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Treasury and IRS Issue Final Regulations on Clean Electricity Production and Investment Tax Credits

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On January 15, the Treasury Department (Treasury) and the Internal Revenue Service (IRS) published final regulations providing further guidance on the clean electricity production credit under Section 45Y and the clean electricity investment credit under Section 48E. These final regulations follow the passage of the Inflation Reduction Act of 2022 (IRA) and the publication of proposed regulations under Sections 45Y and 48E.

The final regulations are effective January 15, the date of their publication in the Federal Register. They generally apply to qualified facilities and energy storage technologies (ESTs) placed in service after December 31, 2024, and during a taxable year ending on or after January 15, 2025, subject to later dates applicable to certain prevailing wage and apprenticeship (PWA) requirements.

Overview

Readers who want just the highlights can focus on the following summary. Subsequent sections discuss each of these items in greater detail.

- **GHG Emissions**. Section 45Y and Section 48E require that the greenhouse gas (GHG) emissions rate of a qualified facility not be greater than zero and provide detailed rules for measuring that rate. The final regulations specify that the following facilities have a GHG emissions rate that is not greater than zero for any year: wind, hydropower, marine and hydrokinetic, solar, geothermal, nuclear fission, fusion energy, and waste energy recovery property that derives energy from another source specified in this list.
- **Units and Integral Parts**. Each part of a qualified facility or EST is either a “unit” or an “integral part”. The framework has significant implications in connection with the ownership rules, the rules related to retrofitted property, and Section 48E qualification for future capital improvements.
- **Facility-by-Facility**. Unlike Section 48 as amended by the IRA, Sections 45Y and 48E do not include the concept of an “energy project”. Instead, Sections 45Y and 48E generally utilize a facility-by-facility approach, applying credit eligibility and the increased credit amounts ?at the level of a qualified facility or EST rather than to an energy project as a whole. Treasury and the IRS specifically rejected requests to allow for the combination of qualified facilities and ESTs.
- **Retrofitted Property**. The “80/20 Rule” continues to determine whether a retrofitted unit qualifies as originally placed in service even if it contains some used components of property. As a result, the addition of new property to a unit is not eligible for a credit under Section 45Y or 48E if the 80/20 Rule is not met, unless the Incremental Production Rule is met.
- **Incremental Production Rule**. Under the Incremental Production Rule, a qualified facility includes new units and additions of capacity placed in service after December 31, 2024, in connection with a facility that was placed in service before January 1, 2025, and otherwise satisfies the definition of a qualified facility, but only to

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the extent of the increased amount of electricity produced at the facility by reason of such new unit or addition of capacity. To satisfy the rule, a new unit or an addition of capacity requires the addition or replacement of components of property (for purposes of Section 45Y) or of qualified property (for purposes of Section 48E).

- **Biogas**. There is no Section 48E credit for anaerobic digester and gas conditioning components because they are not part of a qualified facility.
- **EST**. Certain modifications of an EST are eligible for the Section 48E credit if the nameplate capacity is increased by 5kWh or more. The increase in nameplate capacity is equal to the difference between nameplate capacity immediately after the modification and nameplate capacity immediately before the modification, not taking into account potential degradation of the EST before its modification. The final regulations do not specify how to calculate the nameplate capacity for these purposes.
- **Incremental Cost Rule**. For purposes of the Section 48E credit, if a component of qualified property of a qualified facility or component of property of an EST is also used for a purpose other than the intended function of the qualified facility or EST, only the incremental cost of such component is included in the eligible basis. The incremental cost is the excess of the total cost of a component over the amount that would have been expended for the component if the component were not used for a qualifying purpose. This could have significant implications for rooftop and carport solar facilities.
- **Qualified Interconnection Property (QIP)**. Consistent with the Section 48 regulations, the 5MW limitation for QIP is measured at the level of the unit of qualified facility rather than the entire project. QIP is not subject to the PWA requirements or the requirements for the bonus amounts. Section 48E credits are not available for QIP allocable to ESTs.
- **Ownership**. A taxpayer must directly own at least a fractional interest in the entire unit of a qualified facility or EST for a Section 48E credit to be determined with respect to such taxpayer's interest. An integral part is eligible for the Section 48E credit only if it is owned by an owner of a unit of qualified facility or EST.
- **PWA 1MW Exclusion**. The final regulations apply rules similar to the Section 48 regulations to determinate whether a qualified facility or EST is exempt from the PWA requirements by virtue of having a nameplate capacity of less than 1MW. However, under an aggregation rule, if a qualified facility or EST has "integrated operations" with one or more other qualified facilities or ESTs, as applicable, then the aggregate nameplate capacity of the qualified facilities or ESTs, as applicable, is used for purposes of determining whether the 1MW exception applies.

