

Inflation Reduction Act 2022 remains a tough call for carmakers to avail EV tax credits

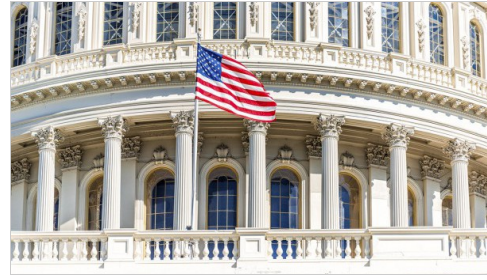
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Amit Panday

S&P Global

Supply Chain and Technology, Automotive

While the IRA 2022 is already accelerating new supply chain investments in North America, it remains to be seen if the industry pulls up to meet the strict requirements for battery raw materials and components through the decade



Source: Gettyimage/krblokhin

It has been almost a month since the Democrats in the US Senate passed the Inflation Reduction Act of 2022 (IRA 2022), which became legislation on 16 August 2022 after the US President Joe Biden signed the act. While

carmakers and their suppliers across the electric vehicle (EV) battery supply chain have been scrambling to decode the new mandates, auto industry lobbies from Europe, South Korea, and Japan have already expressed deep concerns about the ability of global carmakers to meet the required norms to qualify for the revised EV tax credit guidelines. For many, the homegrown automakers are presented with an unfair competitive advantage.

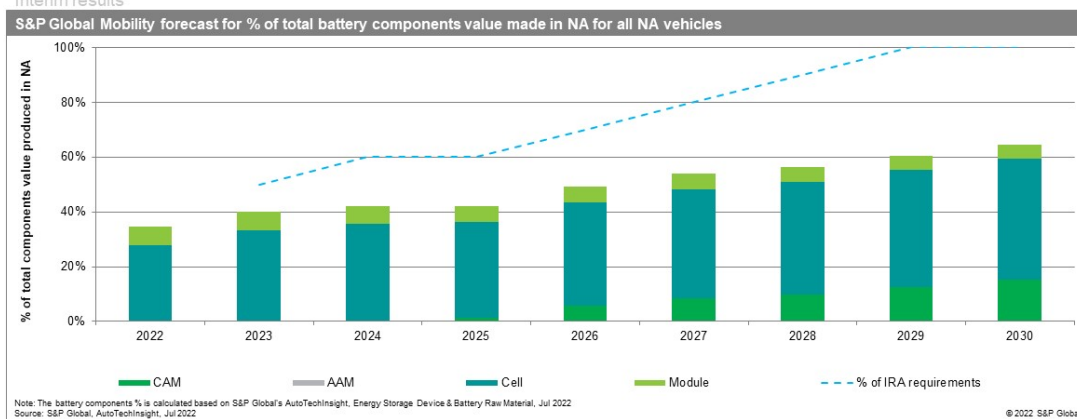
Representatives from the European Union and South Korean trade associations have even alleged that the new US mandates could violate the economic and security-based rules of the World Trade Organization (WTO). This is specifically in response to the IRA's primary requirement that to qualify for the tax credits, EVs must be locally produced or assembled in North America with immediate effect. This also means that EVs currently assembled in outside of US but sold in the US will simply not qualify for the tax credits. Major carmakers such as Toyota and Hyundai, among several others, currently do not produce or assemble EVs in North America. Moreover, Audi, Porsche, and Kia have reportedly said that the new mandate will impact their EV sales in the US.

Moreover, the IRA 2022 demands that at least 40% of the critical minerals used in the EV batteries must be either extracted or processed in the US or in any country that has a free trade agreement (FTA) with the US as early as the beginning of 2023. This requirement steps up to 50% for 2024 and to 70% for 2026, and to at least 80% after that. In addition to that, the new mandate also requires that at least 50% of the value of the battery components must be either manufactured or assembled in North America in 2023. From 2024, this must be at least 60%, which is stepped up to 80% from 2027. Both these battery sourcing requirements must be met to qualify for the full EV tax credit of USD7,500 from 1 January 2023.

