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ADVANCING TRANSFORMATIVE TRANSPORTATION TECHNOLOGIES TO ENSURE OUR ENERGY SECURITY

February 13, 2024

Department of the Treasury
Internal Revenue Service
Room 5203, P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

Docket: REG–107423–23: *Section 45X Advanced Manufacturing Production Credit*

To Whom It May Concern:

On December 15, 2023, the Internal Revenue Service (IRS) issued a Notice of Proposed Rulemaking entitled "Section 45X Advanced Manufacturing Production Credit."[1] In the proposed rule, the Internal Revenue Service (IRS) outlines the proposed rules to implement tax credits established in the Inflation Reduction Act to incentivize the domestic manufacturing of capital equipment and the processing of critical minerals that are at the heart of the clean energy economy, including certain solar energy components, wind energy components, inverters, qualifying battery components, and specified critical minerals.

In these comments, SAFE offers comments on the IRS's proposed rule, which is a primary tool in the national effort to build a domestic clean energy supply chain.

SAFE was founded in 2004 to develop and advocate for policies to improve America's energy, economy, and national security. Its initial focus on ending dependence on oil by using less, diversifying to other cleaner sources of energy, and the responsible use of our domestic energy resources with higher environmental standards, evolved into an emphasis on electrification.

SAFE, having long advocated for a swift transition to electric vehicles while ending dependence on oil, realized that the United States would soon reach a point where it risked trading dependence on Saudi oil for dependence on Chinese critical minerals. With an eye to a comprehensive approach to counter China's ambitions in the new transportation sector, SAFE's mission today has expanded and evolved to ensure the acceleration of real-world deployment of secure, resilient, and sustainable transportation and energy solutions for the United States,

[1] Department of the Treasury, "Section 45X Advanced Manufacturing Production Credit," 88 Fed. Reg. 86844, December 15, 2023 (NPRM).

and its partners and allies, by shaping policies, perceptions, and practices that create opportunity for all. SAFE works with four-star retired military officers and Fortune 500 CEOs/senior business leaders who constitute the Energy Security Leadership Council, bringing their voices and credibility to the arguments and policies created by expert staff who produce high-quality, fact-based analysis and policy recommendations for lawmakers, regulatory agencies, and the public.

Our primary goal in submitting these comments is to assist the Department of the Treasury (the Department) and the IRS in thinking about how to implement the 45X production tax credit. Its implementation should maximize access to the tax credit consistent with the language of the statute and Congressional intent, which is to reinvigorate the advanced manufacturing sectors by building domestic production capacity for key technologies, components, and materials needed to develop secure supply chains for energy, defense, and other advanced industries that promote economic growth, opportunity, and economic security.

We would welcome the opportunity to answer any questions about these comments or discuss them with officials from the IRS and/or the Department. If you have any questions about our comments or the issues therein, please contact Ron Minsk at ronminsk@gmail.com or 240-535-9799 (voice/text).

I. Summarizing the Internal Revenue Service Proposal

The Inflation Reduction Act establishes an Advanced Manufacturing Production Credit to support the production of clean energy equipment and the materials needed to manufacture some of the finished products.[2] The credit is structured as a group of 13 credits for the manufacture of wind turbines, solar panels, batteries, their components, and applicable critical minerals. The goal is to incentivize each production step along the supply chain individually. The value of the credit is the sum of 13 different values, identified in Section 45x(b)(1) subsections (A) through (M), determined largely to narrow the cost difference between producing each distinct component in the United States versus sourcing them from abroad.[3]

Section 45X(b) states that:

(b) CREDIT AMOUNT. —
(1) IN GENERAL. —Subject to paragraph (3), the amount determined under this subsection with respect to any eligible component, including any eligible component it incorporates, shall be equal to—
(A) . . . .
(B) . . . .%
(J) in the case of electrode active materials, an amount equal to 10 percent of the costs incurred by the taxpayer with respect to production of such materials,
(K) in the case of a battery cell, an amount equal to the product of—

[2] 26 USC §45X.

