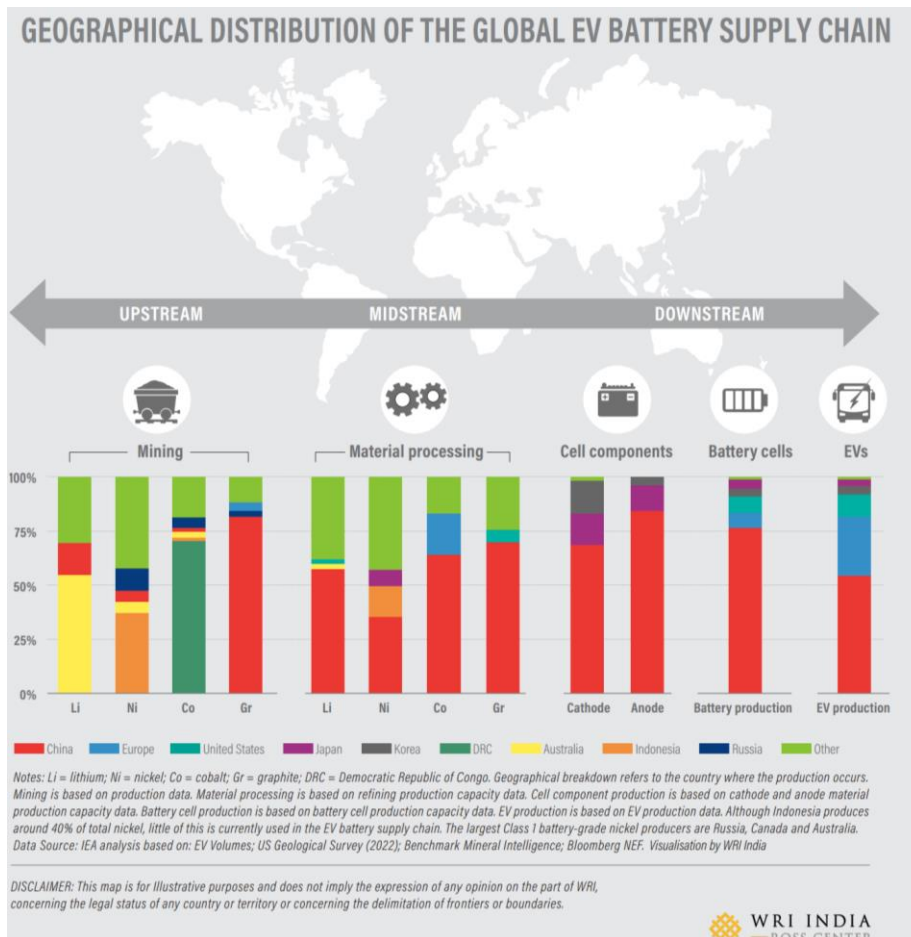




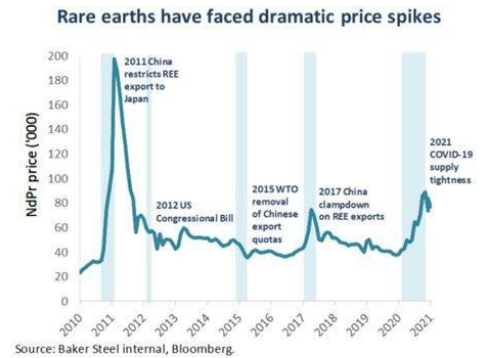
Note: The values for copper are for refining operations.  
Sources: World Bureau of Metal Statistics (2020); Adamas Intelligence (2020) for rare earth elements.

IEA. All rights reserved.

When looking at the EV battery supply chain, China may not dominate in the mining space for the majority of minerals, but it clearly dominates in minerals processing and battery cell manufacturing.



The dominance of China in this field is seen as a significant threat to the supply chain of these minerals, as China has proven itself willing to [wield this dominance as a political tool](#). For instance, in 2019, with the U.S.-China trade war intensifying, China threatened to cut off exports of rare earths to the U.S. and in 2010, in retaliation for Japan's holding of a Chinese fishing boat captain who was fishing in disputed waters, China blocked exports of rare earths to Japan. These politically driven sales restrictions have resulted in price spikes.



In considering how to address China's dominance as well as the strictures of the IRA, the U.S. should look for opportunities to support increased processing facilities in the U.S. and [Free Trade Agreement partners](#). Among those high-producing nations with whom the U.S. has FTAs are Australia, Chile, and Peru.

---