Inflation Reduction Act: Requirements on components for USD3,750 credit

CAM/AAM localization will be needed while cell localization will close the gap with IRA % mandate

Interim results



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Furthermore, the new act implements a cap on the maximum retail price of up to USD80,000 for electric vans, sport utility vehicles (SUVs) and pickup trucks, and USD55,000 for electric sedans and hatchbacks to remain eligible for the tax credits from 2023. This precondition is criticized by other automakers such as Rivian and Fisker.

Reportedly, the Korea Automobile Manufacturers Association estimates that the US IRA 2022 could impact export of 100,000 EVs to the US per annum, hurting the sale of mainly Hyundai and Kia electric cars in the US.

According to the US auto lobby body Alliance for Automotive Innovation (AAI), there are about 72 EV models that are currently available for purchase in the US market, including battery-electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs) and fuel cell electric vehicles (FCEVs), and about 70% of those EVs would immediately become ineligible as none would qualify for the full credit, thanks to the additional sourcing requirements under the IRA 2022.

“Americans who would otherwise receive the credit today will no longer be able to take advantage of this financial incentive to purchase an EV. The USD7,500 credit might exist on paper, but no vehicles will qualify for this purchase incentive over the next few years. That’s going to be a major setback to our collective target of 40–50% EV sales by 2030,” John Bozzella, president and CEO of the AAI wrote in a blog post published on the association’s website on 5 August.

On 16 August, the day when the IRA 2022 became legislation, Bozzella called the act a missed opportunity. “On the demand front, we’ve said the legislation’s purchase incentive was a missed opportunity, especially while raw material and battery supply chains are still coming into place,” he said in the association’s official statement on the enactment of IRA 2022.

However, acknowledging the benefits of the new act, AAI, which estimates that the automakers in the US have already invested more than USD100 billion in vehicle electrification, said that the new legislation intends to expand the production of EVs inside the US and across North America and will onshore critical raw materials and battery components on US soil.

“Congress also made some meaningful investments on the supply side. There is more than USD15.5

billion in incentives and grants to ensure the US is building automotive supply chains and a globally competitive battery manufacturing platform. Over the long haul, that's going to be essential to making the widest range of EVs available to millions of additional drivers in all corners of the country," AAI added.

In the face of rising criticism and confusion on the eligibility of the existing EV models on sale in the US, the US Department of Energy (US DoE) released a list of about 20 EV models that would still qualify for the tax credits through the end of 2022. The list of EV models eligible for the US tax credit provision include Audi Q5, BMW 3-series PHEV, BMW X5, Chrysler Pacifica PHEV, Ford Escape PHEV, Ford F Series, Ford Mustang Mach E, Ford Transit Van, Jeep Grand Cherokee PHEV, Jeep Wrangler PHEV, Lucid Air, Nissan Leaf, Rivian EDV, Rivian R1S and R1T, and Volvo S60, among others. The approved list of EVs include model year 2022 and early model year 2023 vehicles with final assembly in North America, based on the data submitted to the National Highway Traffic Safety Administration (NHTSA), the US DoE note dated 16 August said.

While more EV models are expected to be added to the list over the coming weeks, the bill allows consumers to receive the tax credits on EVs that are sold with a definitive written binding purchase contract but not yet delivered before Biden signed the IRA 2022.

Does new EV tax credit regime favor the Detroit 3?

It is quite clear that the revised EV tax credit criteria favor the homegrown Detroit 3. Even Tesla, the EV standard bearer and with an extensive local supply chain, is expected to struggle to secure eligibility for its entry Model 3 from 2024 onwards, S&P Global Mobility research shows.

The US IRA 2022 also eliminates the earlier sales cap with effect from 1 January 2023. Within this condition, EVs made by an automaker that has already sold more than 200,000 EVs in the US did not qualify for the tax credits. As a result, several models made by GM and Tesla, which already have cumulative sales of more than 200,000 EVs in the US, will continue to be ineligible for clean vehicle credits until 31 December 2022, despite being locally manufactured in the US.

According to the US DoE notification dated 16 August, some popular EV models such as the Chevrolet Bolt, GMC Hummer SUV, Tesla Model 3, S, and X will remain ineligible for the tax credits until 31 December 2022 as the OEM sales cap of 200,000 units is already realized. While these models will once again become eligible for the tax credits in 2023, these EVs continue to be sold in the market albeit with a price disadvantage. Whether price really matters for the initial promulgation of EVs is a moot point. Typical price levels of successful models in the market would suggest a more inelastic demand curve than one might see for ICE vehicles and less luxurious vehicles.