[3] SAFE findings from interview with subject matter experts and analysis based on data from DOE, NREL and Bloomberg New Energy Finance.

(i) $35, multiplied by
(ii) subject to paragraph (4), the capacity of such battery cell (expressed on a kilowatt-hour basis),

(L) in the case of a battery module, an amount equal to the product of—
(i) $10 (or, in the case of a battery module which does not use battery cells, $45), multiplied by
(ii) subject to paragraph (4), the capacity of such battery module (expressed on a kilowatt-hour basis), **and**

(M) in the case of any applicable critical mineral, an amount equal to 10 percent of the costs incurred by the taxpayer with respect to production of such minerals.[4]

Subsections (J), (K), (L), and (M) are designed to promote the manufacture of electric vehicle battery modules, battery cells, the electrode active materials from which battery cells are produced, and the applicable critical minerals, some of which are used to manufacture the active materials used in battery cells. The credits for battery components are calculated as a fixed sum per kilowatt hour of battery storage capacity.[5] These credits are designed similarly to the credits for components of solar panels and wind turbines, in that the credit is a fixed amount per unit of production.[6] The credits for applicable critical minerals and the electrode active materials, on the other hand, are calculated as a percentage of the cost of producing the qualifying minerals or materials.[7] The distinction was probably a result of the fact that there are 50 different critical minerals (with a greater number of related compounds identified in the statute) and many electrode active materials that are produced through different processes with widely varying costs, making it impractical to assign a single per unit value for the credit.[8]

II. Concerns Regarding the Internal Revenue Service's Calculation of the Advanced Manufacturing Tax Credit.

SAFE has identified four primary concerns with the proposed rule. ***First***, we believe that all material costs, direct and indirect, including the costs of mineral extraction, should be included in the calculation to determine the cost of producing applicable critical minerals, and therefore taken into account when calculating the value of the tax credit. ***Second***, we believe that the entire value of the tax credit should be available to the taxpayer who is responsible for the final stage in manufacturing the component or producing the applicable critical mineral as defined in the statute and should not be divided among suppliers across the supply chain. ***Third,*** we believe that all costs of production should be included when calculating the cost of producing an applicable critical mineral regardless of where the costs were incurred, including those costs that were incurred outside of the United States. ***Fourth*****,** we believe that in calculating the cost of producing electrode active materials, the taxpayers should include all costs, direct and indirect, including the cost of acquiring applicable critical minerals, even if that allows certain

4 26 USC §45X(b) (1) (emphasis added).

5 45X(b)(1)(A)-(E).

6 45X(b)(1)(F)-(H).

7 45X(b)(1)(J), (M).

8 For example, aluminum costs approximately $2,250 per ton while neodymium costs approximately $50,000 per ton.

production costs to be the basis of calculating the value of the tax credit under both Subsection (M) for applicable critical minerals and Subsection (J) for electrode active materials.

Issue 1: All Material Costs, Direct and Indirect, Including the Costs of Mineral Extraction, Should Be Included in the Calculation to Determine the Cost of Producing Applicable Critical Minerals

The IRS seems to struggle in defining the production costs of applicable critical minerals and electrode active materials. The proposal states that "[t]he Treasury Department and the IRS seek to appropriately provide a credit for the costs associated with production activities that add value to the applicable critical mineral and are conducted by the taxpayer that produces the applicable critical mineral," but notes that "[m]erely purchasing raw materials may enable a taxpayer to produce an applicable critical mineral but it is not by itself an activity that adds value."[9] The proposal also notes that "[e]xcluding material costs would also mitigate the risk of crediting the same costs multiple times."[10]

With regard to the first point raised by the IRS, it is correct that the act of purchasing a raw material that is subsequently used to produce a critical mineral does not, in itself, add any value. The purchase cost, however, does reflect the value added by the seller of the raw material, whose extraction and processing processes added value to the material by removing the material from below ground and using a series of processes to extract the material from ore, concentrate it, transport it, and prepare it for the next step in the manufacturing process. That is, in fact, the economics underlying value added taxes, which are taxes levied on all sales of commodities or products at every stage of production, with its defining feature being that that it credits taxes paid by enterprises on their material inputs against the taxes they must levy on their own sales.[11]