Analysis

1. Overview of Credits

a. 45Y

The amount of the Section 45Y credit for any year is the product of the applicable amount and the kWh of electricity that is produced by the taxpayer at a qualified facility and either (i) sold by the taxpayer to an unrelated person during the year or (ii) in the case of a qualified facility which is equipped with a metering device which is owned and operated by an unrelated person, sold, consumed, or stored by the taxpayer during the taxable year. The applicable amount is either the base amount of 0.3 cents or the alternative amount of 1.5 cents. The alternative amount applies if a qualified facility (1) has a maximum net output of less than 1MW AC, (2) began construction before January 29, 2023, or (3) meets the PWA requirements. The credit amounts are annually adjusted for inflation. The credit amount is increased by 10% if a qualified facility is in an energy community and an additional 10% if the domestic content requirements are met. A facility is treated as a qualified facility during the 10-year period beginning on the date the qualified facility is originally placed in service.

b. 48E

The Section 48E credit is an amount equal to the applicable percentage of the qualified investment with respect to any qualified facility and any EST. The applicable percentage is either the base rate of 6% or the alternative rate of 30%. The alternative rate of 30% applies to any qualified facility or EST (1) with a net output of less than 1MW AC, (2) the construction of which began before January 29, 2023, or (3) that meets the PWA requirements. The applicable percentage is increased by 2% (for the base rate) or 10% (for the alternative rate) if a qualified facility or EST is placed in service in an energy community and an additional 2% or 10%, as the case may be, if the domestic content requirements are satisfied with respect to a qualified facility or EST.

The qualified investment with respect to any qualified facility for any taxable year is the sum of (i) the basis of any qualified property placed in service by the taxpayer during such taxable year that is part of a qualified facility and (ii) the amount of certain expenditures for qualified interconnection property. Qualified property is property that meets all the following requirements: (i) the property is tangible personal property or other tangible property (not including a building or its structural components), but only if such other tangible property is used as an integral part of the qualified facility; (ii) depreciation (or amortization in lieu of depreciation) is allowable with respect to the property; and (iii) either the construction, reconstruction, or erection of the property is completed by the taxpayer or the taxpayer acquires the property if the original use of the property commences with the taxpayer. Qualified interconnection property is discussed more fully below.

The qualified investment with respect to EST for any taxable year is the basis of any EST placed in service by the taxpayer during such taxable year.

2. Coordination With Other Credits

The final regulations confirm that, when a facility qualifies for more than one credit, a taxpayer generally can claim only one credit but can choose which one to claim. For instance, a solar project that began construction before 2025 and is placed in service in 2025 could qualify for credits under Sections 45, 45Y, 48, and 48E; the taxpayer could choose which one of the four credits to claim. The final regulations provide that the term “qualified ?facility,” for purposes of Sections 45Y and 48E, does not include any facility for which a credit determined under Sections 45, 45J, 45Q, ??45U, 45Y (solely for purposes of Section 48E) 48, 48A, or 48E (solely for purposes of 45Y) is ?allowed under Section 38 of the Code for the taxable year or any prior taxable year. The preamble to the final regulations ?further clarifies that a taxpayer may generally claim a Section 45Y or 48E credit for a qualified facility ?that is co-located with another facility, irrespective of any credit that the co-located facility ?claimed. ?

3. Certain Topics Relating to Qualified Facilities Under Sections 45Y and 48E

a. Qualified Facility – General

The concept of the “qualified facility” is fundamental to both the Section 45Y and 48E credits. A qualified facility is generally defined as a facility (1) which is used for the generation of electricity, (2) which is placed in service after December 31, 2024, and (3) for which the GHG emissions rate (for the Section 45Y credit) or anticipated GHG emissions rate (for the Section 48E credit) is not greater than zero.

The final regulations specify that the following facilities have a GHG emissions rate that is not greater than zero: wind, hydropower, marine and hydrokinetic, solar, geothermal, nuclear fission, fusion energy, and waste energy

recover property that derives energy from another source specified in this list. The final regulations provide detailed rules for measuring the GHG emissions rates for other facilities; an examination of these rules is beyond the scope of this client alert. Additionally, taxpayers may rely on the annual table published by the IRS that sets forth the GHG emissions rates for certain types or categories of facilities that is in effect as of the date a facility began construction to determine a facility's emissions rate. The initial table was published in Revenue Procedure 2025-14.

b. Qualified Facility – Units and Integral Parts

A qualified facility includes a "unit of qualified facility," as well as property owned by the taxpayer that is an "integral part" of the qualified facility. A unit of qualified facility includes all functionally interdependent components of property owned by the taxpayer that are operating together and that can operate apart from other property to generate electricity. Components of property are functionally interdependent if the placing in service of each of the components is dependent upon the placing in service of each of the other components to produce electricity.