With a few exceptions, EVs are a 'new luxury' bought by people that can afford them, so short-term damage might not avail itself in the total sales topline. However, where it is problematic is that when the industry moves to wider adoption, lower cost and smaller EVs etc., supply chains that have been in planning for anything up to five years prior will have to be rethought to participate competitively in the market. There are many ramifications for this—assumptions on what to source and from where are thoroughly thought through in terms of quality, quantity, cost, ESG, and overall internal profitability targets for a vehicle program.

Although the revised norms are undoubtedly favorable for the incumbents, the new restrictions do not preclude global OEMs from Europe, South Korea, Japan, and other countries from participating in the US market but they will have to sharpen their non-price competition.

Eligibility to subsidy of IRA in the US (components level)												
Brand	Pack plant	Cell maker	Cell plant	CAM maker	CAM plant	Local content	Subsidy					
							2023	2024	2025	2026	2027	2028
BMW X6	US	Samsung SDI	Hungary	EcoPro BM	Korea	20%	Not eligible	Not eligible	Not eligible	Not eligible	Not eligible	Not eligible
BMW iX7	US	Samsung SDI	US	EcoPro BM	Korea	53%	No production	No production	No production	Not eligible	Not eligible	Not eligible
Mercedes-Benz EQA SUV	Germany	Automotive Cells Company	Germany	Umicore	Europe	0%	No production	No production	No production	No production	Not eligible	Not eligible
Mercedes-Benz Sprinter	Germany	CATL	Germany	BASF	Europe	0%	No production	Not eligible	Not eligible	Not eligible	Not eligible	Not eligible
Mercedes-Benz Metris	US	SK On	US	Ronbay	Mainland China	53%	Not eligible*	Not eligible	Not eligible	Not eligible	No production	No production
Mercedes-Benz Metris	US	SK On	US	SK-Easpring	US	83%	No production	No production	Eligible	Eligible	Eligible	Not eligible
Tesla Model 3 and Y	US	Panasonic	US	Sumitomo Metal Mining	Japan	53%	Eligible	Not eligible	Not eligible	Not eligible	Not eligible	Not eligible
Tesla Cyber truck	US	Tesla	US	Sumitomo Metal Mining	Japan	53%	Eligible	Not eligible	Not eligible	Not eligible	Not eligible	Not eligible
Tesla C-UV	US	Tesla	US	Tesla	US	83%	No production	No production	No production	Eligible	Eligible	Not eligible
Volkswagen ID.7	US	SK On	US	EcoPro BM America	US	83%	No production	Eligible	Eligible	Eligible	Eligible	Not eligible
Stellantis Wagoneer	US	Samsung SDI-Stellantis	US	BASF	US	83%	No production	Eligible	Eligible	Eligible	Eligible	Not eligible
General Motors Corvet EV	US	Ultium Cells	US	Ultium CAM	US	83%	No production	No production	Eligible	Eligible	Eligible	Not eligible

Note: * Not eligible because it contains elements that are obtained from an "entity of concern", the term that disqualifies a lot of Chinese suppliers
Source: IHS Markit

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S&P Global Mobility's viewpoint

S&P Global Mobility points out that the new mandates will be challenging even for legacy US automakers to meet. In regard to the requirements on battery components (for availing tax credits worth USD3,750), localization of the cathode and anode active materials (CAM and AAM), which are among the most expensive parts in the battery, will be needed in the US. While CAM and AAM are not currently produced in the US, S&P Global Mobility forecasts that the production of CAM will begin only in 2025, by when the IRA 2022 mandate asks for North America production or assembly of at least 60% of the battery components by value.