In many instances, the primary cost of producing an applicable critical mineral is the cost of extraction or purchasing the ores, concentrates, etc. from which the applicable critical mineral is produced. For example, with respect to lithium, the primary value is in the lithium carbonate or spodumene from which lithium hydroxide is produced. The value of the eight tons of spodumene rock needed to make one ton of lithium carbonate was between $25,000 and $32,000 in summer 2022. The processing of spodumene, for example, to produce lithium carbonate costs about $3,000 per ton of lithium carbonate. This demonstrates that the primary cost of an applicable critical mineral is often the cost of the material input and not the cost of processing. If the cost of extraction is excluded from the production cost of the applicable critical mineral, the value of the tax credit is substantially reduced – in this example by perhaps 90 percent. Today, under different market dynamics, the material costs constitute upwards of 70 percent of the price of lithium hydroxide.

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9 NPRM at 86853.

10 NPRM at 86853.

11 Liam Ebrill, Michael Keen, Jean-Paul Bodin, and Victoria Summers, The Allure of the Value-Added Tax, Finance & Development: A Quarterly Magazine of the IMF, June, 2002.

The lithium example demonstrates how the exclusion of mineral extraction costs will undermine the effectiveness of the tax credit. Moreover, to the extent that processing facilities in the United States are newer and more efficient than those abroad, the processing costs will be reduced, making the cost of the material inputs an even higher share of the overall production cost of the applicable critical mineral. Thus, excluding extraction costs from the calculation will just further dilute the value of the credit.

Beyond the extraction cost of raw materials, another big contributor to the production costs of applicable critical minerals is the cost of consumable indirect materials including chemical reagents like hydrochloric acid. The cost of these materials varies greatly by region. In China, for example, where there is an overproduction of hydrochloric acid, and critical mineral refiners are often paid to consume the excess material. The United States does not have such overproduction, therefore, refiners pay market prices for chemical reagents. The U.S. market price for hydrochloric acid can exceed $200 per ton of contracted volumes.

Depending on their market price, chemical reagents can account for 30 percent or more of the total production costs in the separation of rare earth elements – making them, for example, the highest continuous operating expense for rare earths refiners after labor. Excluding the cause of regional production cost disparities vis-à-vis China, which is home to 90 percent of rare earths processing, would significantly dilute the benefit of the tax credit for domestic producers and undermine the efforts to incentivize processing of critical minerals and rare earths in the United States.

There is nothing in the statute that suggests that only the value added by the entity that finally transforms the material into a qualifying critical mineral is an eligible cost for the purpose of determining production costs on which the tax credit is based.

That the IRS's concern that the purchase of raw materials does not itself add any value is perhaps secondary can be inferred from the proposal's statement that "[t]he Treasury Department and the IRS are considering including in production costs the costs of extraction and other similar value-added activities in the production of raw materials used in applicable critical minerals . . . only . . . if the IRS could effectively administer such an approach and there are sufficient assurances that adopting such an approach would pose a limited risk of (i) crediting the same production costs multiple times and (ii) increasing other forms of fraud, waste, and abuse."[12] Stated more simply, it appears that the primary concern is that the agencies want to avoid double counting that would include the same production costs more than once in the calculation of the credit for critical minerals under Subsection (M) of the statute, and that they would include extraction costs in production costs if they could avoid double counting.

[12] NPRM at 86853.

The statute defines 25 minerals that qualify as applicable critical minerals if they are purified to at least 99 percent purity by mass.[13] For those 25 critical minerals, there is no opportunity for double counting as those minerals only are purified to the required level of purity for the first time once. The statute also defines 25 other minerals that qualify as critical minerals when either purified to a specified level of purity, or transformed into specified oxides, sulfates, or other compounds.[14] These minerals present more of a challenge because, as the proposal observes,[15] some, but not all, of the compounds identified as applicable critical minerals are used to synthesize or manufacture other compounds that are also identified as applicable critical minerals. If the taxpayer produced a compound that was a qualifying critical mineral (Mineral A) from another compound that was also a critical mineral (Mineral B), the costs incurred in producing the first critical mineral (Mineral A) would be double counted if included in the cost of producing the second critical mineral (Mineral B). It is this circumstance that the IRS is seeking to avoid.

