



# Final regulations on advanced manufacturing production credit under section 45X

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The U.S. Treasury Department and IRS, on October 24, 2024, released final regulations governing the advanced manufacturing tax credit under section 45X.

The section 45X credit was established by the “Inflation Reduction Act of 2022” and is designed to incentivize taxpayers to produce eligible solar, wind, and battery components, subcomponents, and precursors in the United States. The credit is a manufacturing production tax credit (MPTC) and is based on the number or production cost of “eligible components” produced and sold by a given taxpayer to a related or unrelated person as a part of the taxpayer’s trade or business.

The final regulations provide clarifying changes to credit eligibility that are generally taxpayer favorable.

One of the most significant changes from the proposed regulations is that the final regulations allow certain direct and indirect material costs to be included in the section 45X credit computation for the production of electrode active materials and critical minerals.

## 1.45X-1 general rules

The section 45X statute provides a credit amount associated with each eligible component “produced by” the taxpayer in the United States and sold. There is no requirement that the buyer of the eligible component must use it in the United States. The benefit for producing certain components (for example, battery modules) are provided as a statutory amount on a per-unit basis, whereas others—most notably electrode active materials and critical minerals—are credited as a statutory percentage of production costs.

### Definition of “produced by the taxpayer” broadened for certain fact-patterns

The proposed regulations defined the term “produced by” the taxpayer to mean a process conducted by the taxpayer that substantially transforms constituent elements, materials, or subcomponents into a complete and distinct eligible component. “Substantial transformation” is distinguished from “partial transformation, mere assembly, and superficial modification.” The final regulations confirm the approach in the proposed regulations, replacing the phrase “mere assembly” with “minor assembly” to allow that certain activities that might be called “assembly” might still constitute “substantial transformation” in certain instances.

In response to the proposed regulations under section 45X, commentators requested various changes or clarifications to the definition of “substantial transformation.”

The IRS generally declined to implement these suggestions, citing the importance of a definition with “flexibility.” However, in the preamble to the final regulations, Treasury offered the following insights into the IRS understanding of the term as used specifically with respect to the section 45X MPTC:

- Given that certain eligible components, “such as solar modules and battery modules using battery cells, are produced primarily by assembling other components,” the substantial transformation requirement is met by the act of assembling components for “these limited cases.”
- If a product requiring only minor on-site assembly (e.g., a nacelle for a wind turbine) is sold, the manufacturer (as opposed to the on-site assembler) is generally eligible for the section 45X benefit.
- Extraction of a “critical mineral” does not in itself constitute substantial transformation, although, as discussed below, such costs may be eligible for a section 45X benefit where the extractor also engages in other production activity toward an eligible component.

The proposed regulations provided that, for solar grade polysilicon, electrode active materials, and applicable critical minerals, the term “produced by the taxpayer” refers to processing, conversion, refinement, or purification of source materials, such as brines, ores, or waste streams, to derive a distinct eligible component. The final regulations further provide that the taxpayer must substantially transform the source materials to derive a distinct eligible component.

The final regulations follow the proposed regulations and confirm that constituent elements, materials and subcomponents used in the production of eligible components need not be produced in the United States.

### **KPMG observation**

While the IRS pointedly declined to offer certain clarifications that taxpayers had requested, the comments provided in the preamble to the final section 45X regulations generally confirm the interpretation that the definition of the term “substantial transformation” for purposes of the section 45X MPTC is distinct—and possibly more broad—relative to how that term has been interpreted under the subpart F rules.

## **Extraction and raw materials costs eligible under limited circumstances**

Under the statute, the credit benefit associated with the production of solar grade polysilicon, electrode active materials, and critical minerals is calculated on the basis of “costs incurred ... with respect to the production” of the eligible component (rather than a fixed amount on a per-unit basis as is the case for other eligible components). The proposed regulations issued last December notably excluded the costs of direct and indirect materials from this calculation. The IRS argued that direct and indirect material costs were not a “value-adding” element of production. Additionally, the IRS excluded extraction costs for critical materials, noting administrative concerns and requesting further taxpayer input.

Commentors generally responded that the IRS’s interpretation within the proposed regulations reflected a distinction not made in the underlying legislation. The IRS was receptive to taxpayers’ arguments, and the final rules permit claiming direct and indirect materials costs calculated under §1.263A-1(e) principles as well as domestic extraction costs by a taxpayer producing the “relevant applicable critical mineral or electrode active material”—but only so long as those materials themselves are not “an eligible component at the time of acquisition.” This approach intends to prevent the duplicative claiming of costs related to the same activity by multiple parties. Taxpayers claiming such costs must provide substantiation documentation including a certification signed under perjury by the vendor of the materials that it has not claimed the section 45X credit.