A component of property owned by a taxpayer is an integral part of a qualified facility if it is used directly in the intended function of the qualified facility and is essential to the completeness of such function. For example, power conditioning equipment and transfer equipment are integral parts of a qualified facility. Power conditioning equipment includes transformers, inverters, and converters, which modify the characteristics of electricity into a form suitable for use, transmission, or distribution, plus parts related to the functioning or protection of power conditioning equipment (including switches, circuit breakers, arrestors, and hardware and software used to monitor, operate, and protect power conditioning equipment). Transfer equipment includes wires, cables, and combiner boxes used to aggregate energy generated by components of a qualified facility, and equipment that alters voltage in order to permit transfer to a transmission and distribution line.

- The rules regarding units and integral parts closely follow the corresponding rules from the final regulations under Section 48. As they function in the ownership context (discussed below), these concepts create additional hurdles that taxpayers must clear to claim the Section 45Y credit or Section 48E credit.
- The rules regarding units and integral parts create a disconnect between the definitions of "qualified facility" under Section 45 and Section 45Y. A Section 45 qualified facility is a Section 45Y unit of qualified facility, but a Section 45 qualified facility does not include Section 45Y integral parts. For instance, a wind turbine and its tower and foundation comprise a Section 45 qualified facility and presumably comprise a Section 45Y unit of qualified facility. However, the Section 45Y qualified facility would include, but the Section 45 qualified facility would not include, integral parts. This will have implications for the application of various qualification requirements (*e.g.*, PWA, domestic content, etc.).

The preamble clarifies that an EST cannot be part of a unit of qualified facility ?under either the integral part or interdependence rules for purposes of Section 48E. The preamble further confirms that (1) an EST is eligible for the Section 48E credit if it satisfies the ?requirements of Section 48E, even if the EST is co-located with a qualified facility that has ?claimed the Section 45 or 45Y credits, (2) assuming all statutory and regulatory requirements ?are satisfied, a qualified facility owned by one taxpayer and an EST owned by another taxpayer ?may each be eligible for a separate Section 48E credit, and (3) from the perspective of credit ?eligibility, EST is not an integral part of a qualified facility.?

c. Facility-by-Facility Approach

Unlike Section 48 as amended by the IRA, Sections 45Y and 48E do not include the concept of an “energy project”. Instead, Sections 45Y and 48E generally utilize a facility-by-facility approach, applying credit eligibility and the increased credit amounts ?at the level of a qualified facility or EST rather than to an energy project as a whole. Treasury and the IRS specifically rejected requests to allow for the combination of qualified facilities, including for the application of the PWA, domestic content, and energy community requirements.

- This final rule is a departure from the final regulations under Section 48, which apply a mandatory aggregation of energy properties in an “energy project” if certain conditions are met. Challenges could arise in negotiating PWA requirements and related substantiation with contractors and OEM providers that perform construction, alteration, and repair with respect to multiple qualified facilities or ESTs.
- As a result of the separate treatment, a taxpayer will need to separately register each ?creditable property for purposes of making Section 6418 credit transfer ?elections. ?

d. Facilities Used for the Generation of Electricity

Sections 45Y and 48E require that, for a facility to constitute a qualified facility, the facility must ?be used for the generation of electricity. The final regulations clarify that, for a facility to satisfy ?this electricity generation requirement, the facility must be a net generator of electricity, taking ?into account any electricity consumed by the facility.?

e. Credit Phase-Out

The Section 45Y and 48E credits are subject to phase-out for qualified facilities or ESTs the construction of which begins during the first calendar year after the “applicable year”. Under the phase-out rule, the credit allowed is equal to the product of the otherwise allowable credit and the phase-out percentage. The phase-out percentage is 100% if construction begins during the first calendar year after the applicable year and steps down 25% each year thereafter until it reaches zero.

The applicable year is the later of 2032 and the calendar year in which the Secretary determines that the annual GHG emissions from the production of electricity in the United States are equal to or less than 25% of the annual GHG emissions from the production of electricity in the United States for calendar year 2022. The final regulations specify the relevant data sources and methodology for the determination.

- Given the dramatic reduction in GHG emissions required for the phase-out, it seems unlikely that the phase-out will be applicable in the near term.

f. Beginning of Construction

The concept of “beginning of construction” is relevant for various purposes ?under Sections 45Y and 48E, including determining eligibility ?for the domestic content or energy community ?bonus credits and assessing applicable credit phaseout amounts. In the preamble, ?Treasury and the IRS confirm that the existing “beginning of construction” notices apply for purposes of Sections 45Y ?and 48E.

g. Retrofitted Property

Generally, a qualified facility under either the Section 45Y credit or the Section 48E credit (or, in the case of the Section 48E credit, an EST) does not include equipment that is an addition or modification to an existing qualified facility or EST. However, the final regulations apply the so-called "80/20 Rule" to determine whether a retrofitted qualified facility or EST qualifies as originally placed in service even if it contains some used components. Under the 80/20 Rule, a qualified facility or EST may be considered originally placed in service only if the fair market value of the used components of the unit of qualified facility or unit of EST is not more than 20% of the total value of the of the unit of qualified facility or unit of EST, taking into account the cost of the new components and the value of the used components. Only expenditures paid or incurred relating to the new components are taken into account for purposes of computing the Section 48E credit. The final regulations clarify that, if a retrofitted facility satisfies the 80/20 Rule, the facility will be treated as newly placed in service even if the taxpayer also satisfies the "Incremental Production Rule" discussed further below.