SAFE believes that the IRS's concern about double counting can be addressed. There are a limited number of circumstances where the double counting about which the IRS is concerned can occur because there is a limited number of applicable critical minerals that are precursors to the production of other applicable critical minerals. For example, lithium hydroxide, defined as an applicable critical mineral, can be synthesized from lithium carbonate, another critical mineral, or directly from spodumene ores, which is not an applicable critical mineral for the purposes of 45X. Other examples identified by SAFE are nickel sulfate which can be produced by dissolving Class 1 nickel (with purity of 99.8 percent nickel by mass) in sulfuric acid or aluminum which is produced from alumina. The IRS could require that taxpayers claiming a credit for an applicable critical mineral, such as lithium hydroxide, determine the manner in which the applicable critical mineral was produced. In those circumstances where an applicable critical mineral was produced from another applicable critical mineral, the taxpayer should be required to exclude the cost of procuring the first critical mineral from the cost of producing the second critical mineral.

Accordingly, taxpayers should be allowed to include all costs, direct and indirect, including the costs of mineral extraction, in the calculation to determine the cost of producing applicable critical minerals. In those circumstances where a critical mineral is used to produce a second critical mineral, the cost of procuring the first critical mineral should be excluded from the cost of producing the second critical mineral, thereby eliminating any double counting.

Issue 2: The Entire Value of the Tax Credit Should Be Available to the Taxpayer Who is Responsible for the Final Stage of Manufacturing the Component or Producing the Applicable Critical Mineral as Defined in the Statute

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[13] 26 USC §45X(c)(6)(Z).

[14] 26 USC §45X(c)(6)(A)-(Y).

[15] NPRM at 86853.

Whenever possible, the value of the applicable critical minerals should be determined at the conclusion of the specific step in the supply chain at which the material first meets the definition of an applicable critical mineral as defined in 26 USC §45x(c)(6).

Materials that are transformed into critical minerals work their way through a processing and refining process that starts with either extraction from the earth, reclamation from material that was previously mined (tailings), or recovery from materials that are separated for recycling. To calculate the value of a critical mineral, one must identify a consistent point on the supply chain at which to determine the mineral's value. Otherwise, parties seeking to obtain the tax credit pursuant to this provision could determine value at points along the supply chain that they select to achieve a particular outcome, undermining the integrity of the credit.

Mineral processing is the dry and wet crushing and grinding of ore or other mineral-bearing products for the purpose of raising metal concentrate grade; removal of waste and unwanted or deleterious substances from an otherwise useful product; separation into distinct species of mixed minerals; chemical attach and dissolution of selected elements.[16] Methods include comminution (crushing), concentration (separation of minerals from other raw materials), dewatering (removal of water for transport), extractive metallurgy, and subsequent refining of metal concentrates into metallic compounds.[17] Each applicable critical mineral that is incorporated into a lithium-ion battery, for example, may have gone through a unique process because different rocks and minerals are processed by different means.

Every mineral, however, passes through at least three specific stages that can be clearly and objectively identified:

1) extraction from the earth, recovery from old mine tailings, or recovery from recycled materials,
2) some point in the supply chain at which the material first meets the definition of an applicable critical mineral (as stated in 26 USC §45x(c)(6)), and
3) incorporation into a battery component or other industrial applications.