In the specific case of extracted raw materials, the final regulations clarify that a taxpayer/producer that itself extracts raw materials may only include the relevant costs if the extraction occurs within the United States or its territories. On the contrary, should that same taxpayer purchase raw materials that have been extracted abroad by a third party, these costs may still be eligible as materials costs as long as the obtained materials are not an eligible component at the time of acquisition and the taxpayer/producer follows certain substantiation rules to support that determination.

### **KPMG observation**

The eligibility of certain materials and extraction costs under the final section 45X regulations is most helpful to critical minerals producers and processors as well as producers of electrode active materials, particularly vertically integrated producers early in the production chain who are not purchasing “eligible components” themselves.

## **Contract manufacturing**

Under a typical contract manufacturing or tolling arrangement, the proposed regulations provided that the contract manufacturer, and not its customer, was the “producer” for purposes of section 45X. This was the case even though the customer might be treated as the producer for other purposes of the Code such as section 263A. However, the proposed regulations provided that, in a contract manufacturing arrangement (as defined), the contract manufacturer and its customer could enter into an agreement treating its customer as the “producer.” Binding agreements had to be entered into prior to the production of the given components; and the given components had to be newly manufactured and not simply sold from the stock of the contractor.

The final regulations incorporate this approach without significant changes. However, the final rules clarify that taxpayers performing extraction and refining activities related to critical materials may avail themselves of this regime as well.

## **Timing and production and sale**

Section 45X provides that eligible components produced and sold after December 31, 2022 are potentially eligible for the credit benefit. Eligible components must be produced within the United States, although, as noted above, their constituent elements, materials, and subcomponents are not subject to that requirement.

The proposed regulations provided that the production of eligible components for which a taxpayer is claiming a section 45X credit may begin before January 1, 2023. Production of eligible components must be completed, and sales of eligible components must occur, after December 31, 2022. The final regulations include this rule without change.

The proposed regulations provided that a taxpayer may claim a section 45X credit for each eligible component the taxpayer produces and sells to an unrelated person, including any eligible component that is part of another complete and distinct eligible component or another complete and distinct product (that is not itself an eligible component) that the taxpayer also produces and sells to an unrelated person. For instance, if a domestic taxpayer produces eligible battery modules in 2023, and integrates them into an electric vehicle (not an eligible component), the taxpayer would be eligible for the credit in the tax year that the electric vehicle is sold to an unrelated third party. Therefore, if the electric vehicle is sold to an unrelated party in 2024, the taxpayer would be entitled to the credit for the eligible module in 2024. The final regulations incorporate these rules without change.

## Interplay with 48C

Section 45X provides that the section 45X credit cannot be claimed with respect to a facility that has received a credit allocation under section 48C.

Under the proposed regulations, a section 45X facility includes all tangible property that comprises an independently functioning production unit that produces one or more eligible components, meaning the property that substantially transforms the material inputs. A section 48C facility includes all eligible property included in a qualifying advanced energy project for which a taxpayer receives an allocation of section 48C credits and *claims* such credits after August 16, 2022.

The final regulations incorporate these rules without significant changes.

## Anti-abuse rule

Under the proposed regulations, a section 45X credit is not allowable if the primary purpose of the production and sale of an eligible component is to obtain the benefit of the section 45X credit in a manner that is wasteful, such as discarding, disposing of, or destroying the eligible component without putting it to a productive use. A determination of whether the production and sale of an eligible component is inconsistent with the purposes of the credit is based on all facts and circumstances. In addition to other expressly stated substantiation requirements, the anti-abuse provision requires taxpayers to understand the intended use of the product as it makes its way through the supply chain.

The final regulations incorporate these rules without significant changes. However, the final rules do clarify that defects in manufactured eligible components arising after the point of sale “do not generally raise improper claim concerns.”

# 1.45X-2 sale to unrelated person

Under section 45X, a taxpayer may make an election (Related Person Election), to treat a sale of eligible components by such taxpayer to a related person as if made to an unrelated person.

The proposed regulations, as confirmed by the final regulations, require a taxpayer to make an affirmative Related Person Election annually on the taxpayer’s timely filed original Federal income tax return, including extensions. A separate Related Person Election must be made with respect to related person sales made by a taxpayer for each eligible trade or business of the taxpayer.

For all sales of eligible components to related persons, the taxpayer must provide all required information set forth in guidance. This may include the taxpayer’s name; employer identification number (EIN); a description of the taxpayer’s trade or business (including principal business activity code); the name(s) and EINs of all related persons; a listing of the eligible components that are sold; and the intended purpose of any sales of eligible components to or from related persons. The final regulations incorporate these rules without significant changes.