- Many commenters argued that the application of the 80/20 Rule is contrary to prior law and is inconsistent with the historic investment tax credit (ITC) precedent under Section 48, which allowed a taxpayer to claim the ITC for capital improvements with respect to energy property even if the 80/20 Rule was not satisfied. Treasury and the IRS simply responded that prior guidance and regulations based on Section 48 are not binding for purposes of Section 48E.
- A facility that previously qualified for a credit under Section 45 or 48 and is later retrofitted may be eligible for the Section 45Y credit or Section 48E credit if it satisfies the 80/20 Rule.
- The preamble clarifies that unless an addition to property satisfies the 80/20 Rule (so that it qualifies for a new Section 48E credit), such addition would not be subject to the recapture rules.
- The IRS acknowledges that the 80/20 Rule is separate and distinct from the Incremental Production Rule discussed further below and that a qualified facility placed in service before 2025 that failed the 80/20 Rule may still qualify for a tax credit if the Incremental Production Rule is satisfied.

A taxpayer that satisfies the 80/20 Rule with regard to a unit of qualified facility or unit of EST can also include in its basis for purposes of the Section 48E credit any new costs for property that is an integral part of the qualified facility or EST.

4. Specific Technologies – Biogas

Because "qualified facilities" are limited to facilities used for the purpose of generating electricity, renewable natural gas and biogas facilities are generally not eligible for the Section 48E credit unless they are part of a generation facility, unlike the Section 48 credit which provided an ITC for such facilities directly. Treasury and the IRS declined to adopt comments requesting that biogas property (such as anaerobic digester and gas conditioning components) owned by the same taxpayer that owns a biogas-fueled generation facility be treated as part of the qualified facility or an integral part of such facility. Treasury and the IRS concluded that the biogas property is used to produce a fuel used by a qualified facility but is not part of the qualified facility itself. Accordingly, there is no Section 48E credit for anaerobic digester and gas conditioning components.

- This is a blow to the RNG industry, which must rely on work performed on projects prior to January 1, 2025, to be eligible for a tax credit.

5. Specific Technologies – Nuclear

Generally, buildings are not considered integral parts of a qualified facility because they are not integral to the

intended function of the qualified facility; however, not all structures are considered “buildings” for purposes of this exclusion. Specifically, the final regulations provide that a structure is not considered a building for these purposes if it (1) is essentially an item of machinery or equipment, or (2) houses components of property that are integral to the intended function of the qualified facility if the use of the structure is so closely related to the use of the housed components of property therein that the structure clearly can be expected to be replaced if the components of property it initially houses are replaced. The preamble confirms that, like hydropower dams, but unlike control room buildings, nuclear containment structures are integral to the intended function of the qualified facility and may be included in the qualified facility.

6. Specific Technologies – Hydropower

The final regulations include hydropower facilities (including retrofits that add electricity production to non-powered dams, conduit hydropower, hydropower using new impoundments, and hydropower using diversions such as a penstock or channel) in the list of facilities other than combustion or gasification facilities with a GHG emissions rate that is not greater than zero, meaning such facilities may qualify for the credits provided under Section 45Y or 48E. The preamble clarifies that in the case of a hydropower facility, the qualified facility consists of a unit of qualified facility (including water intake, water isolation mechanisms, turbine, pump, motor, and generator), and the hydropower facility’s associated impoundment (dam) and power conditioning equipment are integral property to the unit of qualified facility. Although a taxpayer may not claim the Section 48E credit for any property that is an integral part of a qualified facility that is not owned by the taxpayer, the final regulations incorporate an example illustrating that integral property such as a dam being owned by a federal agency would not prevent a taxpayer that owns the hydropower facility from qualifying for a Section 45Y or 48E credit.

7. Specific Technologies – Energy Storage Technology

a. General

Pursuant to the final regulations, EST includes electrical energy storage property, thermal energy storage, and hydrogen energy storage property. Similar to the rules for a qualified facility, an EST includes a unit of EST (which includes all functionally interdependent components) as well as property owned by the taxpayer that is an integral part of the EST.

b. Electrical Energy Storage Property

Electrical energy storage property is property that receives, stores, and delivers energy for conversion to electricity, and has a nameplate capacity of not less than 5 kWh. Electrical energy storage property includes, but is not limited to, rechargeable electrochemical batteries of all types (including lithium-ion batteries), ultracapacitors, physical storage (such as pumped storage hydropower, compressed air storage, and flywheels), and reversible fuel cells.

c. Thermal Energy Storage Property

Thermal energy storage property is property comprising a system that (1) is directly connected to a heating, ventilation, or air conditioning system; (2) removes heat from, or adds heat to, a storage medium for subsequent

use; and (3) provides energy for the heating or cooling of the interior of a residential commercial building. This includes equipment, materials, and parts related to the functioning of such equipment.