For the purpose of this calculation, the value of the applicable critical minerals should be determined at the conclusion of the specific step in the supply chain at which the material first meets the definition of an applicable critical mineral in 26 USC §45x(c)(6). This approach makes sense for at least three reasons. First, at any point in the supply chain prior to that point, the material does not yet meet the definition of an applicable critical mineral. Because it is not an applicable critical mineral, it has no value as an applicable critical mineral. Second, each material is transformed into an applicable critical mineral for the first time only once. Therefore, for each material, the point at which it is transformed into an applicable critical mineral for the first time represents a single, clearly identifiable point in the supply chain. By determining the value of the applicable critical mineral at that point, stakeholders are

[16] Gruner, Holger and Lorig, Clarence H., "mineral processing," *Encyclopedia Britannica*, November 17, 2006.

[17] Id.; Halder, Swapan Kumar, "Mineral Exploration: Principles and Applications," Second Edition, Science Direct, 2018; Keuendorf, K. K. E., et al., "Glossary of Geology—Fifth Edition, Revised," American Geosciences Institute, 2011.

working with a clear and objective definition, which minimizes the opportunity to manipulate the calculation to achieve a preferred outcome. Third, once the applicable critical mineral has progressed further down the supply chain from the point at which it was transformed into a critical mineral, its price will incorporate additional added value that exceeds its value as an applicable critical mineral.

Some stakeholders have advocated that the value of the applicable critical mineral be determined earlier in the supply chain, specifically at the point at which the ore or other material from which the applicable critical mineral is drawn is extracted from the earth (*i.e.,* at the mine). To explore this approach, one might examine the definition of the critical mineral lithium.

The language of the statute at 26 USC §30D(e)(1)(A) states that for the purpose of the Section 30D tax credit, the definitions of applicable critical minerals are those defined at 26 USC §45X(c)(6). Section 45X of the tax code creates a new Advanced Manufacturing Tax Credit for the production of a variety of products or materials by a taxpayer, including a list of more than 50 applicable critical minerals identified at 26 USC §45X(c)(6).

At 26 USC §45X(c)(6)(P), the statute defines the applicable critical mineral lithium as: '(P) LITHIUM.—Lithium which is (i) converted to lithium carbonate or lithium hydroxide, or (ii) purified to a minimum purity of 99.9 percent lithium by mass." One might read this language in one of two different ways. First, that "Lithium is a material of some type (ore or something else) that is subsequently converted to lithium carbonate or lithium hydroxide, or purified to a minimum purity of 99.9 percent lithium by mass." An alternative way to read the statute is to mean that "Lithium is what is created when a party has taken some type of material (ore or something else) and converted it to lithium carbonate or lithium hydroxide, or purified to a minimum purity of 99.9 percent lithium by mass."

The first alternative would allow a taxpayer who produces a material of some type (ore or something else) that is subsequently converted to an applicable critical mineral to take the Section 45X tax credit. This reading of the statute is unworkable for at least three reasons. ***First***, there are more than 50 materials on the list of applicable critical minerals. For many, if not all of them, materials may pass through several owners who perform different functions between the time when the material is extracted from the earth and first meets the definitions in 26 USC §45X(c)(6). For the credit to be workable, for each volume of material, there must be a single entity that is clearly eligible to take the tax credit, and only one entity. For the reasons stated above, the one entity that is in the best position to support a workable tax credit consistent with the language of the statute is the entity that owns the material at the conclusion of the specific step in the supply chain at which the material first meets the definition of an applicable critical mineral. ***Second***, because the Section 45X tax credit is calculated as "an amount equal to 10 percent of the costs incurred by the taxpayer with respect to production of such mineral," 26 USC §45X(b)(1)(M), the IRS must be clear as to at what single point in the supply chain the credit is available. It seems axiomatic that the credit for the

production of an applicable critical mineral as defined in 26 USC §45x(c)(6) cannot take place before it meets the definition defined within 26 USC §45x(c)(6).