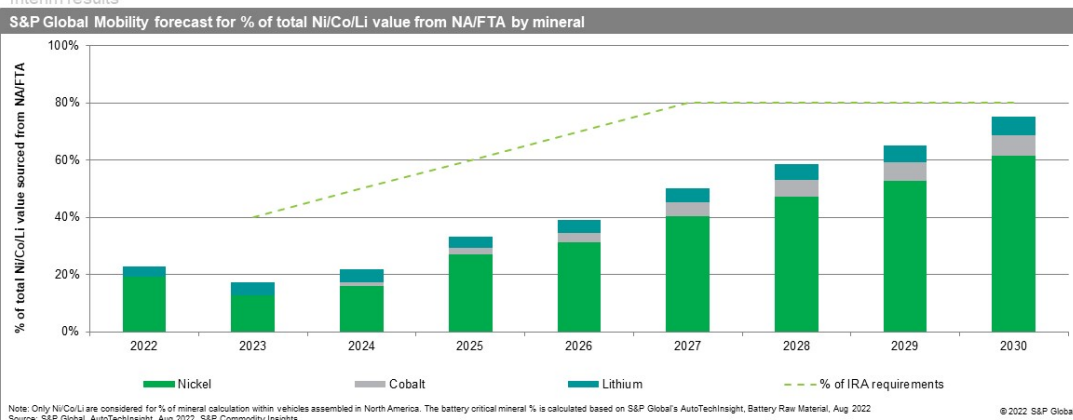
Our forecast also suggests that although local production of cells and battery modules will account for the bulk value of the battery components, trying to close the gap with the regulatory requirements through the decade, the total value of components locally produced will fall short of meeting the norms. In data terms, the gap between the value of battery components localized (about 40% in 2024) and the regulatory ask (60% by 2024) will double by 2030. Under current planning assumptions, this means that not more than 60–65% of the battery components by value will be localized in North America against IRA's 100% stipulation. That said, the CAM and AAM are expected to account for less than 20% of the total battery components (by value) localized in North America by 2030.

As for the requirements for critical minerals used in the EV batteries (for availing tax credits worth USD3,750), we forecast that although a wide gap exists currently in meeting the regulatory norm, it will be significantly closed primarily by sourcing of nickel either locally in North America or from the countries having an FTA with the US. However, we estimate that without significant upheaval to sourcing plans that the EV battery supply ecosystem will fall short of the strict regulatory ask on critical minerals through the decade.

Inflation Reduction Act: Requirements on critical minerals for USD3,750 credit

Nickel sourcing from NA/FTA will be the critical component of meeting IRA

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Major developments post IRA 2022

The passing of the US IRA 2022 has already precipitated change and accelerated investments in the EV supply chain in the US. Perhaps fearful of missing out on incentives a number of overseas, OEMs have made a series of announcements in recent weeks. The following table summarizes some of the key recent developments:

Key developments post US IRA 2022

Date	Company	Investment	Brief
31 August 2022	Toyota Motor Corporation	\$2.5 billion	Toyota to pump an additional USD2.5 bn in Toyota Battery Manufacturing, North Carolina (TBMNC) for increasing EV battery production in the US. Plant to start in 2025, will make lithium-ion batteries for EVs
29 August 2022	Honda, LG Energy	\$4.4 billion	Honda, LG Energy Solution to form a JV to set up a 40GWh gigafactory to produce Li-ion batteries in the US
24 August 2022	Hyundai Motor Company	\$5.5 billion	Hyundai plans to accelerate construction of electric car, battery plants in the US
23 August 2022	VW, Mercedes-Benz	NA	German carmakers VW, Mercedes-Benz sign MoUs with Govt. of Canada to secure stable EV battery supply chain
22 August 2022	FREYR Battery	NA	Norwegian battery maker to accelerate its plan of setting up Giga America, its first Gigafactory in the US
18 August 2022	SungEel HiTech	\$37 million	South Korean battery recycler SungEel HiTech to build a recycling plant in Georgia, US
23 August 2022	Mexico	NA	Mexico sets up state-owned company to organize lithium mining activities
1 September 2022	Piedmont Lithium	\$600 million	Company to set up 30,000-ton lithium hydroxide refining plant in Etawah, Tennessee, US

Source: IHS Markit

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Author: Amit Panday, Senior Research Analyst, Battery, IHS Markit

CONTACTS

The Americas
+1 877 863 1306

Europe, Middle East & Africa
+44 20 7176 1234

Asia-Pacific
+852 2533 3565

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