- The preamble clarifies that the phrase “adds heat to” should be understood to include equipment that is involved in adding, or transferring, already-existing heat from one medium to the storage medium, but not equipment involved in transforming other forms of energy into heat in the first instance. Equipment that adds (or removes) heat includes ?technologies, like heat pumps, that draw heat from the ambient air or other stores of heat and ?adds that heat to a storage medium. ?

Under the final regulations, property that “removes heat from, or adds heat to, a storage medium for subsequent use” is property that is designed with the particular purpose of substantially altering the time profile of when heat added to or removed from the thermal storage medium can be used to heat or cool the interior of a residential or commercial building. A safe harbor provides that if the thermal energy storage property can store energy that is sufficient to provide heating or cooling of the interior of a residential or commercial building for a minimum of one hour, it is deemed to have the purposes of substantially altering the time profile of when heat added to or removed from the thermal storage medium can be used to heat or cool the interior of a residential or commercial building.

d. Hydrogen Energy Storage Property

The final regulations remove the “end use requirement” that was included in the proposed regulations, which would have required that hydrogen energy storage property must store hydrogen that is solely used as energy and not for other purposes. Instead, the final regulations require only that the property stores hydrogen and has a nameplate capacity of not less than 5 kWh, equivalent to 0.127 kg of hydrogen or 52.7 standard cubic feet of hydrogen. This includes, but is not limited to, above ground storage tanks, underground storage facilities, and associated compressors. The final regulations clarify that integral parts of hydrogen energy storage property include hydrogen liquefaction equipment and gathering and distribution lines within a hydrogen energy storage property.

e. Modification of Energy Storage Technology

A modification of either electrical energy storage property or hydrogen energy storage property may be treated as an EST eligible for the Section 48E credit if either (1) the property was placed in service before August 16, 2022, and its nameplate capacity is increased from below 5 kWh to 5kWh or more, or (2) if the modification results in an increase in nameplate capacity of at least 5 kWh. However, the basis of any existing electrical energy storage property or hydrogen storage property before such modification is not taken into account for purposes of Section 48E.

- The preamble notes that this modification rule is applied separately from the 80/20 Rule discussed above.
- The final regulations clarify that for purposes of the modification rules, the increase in nameplate capacity is equal to the difference between nameplate capacity immediately after the modification and nameplate capacity immediately before the modification. The preamble notes that the regulations do not take into account potential degradation of the EST before its modification. In other words, as described in the preamble to the final regulations under Section 48, the regulations do “not take into account actual capacity but instead use nameplate capacity.” As a result, it appears that battery augmentations involving replacements of existing batteries of the same nameplate capacity may not qualify for a Section 48E credit. Instead, it may be necessary to replace entire units of EST (including all functionally interdependent components), retain existing batteries and add new batteries, or replace batteries with batteries of a greater nameplate capacity.

- In a perplexing oversight, the final regulations do not specify how to calculate the nameplate capacity for these purposes. In the absence of guidance specific to the 5kWh requirement, the rules governing the determination of nameplate capacity for purposes of the 1MW exception from the PWA requirements and the 5MW limitation for QIP may be useful.
- Treasury and the IRS clarified that a modification of EST is not limited by the physical space occupied by the EST before or after the modification.

8. Specific Technologies – Combined Heat and Power System Property

For purposes of the Section 45Y credit, the kilowatt hours of electricity produced by a taxpayer at a qualified facility shall include any production in the form of useful thermal energy by any combined heat and power system (CHP) property within such facility, but the amount of greenhouse gasses emitted into the atmosphere by such facility in the production of such useful thermal energy will be included for purposes of determining the GHG emissions rate for such facility.

CHP property is property comprising a system that uses the same energy source for the simultaneous or sequential generation of electrical and/or mechanical shift power in combination with the generation of steam or other forms of useful thermal energy. To be eligible for the Section 45Y credit, CHP property must (i) produce (a) at least 20% of its useful energy in the form of thermal energy which is not used to produce electrical and/or mechanical power and (b) at least 20% of its total useful energy in the form of electrical and/or mechanical power and (ii) have an energy efficiency percentage greater than 60%. The energy efficiency percentage is the total useful electrical, thermal, and mechanical power produced by the system at normal operating rates, and expected to be consumed in its normal application divided by the lower heating value of the fuel sources for the system, determined on a British thermal unit (Btu) basis.