Finally, and perhaps most importantly, not all of the material that is mined and could be transformed into an applicable critical mineral is actually transformed into another applicable critical mineral. For instance, about half of the nickel produced globally is Class 2 nickel, which is less than 99 percent pure nickel by mass,[18] and therefore does not meet the definition of an applicable critical mineral. It may not be possible for the extractor of an ore to know at the time of extraction whether the ore will ever be transformed into an applicable critical mineral. Without that knowledge, it would appear unworkable to treat mined ore as an applicable critical mineral. Moreover, even if the output of a particular mine is dedicated to a supply chain that will produce an applicable critical mineral, the IRS must use a consistent definition across all applicable critical minerals, reinforcing the conclusion that it would be unworkable to treat mined ore as an applicable critical mineral.

The second alternative is a workable definition for at least three reasons. First, it identifies a point in the supply chain that only occurs once for many applicable critical minerals. That will ensure that it is clear which party along the supply chain is eligible to claim the credit. Second, for at least half of the critical minerals listed in the statute, by identifying a single clear point along the supply chain where one values an applicable critical mineral, it should eliminate the possibility of offering a credit more than once for the same material. Third, the point in the supply chain identified by the second alternative is a point at which the material meets the requirement for an applicable critical mineral, unlike the first alternative.

The only exception to this approach would be when one applicable critical mineral is used to produce a second applicable critical mineral, a situation discussed in the previous section. In the circumstances where one applicable critical mineral is used to produce a second applicable critical mineral, the cost of procuring the first applicable critical mineral should be excluded from the cost of producing the second applicable critical mineral, thereby eliminating any double counting.

Issue 3: All Costs of Production Should Be Included When Calculating the Cost of Producing an Applicable Critical Mineral Regardless of Where the Costs Were Incurred

When calculating the cost of applicable critical minerals to determine the value subject to the tax credit equal to ten percent of the cost of producing the qualifying mineral, the taxpayer should include all direct and indirect costs, no matter where they were incurred.

There should be no question about including the cost of direct and indirect material produced in the United States. A critical mineral refiner or processor cannot produce the applicable critical minerals listed in the statute without the necessary feedstock. The extraction of raw

[18] Morgan Leighton, "5 Things You Need to Know about Class 1 & 2 and Intermediate Nickel," Crux Investor, March 16, 2020.

material and production of other reagents, consumables, etc. in the United States provide secure sources of material inputs for critical mineral refineries and processors.

Some stakeholders have argued that costs incurred outside of the United States should not be included in the calculation of total costs. While the United States has a wide variety of mineral reserves, the ores containing many of the critical minerals may be unavailable in the United States, uneconomic to extract in the United States, or many years away from practical development in the United States either because of lead times needed for exploration activities or permitting challenges. In the meantime, we still need the minerals to support the energy and digital transition.

For the vast majority of minerals, including some critical minerals that are extracted in the United States, the primary point of leverage that China has in the supply chain is in the processing stage, and not the extraction stage. Further, extraction is limited geographically by the location of a resource, but processing is more flexible. Stated differently, we cannot mine in the United States what we do not have, but we can build facilities to process anything to compete against China. This observation is confirmed by the fact a greater share of mineral processing than extraction takes place in China.

Excluding costs incurred outside the United States from the costs that are used to calculate the value of the tax credit for producing applicable critical minerals will substantially reduce the value of that credit for domestic processors and refiners who may not have access to domestically produced raw material feedstocks. In doing so, it will substantially undermine the incentive to build a domestic mineral processing capacity. The value of the credit is particularly important if we want to develop a domestic mineral processing industry as to cost of building a facility in the United States can often be double the cost of doing so abroad, or more.

In short, while we support the development of the entire supply chain in the United States, the processing stage is the part of the chain over which China has the greatest leverage and which government incentive can have the greatest effect in a reasonable time frame without the need for additional legislation like permitting reform. Therefore, when taxpayers are calculating the cost of producing an applicable critical mineral, they should be able to include all costs, direct and indirect, no matter where those costs are incurred, as long as substantial transformation at the refining or processing step takes place in the United States.[19]

Issue 4: Calculating the Cost of Producing Electrode Active Materials, the Taxpayers Should Include All Costs, Direct and Indirect, Including the Cost of Acquiring Applicable Critical Minerals

The same consideration for applicable critical minerals is true for electrode active materials. Material costs constitute a significant portion of the production cost of producing electrode

[19] The substantial transformation criterion used to determine country of origin for imports should be used to ensure that enough value added activity at the processing/refining step takes place in the United States.

active materials, and as manufacturing processes become more efficient, material costs are expected to account for a greater share of total production costs in the long run.