### KPMG observation

Timing is a key benefit of the Related Person Election. When a Related Person Election is made the taxpayer who produces and sells an eligible component to a related entity may claim the credit in the year of the sale to the related entity. Absent the Related Party Election, the taxpayer could only claim the credit if and when the related entity sold the eligible component (or item into which the component is integrated) to an unrelated person.

# 1.45X-3 eligible components

Under section 45X, an eligible component is any solar energy component, any wind energy component, any inverter, any qualifying battery component, and any applicable critical mineral. For a number of the eligible components, the proposed and final regulations simply adopt the statutory definitions. In some cases, the IRS has provided more direction, including in response to particular concerns raised by taxpayers throughout the rulemaking process.

## Related offshore wind vessel

Under section 45X, an eligible wind energy component includes an offshore wind vessel. The credit for offshore wind vessels is based on its sales price.

The proposed regulations provided that the sales price of the vessel does not include the price of maintenance, services, or other similar items that may be sold with the vessel. The final regulations further clarify that general federal income tax principles apply in determining the sales price.

The final regulations also provide that a related party election should not cause the sale price of such vessel to be treated as having been determined with respect to a transaction between uncontrolled taxpayers. In other words, traditional transfer pricing principles will apply when the vessel is sold between related parties for purposes of determining the amount of the section 45X credit.

## Battery cells and modules

Section 45X provides a tax credit for the U.S. production and sale of battery modules, and the credit amount is \$10 per watt. The term "battery module" means, in the case of a module using battery cells, a module containing two or more battery cells which are configured electrically, in series or parallel, to create voltage or current, as appropriate to a specified end use. A battery module is required to have an aggregate capacity of no less than seven kilowatt-hours.

The preamble to the proposed regulations provided language that suggested that the "producer" of a battery module might be the producer of a "battery pack" used in the electric vehicle (EV) and not the producer of the battery module, if those were different taxpayers. Battery modules incorporated into a battery pack may or may not have a capacity of seven kilowatt-hours, the relevant statutory threshold.

The IRS received a number of comments on this point from OEMs and battery module manufacturers.

The final regulations clarify that, to determine who is the "producer" of a battery module, the taxpayer should assess the point in time that the module meets the definition above including the seven kilowatt-hour capacity requirement. Depending on the size of the battery module, credit eligibility could, therefore, attach either to the battery module producer, or the battery pack manufacturer, depending on the facts and circumstances. In either event, the battery must be produced in the United States and the taxpayer must be engaged in something that is more than minor assembly (see discussion above).

Additionally, the IRS provided commentary accompanying the final regulations clarifying the conditions under which a battery module that does not use battery cells (for example a thermal energy storage module) might be eligible for a section 45X benefit. Notably, a taxpayer would need to produce the entire "module" in this instance and not just thermal energy storage components to qualify for the credit.

## Electrode active materials

Under section 45X, a credit is available for the U.S. production of electrode active materials. The credit amount is 10% of production costs (as defined).

The proposed regulations provided that electrode active materials do not include battery management systems, terminal assemblies, cell containments, gas release valves, module containments, module connectors, compression plates, straps, pack terminals, bus bars, thermal management systems, and pack jackets. The final regulations include that rule without change.

As further explained above, although the proposed regulations did not allow producers of electrode active materials to include direct and indirect material costs in their credit computation, the final regulations do allow including such costs in certain circumstances.

The final regulations incorporate certain definitions found in the proposed regulations. They provide that costs incurred by the taxpayer with respect to production of electrode active materials includes all costs as defined in §1.263A-1(e) that are paid or incurred by the taxpayer for the production of an electrode active material.

## Critical minerals

The final regulations incorporate certain definitions found in the proposed regulations. They provide that costs incurred by the taxpayer with respect to the production of critical minerals include all costs as defined in §1.263A-1(e) that are paid or incurred by the taxpayer for the production of an applicable critical mineral.

## Substantiation

In addition to the documentation requirements under section 6001 generally applicable to filers, the proposed regulations introduced fairly specific substantiation requirements for taxpayers claiming credits for the productions of given eligible components. For instance, with respect to solar components, including photovoltaic cells, wafers, and solar modules, the taxpayer must document the capacity of a photovoltaic cell in a bill of sale or design documentation, such as an International Electrotechnical Commission certification. Specific requirements vary by eligible component. Additionally, taxpayers claiming a benefit based on direct or indirect materials costs must substantiate, including via vendor certification, that the cost of such inputs have not been claimed as eligible costs under section 45X by the vendor.

The final regulations do not substantially alter these requirements.

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