The final regulations provide that the amount of kWh of electricity produced in the form of useful thermal energy is equal to the quotient of the total useful thermal energy produced by the CHP property within the qualified facility, divided by the heat rate for such facility. Heat rate means the amount of energy used by the qualified facility to generate 1 kWh of electricity expressed as Btus per net kWh generated. The heat rate of a qualified facility that includes CHP property that uses combustion must be calculated using the annual average heat rate (total annual fuel consumption) of the CHP property (in Btus, using the lower heating value of the fuel) during the taxable year divided by the annual net electricity generation (in kWh) of the CHP property during such taxable year.

- The IRS recognized that prior guidance did not provide sufficient clarity in calculating the energy efficiency percentage and heat rate for fuels without lower heating values (*g.*, for fuels that are not combusted, such as in a nuclear facility). Accordingly, the final regulations provide specific rules regarding calculations for qualified facilities that used nuclear energy. The preamble notes that Treasury and the IRS will continue to consult with experts in order to develop additional approaches for other particular technologies.

9. Section 45Y – Metering Device

In the case of a qualified facility equipped with a “metering device” that is owned and operated by an unrelated person, the Section 45Y credit is available not just for electricity sold to an unrelated person but also for electricity sold to a related person and electricity consumed or stored by the taxpayer. The final regulations define a metering device as equipment owned and operated by an unrelated person for energy revenue metering to measure and register the continuous summation of an electricity quantity with respect to time. A metering device must meet

certain maintenance and operating standards. The unrelated person may share network equipment, such as spare fiber optic cable owned by the taxpayer that produces the electricity, and may co-locate the network equipment in the taxpayer's facilities.

- This rule represents an expansion from the Section 45 credit, which strictly provided that electricity must be sold to unrelated parties in order to be credit-eligible. However, the final regulations did not adopt the rule from Notice 2008-60 that provides that sales of electricity to a related person may qualify for the Section 45 credit if the related person sells the electricity to an unrelated person.

- The preamble clarifies that operation of the metering device by the unrelated person can be fully remote and the location of the metering device does not matter (*g.*, the device can be located before energy delivery to storage or somewhere other than the point of interconnection) if all other requirements of the final regulation are met.

10. Section 48E – Incremental Cost

Under the final regulations, if a component of qualified property of a qualified facility or component of property of an EST is also used for a purpose other than the intended function of the qualified facility or EST, only the incremental cost of such component is included in the eligible basis for the Section 48E credit. The incremental cost is the excess of the total cost of a component over the amount that would have been expended for the component if the component were not used for a qualifying purpose. The final regulations include an example of bifacial solar panels installed over a reflective roof. Only the incremental cost of the reflective roof over the cost of a standard roof is included in the eligible basis of the qualified facility. This rule is similar to the rule in the final regulations under Section 48.

- While not likely to have a meaningful impact in the context ?of utility-scale projects, the incremental cost rule could ?require difficult determinations to be made regarding ?what the incremental cost is in the context of rooftop or ?carport solar installations.?

11. Section 48E – Qualified Interconnection Property

For purposes of the Section 48E credit, a qualified investment with respect to a qualified facility includes amounts paid or incurred for "qualified interconnection property" (QIP) in connection with a qualified facility with a maximum net output of not greater than 5 MW AC. The final regulations define "QIP" as any tangible property that is part of an addition, modification, or upgrade to a transmission or distribution system that is required at or beyond the point at which the qualified facility interconnects to the transmission or distribution system and clarify that QIP is not part of a qualified facility.

- The preamble confirms that, because QIP is not part of a qualified facility, QIP will not be taken into account in determining whether a qualified facility satisfies the PWA requirements or qualifies for the domestic content or energy communities adders.

- Read literally, Section 48E does not provide a credit for QIP with respect to an EST. Treasury and the IRS declined to expand the final regulations to permit interconnection costs for stand-alone EST but explained that in the case of hybrid systems, those expenditures paid or incurred for QIP that are properly allocated to the qualified facility may be included as part of the qualified investment for the Section 48E credit. Neither the preamble nor the final regulations provide guidance on the proper allocation of interconnection costs for this purpose.

The final regulations provide that the 5MW limitation is measured at the level of the unit of qualified facility. The nameplate capacity of any integral property is not taken into account. They further provide that, for qualified facilities which generate electricity in direct current, the taxpayer may choose to determine whether a qualified facility has a maximum net output of not greater than 5 MW AC by using the lesser of (a) the sum of the nameplate generating capacities within the unit of qualified facility in direct current, which is deemed to be the nameplate generating capacity of the unit of unit of qualified facility in alternating current; or (b) the nameplate capacity of the first component of property that inverts the direct current electricity generated into alternating current.

- This rule provides flexibility for taxpayers while ensuring ?that the maximum net output (in alternating current) of a qualified facility can be determined in an administrable ?and reasonably accurate manner for qualified facilities ?that generate electricity in direct current.?