Electrode active materials are not all derived from critical minerals, but they may be partially or wholly made from critical minerals depending on the component. The proposed rule states that when calculating the cost of producing electrode active materials, the taxpayer may not include the cost of procuring applicable critical minerals (that are eligible for a tax credit under Section 45X(b)(1)(M)) that are used to produce the electrode active materials. The IRS is taking this approach to "mitigate the risk of crediting the same costs multiple times."[20] The proposal notes that "if material costs are included in production costs for electrode active materials, the costs of producing an applicable critical mineral that is later incorporated into an electrode active material could be credited more than once," while noting that "such material costs could make up a significant share of the cost of producing the electrode active material."[21]

The discussions during the formation of the IRA, however, were focused on determining a large enough value for 45X production credit to offset the higher U.S. production costs in each step of the supply chain (including all direct and indirect material costs) compared to the rest of the world, especially China. Lawmakers did not have the intention to create a collective tax credit that feeds through the supply chain, based on the value added by each producer.[22]

A careful reading of the language of the statute supports this argument. Despite the IRS's concern that including the costs of procuring critical minerals could lead to a form of double counting, taxpayers should be able to include the costs of critical minerals that are incorporated into electrode active materials even if the taxpayer that produced those same critical minerals received a tax credit equal to 10 percent of their production costs.

The amount of the Section 45X credit for advanced manufacturing is equal to the sum of 13 distinct values identified separately in Subsections (A) through (M) of Section 45X(b)(1). That the credit is the sum of each of these 13 distinct items is clearly indicated by the "and" at the end of subsection (L),[23] which indicates that the total credit is the sum of the credits available in Subsections (A) through (M).

Definitions regarding the solar components eligible for a tax credit demonstrate that the total credit is the sum of 13 separate values. Photovoltaic cells are eligible for a credit pursuant to Subsection (A) even as they are incorporated into solar modules which receive their own credit under Subsection (E).[24] Likewise, a polymeric backsheet is eligible for a credit under Subsection (D) even as they too are incorporated into solar modules.[25]

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[20] NPRM at 86851.

[21] NPRM at 86851.

[22] SAFE findings from conversations with subject matter experts and individuals who participated in drafting the 45X provisions for the IRA.

[23] 26 USC §45X(b)(1)(L).

[24] 26 USC §45X(b)(1)(A), (E).

[25] 26 USC §45X(b)(1)(D), (E).

Quantitative analysis of the estimated impacts along the solar supply chain also supports the same conclusion. In 2021, the estimated cost of producing a solar module in the United States with domestically manufactured components was \$0.38/ W_{dc}. The average global production cost for the modules, in comparison, was \$0.26/ W_{dc}.[26] The overall impact of the tax credits available to all solar components is expected to offset domestic production costs by \$0.18/W_{dc}. This would make domestically produced solar modules containing domestically manufactured components 30 percent cheaper than imported modules.[27]

In addition to demonstrating that the total advanced manufacturing credit is the sum of 13 distinct credits, the solar example above also suggests that some components are effectively double counted as they generate a credit when they are produced, and then again when those components are incorporated into larger parts when they are produced, adding up to an incentive that is greater than the domestic production premium in 2021. The same principle should be used when determining the tax credit for electrode active materials and critical minerals used in those electrode active materials.

Moreover, that this form of double counting is allowed is reinforced by the fact that the language in Subsection (L), which increases the value of the credit available in that subsection from \$10 to \$45 per kilowatt hour of capacity if the taxpayer is not eligible for the \$35 credit in Subsection (K), reflects a clear intent that a taxpayer is eligible to receive both the credit identified in Subsection (K) and the one in Subsection (L).[28]

Stated simply, these examples demonstrate that: 1) the total credit is the sum of 13 distinct credits, and 2) if Congress had wanted the availability or size of any one of the 13 credits to be a function of the availability of size of any other of the 13 credits that it knew how to do so. But Congress did not choose to limit the availability of the credit for electrode active materials under Subsection (J) based on the use of the critical mineral credit in Subsection (M) in the law, and the IRS should not try to do so by regulation.

Including the cost of acquiring applicable critical minerals and other non-critical mineral materials in the cost of producing electrode active materials is not only consistent with the language of the statute but also consistent with the purpose of the statute. The purpose of the statute is to incentivize the development of a domestic supply chain for the manufacture of batteries for electric vehicles. Congress chose to pursue this goal because of the foundational role that the automobile manufacturing sector plays in our economy, the inevitable transition of the light-duty vehicle market to electric vehicles, and the intense competition that U.S. automakers face from Chinese EVs that have companies that have developed with significant assistance from the Chinese government. Developing this manufacturing sector is quite simply a matter of economic security.

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[26] U.S. Department of Energy, *Solar Photovoltaics: Supply Chain Deep Dive Assessment,* February 24, 2022, at page 10.

[27] Note: This analysis does not include tariffs. Source: Yohan Min et al., "Effects of Renewable Energy Provisions of the Inflation Reduction Act on Technology Costs, Materials Demand and Labor," Working Paper, updated June 9, 2023.

[28] 26 USC §45X(b)(1)(K), (L).

A larger Section 45X tax credit will offer greater assistance to the domestic EV battery sector as it works to build the domestic capacity to compete against government-assisted companies in China. Excluding the cost of applicable critical minerals and other direct and indirect material costs from the total cost of electrode active material from which the value of the tax credit under Subsection (J) is calculated would significantly weaken the incentive for mineral-intensive electrode active materials. In some instances, the cost of the critical mineral could represent more than three-quarters of the total production cost of electrode active material, with this share of production costs increasing as manufacturing processes become more efficient.

Given that the language of the statute supports including the cost of procuring critical minerals and other materials in the cost of producing electrode active materials, that excluding them would dilute the value of the tax credit, and that including them is consistent with an important national goal of developing a robust domestic electric vehicle battery supply chain to support jobs, innovation and, economic security, the IRS should allow taxpayers to include the cost of procuring critical minerals in the cost of producing electrode active materials when calculating the value of the tax credit under Subsection (J).

As in the case of applicable critical minerals, in those circumstances where an electrode active material is used to produce a second electrode active material, the cost of procuring the first electrode active material should be electrode active material from the cost of producing the second critical mineral, thereby eliminating any double counting.

# # #

III. Conclusion

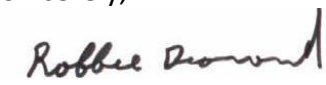
SAFE, having long advocated for a swift transition to electric vehicles while ending dependence on oil, realized that the United States would soon reach a point where it risked trading dependence on Saudi oil for dependence on Chinese critical minerals. With an eye to a comprehensive approach to combat China's ambitions in the new transportation sector, SAFE's mission today has expanded and evolved to ensure the acceleration of real-world deployment of secure, resilient, and sustainable transportation and energy solutions for the United States, and its partners and allies, by shaping policies, perceptions, and practices that create opportunity for all.

Our primary goal in submitting these comments is to assist the Department in thinking about how to implement the tax credit so it can provide its intended incentives to consumers and the auto industry while developing secure supply chains for this critical sector of the economy so that it can continue making a significant contribution to our nation's economic growth, industrial base, and security over time. We hope that our comments contribute to the Department's thinking.

Again, we would welcome the opportunity to answer any questions about these comments or discuss them with officials from the Department of Energy. If you have any questions about our comments or the issues therein, please contact Ron Minsk at ronminsk@gmail.com or 240-535-9799.

Thank you for the opportunity to offer comments concerning the implementation of this important tax credit.

Sincerely,



Robbie Diamond

Founder, President and CEO
SAFE