The final regulations explain that if the costs borne by the taxpayer are reduced by utility or non-utility payments, federal tax principles may require the taxpayer to reduce the amount treated as paid or incurred for qualified interconnection property to determine the Section 48E credit.

12. Section 48E – Normalization Opt-Out

In response to several requests for clarification, the final regulations clarify that the normalization opt-out election is available for the Section 48E credit claimed with respect to an EST without regard to the date on which construction of such EST begins.

13. Section 48E – Ownership

The final regulations apply ownership requirements that are similar to those applied by the final regulations under Section 48. If multiple taxpayers directly own a unit of qualified facility or a unit of EST (*e.g.*, as tenants in common), the final regulations require that each taxpayer determine its eligible basis based on its fractional ownership interest in the unit.

The final regulations also provide that a taxpayer must directly own at least a fractional interest *in the entire unit* for a Section 48E credit to be determined with respect to such taxpayer's interest. Furthermore, a taxpayer may claim a Section 48E credit for an integral part only if the taxpayer owns the related unit. If a taxpayer owns a unit and a second taxpayer owns property that is an integral part of that unit, this does not prevent the first taxpayer from claiming the Section 48E credit with respect to its unit, but the second taxpayer may not claim the Section 48E credit with respect to its integral part.

- In many situations, the ownership rules and the distinction between a unit and an integral part will be nonissues. However, in certain ownership structures, there could be otherwise-eligible property that fails to qualify for the Section 48E credit simply because it is owned in the wrong way.

- The preamble notes that many commenters disagreed with the application of the ownership rules. Certain commenters pointed out that this conclusion was contrary to applicable case law and other authority. The preamble argues that adopting the commenter's recommendation that a taxpayer be able to claim the Section 48E credit for integral property alone would conflict with the application of several other provisions in the statute that apply to an entire qualified facility or EST rather than individual components of property (including the PWA, bonus credit, and QIP rules). ?

14. Incremental Production

a. General Rules

For purposes of Section 45Y and 48E, the term “qualified facility” includes new units and additions of capacity placed in service after December 31, 2024, in connection with a facility that was placed in service before January 1, 2025, and otherwise satisfies the definition of a qualified facility, but only to the extent of the increased amount of electricity produced at the facility by reason of such new unit or addition of capacity (Incremental Production Rule). The final regulations provide that (1) the Incremental Production Rule is applicable only to an addition of capacity or new unit that would not otherwise qualify as a separate qualified facility; (2) a new unit or addition of capacity that satisfies the Incremental Production Rule will be treated as a separate qualified facility, (3) a new unit or an addition of capacity requires the addition or replacement of components of property (for purposes of Section 45Y) or of qualified property (for purposes of Section 48E), including any new or replacement integral property, added to a facility necessary to increase capacity, and (4) for purposes of assessing the 1MW exception to the PWA requirements, the maximum net output for a new unit or an addition of capacity is the sum of the capacity of the added qualified facility and the capacity of the facility to which the qualified facility was added.

In response to comments to the proposed regulations, the preamble clarifies that there is no minimum capital expenditure necessary to satisfy the Incremental Production Rule for either a new unit or an addition to capacity. Note that, although the final regulations reject a recommendation that efficiency improvements could satisfy the Incremental Production Rule *per se*, the preamble clarifies that efficiency improvements that are an addition or replacement of components of property (including integral property) that result in an addition to capacity could meet the requirements of the Incremental Production Rule.

b. Measurement of Capacity

As stated above, the Incremental Production Rule is based on the increased amount of electricity produced at a facility as a result of a new unit or an addition to capacity, meaning this rule is focused on measuring the amount of the capacity increase. The final regulations require that increased capacity be measured in one of three ways: (1) modified or amended facility operating licenses from the Federal Energy Regulatory Commission (FERC) or the Nuclear Regulatory Commission (NRC), or related reports prepared by FERC or NRC as part of the licensing process; (2) the ISO conditions to measure the nameplate capacity of the facility consistent with the definition of nameplate capacity provided in 40 CFR 96.202; or (3) a measurement standard prescribed by the Secretary in guidance published in the *Internal Revenue Bulletin*. Taxpayers able to use the measurement standard described in option (1) above may not use the method described in option (2).

Commenters to the proposed regulations noted that manufacturer-stamped nameplate capacity is, by design, the maximum theoretical output of the facility and differs from a facility’s actual electric generating capacity. The ISO conditions generally require that this measurement be done by the manufacturer and would normally occur when the facility is originally placed in service. As a result, several commenters noted that measurement of nameplate capacity using the ISO conditions would not take into account physical depreciation, degradation, and other factors that may significantly reduce the maximum generating output and safe operating conditions of the facility over time when compared to the facility’s original nameplate capacity. In the preamble, Treasury and the IRS acknowledge that using the ISO conditions to determine nameplate capacity may limit nameplate capacity to the

nameplate capacity of the facility on the original placed in service date, or to a revised nameplate capacity of the facility based on major upgrades that would result in a revised nameplate capacity rating. The preamble states that increased capacity should not be based on a measurement methodology that simply compares electricity production before the increase in capacity to electricity production after the increase in capacity because such measurement methodologies involve seasonal or other fluctuations that are too easily manipulated to show a greater increase in capacity than the actual increase.

Finally, the preamble notes that Treasury and the IRS will continue to consult with experts on potential additional measurement standards that could apply, and the final regulations reflect this continuing consideration and provide flexibility by permitting the Secretary to prescribe additional measurement standards in guidance published in the *Internal Revenue Bulletin*.

c. Measurement of Increased Electricity and Qualified Investment

For purposes of the Incremental Production Rule with respect to Section 45Y, to determine the increased amount of electricity produced by a facility in a taxable year by reason of a new unit or an addition of capacity, the final regulations provide that a taxpayer must multiply the amount of electricity that the facility produces during that taxable year after the new unit or addition of capacity is placed in service by a fraction, the numerator of which is the added capacity that results from the new unit or addition of capacity, and the denominator of which is the total capacity of the facility with the new unit or addition of capacity added, provided that the added capacity and resulting total capacity are measured using one of the measurement standards discussed above.

For purposes of the Incremental Production Rule with respect to Section 48E, the taxpayer's qualified investment during the taxable year that resulted in an increased capacity of a facility by reason of a new unit or addition of capacity is its total qualified investment associated with the components of property that result in the new unit or addition of capacity. The preamble clarifies that the intention of this rule was to make the rule for an addition of capacity equivalent to that of a new unit.

d. Restarted Facilities

The final regulations revise the proposed regulations to provide that, solely for purposes of the Incremental Production Rule, a facility that is decommissioned or in the process of decommissioning and restarts can be considered to have increased capacity from a base of zero if certain conditions are met as follows: (1) the existing facility must have ceased operations; (2) the existing facility must have a shutdown period of at least one calendar year during which it was not authorized to operate by its respective federal regulatory authority (that is, FERC or NRC); (3) the restarted facility must be eligible to restart based on an operating license issued by either FERC or NRC; and (4) the existing facility may not have ceased operations for the purpose of qualifying for this special rule for restarted facilities.

15. PWA Requirements

The final regulations adopt by cross-reference the PWA requirements under Section 45(b)(7) and 45(b)(8) and the regulations thereunder, which regulations we have addressed in a prior alert. Sections 45Y and 48E incorporate these requirements by reference.

As noted above, a qualified facility with a maximum net output of less than 1MW of electricity is exempt from the PWA requirements. Consistent with the Section 48 regulations, the final regulations provide that the maximum net output is determined by the nameplate capacity of the qualified facility. The final regulations further clarify that the nameplate capacity for these purposes is the maximum electrical generating output in MW that a qualified facility is capable of producing on a steady state basis and during continuous operation under standard conditions, as measured by the manufacturer and consistent with the definition of nameplate capacity provided in 40 CFR 96.202. If applicable, taxpayers must use the ISO conditions to measure the maximum electrical generating output of a qualified facility. For qualified facilities that generate electrical output in direct current, the maximum net output (in alternating current) of each unit of qualified facility is the lesser of: (1) the sum of the nameplate generating capacities within the unit of qualified facility in alternating current; or (2) the nameplate capacity of the first component of property that inverts the direct current electricity into alternating current.

The final regulations introduce an aggregation rule. If a qualified facility or EST has "integrated operations" with one or more other qualified facilities, then the aggregate nameplate capacity of the qualified facilities is used for purposes of determining whether the 1MW exception applies to the qualified facilities. Solely for these purposes, the final regulations clarify that a qualified facility or EST is treated as having integrated operations with any other qualified facility of the same technology type or EST, as applicable, if they are: (1) owned by the same or "related taxpayers", (2) placed in service in the same taxable year, and (3) transmit electricity through the same point of interconnection or, if they are not grid-connected or are delivering electricity directly to an end user behind a utility meter, are able to support the same end user. Related taxpayers are members of a group of trades or businesses that are under common control (as defined in Treasury Regulation Section 1.52-1(b)).

- This aggregation rule is contrary to the approach taken for the QIP 5MW rule and to the facility-by-facility application of the PWA, domestic content, and energy community requirements. The preamble does not persuasively justify the discrepancy.

Conclusion

Given the many complex issues raised by the statutory framework, Treasury and the IRS should be commended for issuing the final regulations under such a compressed timeframe, although some of the rules adopted may have benefited from further consideration and a more prolonged engagement with industry.

Although the final regulations were effective upon their publication in the Federal Register on January 15, 2024, it remains to be seen whether the Trump administration could assert that the regulations are subject to the regulatory freeze issued on January 20, 2025, or whether Congress will exercise its ability to overturn the final regulations pursuant to the Congressional Review Act.

In the meantime, please feel free to reach out to us with questions.

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