Section 45Y clean electricity production credit and section 48E clean electricity investment credit proposed regulations

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Contents

Introduction 2
Coordination with other credits 2
- Section 45Y 2
- Multiple owners 3
- Expansion of a facility and incremental production 3
- Excluded emissions 4

Determining GHG emissions rates for combustion and gasification (C&G) 4
- Annual table 5
- LCA study 5
- DOE process 5
- Documentation 6

Statutory overview of section 48E 6
- Qualified facility 6
- Qualified investment in a qualified facility 7
- New unit 7
- Credit recapture 7

Conclusion 7

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Introduction

The U.S. Treasury Department and IRS on May 29, 2024, issued highly anticipated proposed regulations related to the section 45Y clean electricity production credit and section 48E clean electricity investment credit for qualified facilities and energy storage technology (EST).

A qualified facility for purposes of section 45Y and 48E is a facility that produces electricity for which the greenhouse gas emissions rate is not greater than zero and that is placed in service after 2024. Generally, a taxpayer may claim either section 45Y or 48E but not both with respect to the same facility.

EST is eligible only for the section 48E credit and is generally property which receives, stores, and delivers energy for conversion to electricity (or, in the case of hydrogen, which stores energy) and has a nameplate capacity of not less than five kilowatts and thermal energy storage property.

The proposed regulations outline specific types or categories of facilities that will be eligible under section 45Y and 48E.

These technologies include:

- Wind facilities, including small wind properties
- Hydropower facilities, encompassing retrofits adding power production to non-powered dams, conduit hydropower, hydropower using new impoundments, and hydropower using diversions like penstocks or channels
- Marine and hydrokinetic facilities
- Solar facilities, covering photovoltaic and concentrating solar power
- Geothermal facilities, including flash and binary plants
- Nuclear fission facilities
- Nuclear fusion facilities
- Waste energy recovery property (WERP) deriving energy from any of the energy sources listed above, such as geothermal or solar waste heat recovery from a district geothermal heating system, and waste heat recovery from a nuclear reactor dedicated to heat production for an industrial facility

Coordination with other credits

Sections 45Y and 48E of the Internal Revenue Code (Code) were added to the Code with the enactment of the “Inflation Reduction Act of 2022” (IRA) and generally replace sections 45 and 48 with respect to qualified facilities (and energy storage technologies with respect to section 48). Sections 45 and 48 remain available for projects that begin construction prior to 2025. As outlined above, the new sections apply to qualified facilities and energy storage technology placed in service after December 31, 2024. A taxpayer may not claim either a section 45Y or section 48E credit on a facility that is claiming either the section 45 or 48 credit. Some facilities that are eligible under section 45 or 48 will not be eligible under section 45Y or 48E (e.g., facilities that produce greenhouse gas (GHG) emissions).

Section 45Y

The section 45Y is a production tax credit that is calculated by multiplying the kilowatt hours (kWh) of eligible electricity produced at a qualified facility by an applicable amount—a base rate of 0.3 cents per kilowatt hour or an alternative rate of 1.5 cents per kilowatt hour (provided the taxpayer meets certain wage and

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workforce requirements). The credit rate is adjusted for inflation each year using 1992 as the base year. If the credit were available in 2024, the credit rates would be 0.55 or 2.75 cents per kilowatt hour, respectively. The credit is available for a 10-year period beginning with the date that the qualified facility is placed in service.

Electricity produced at a qualified facility must either:

- Be sold to an unrelated person during the tax year, or
- For facilities with a metering device owned and operated by an unrelated person, be sold, consumed, or stored by the taxpayer during the tax year

KPMG observation

A taxpayer may claim a production tax credit under section 45Y even if it is using the electricity for its own purposes. Under the existing section 45 credit, electricity is generally only eligible if it is sold to an unrelated party.

Additionally, as with the existing section 45 credit, the section 45Y credit provides bonus credit amounts for qualified facilities located in an energy community and for those that meet certain domestic content requirements.

The credit begins to phase out as of the later of: (1) the year the Secretary determines that the annual GHG from U.S. electricity production are 25% or less of the 2022 levels, or (2) the year 2032 (the "Applicable Year").

Multiple owners

Under the proposed regulations, in the case of a facility that has more than one owner, production from the facility is to be allocated among the owners in proportion to their respective ownership share in the *gross sales* from such qualified facility.

If a qualified facility is owned through an unincorporated organization that has made a valid election out of subchapter K under section 761(a), each member's undivided ownership share in the qualified facility will be treated as a separate qualified facility owned by the respective member.

Expansion of a facility and incremental production

The term "qualified facility" includes either a new unit or an addition of capacity placed in service after December 31, 2024, in connection with a facility which was placed in service before January 1, 2025. The amount of the credit is limited to the increased amount of electricity produced at the facility by reason of such new unit or addition of capacity. This is measured based on the nameplate capacity of the facility after the addition of the new unit or addition of capacity.

Taxpayers must use modified or amended facility operating licenses or International Standard Organization (ISO) conditions to measure the maximum electrical generating output of a facility to determine its nameplate capacity.

Additionally, the proposed regulations state that for the One-Megawatt Exception (from the prevailing wage and apprenticeship requirements), the capacity for a new unit or an addition of capacity is the sum of the nameplate capacities of both the added qualified facility and the existing facility to which it was added.

A facility that is decommissioned or in the process of decommissioning and restarts can be considered to have increased capacity if certain conditions listed in the proposed regulations are met.

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KPMG observation

The “new unit or addition of capacity” language is fairly new. Under section 45, additional PTCs were available for new units but only for trash combustion and biomass facilities. Section 45Y opens up this option to all technologies that are otherwise eligible under the new regime.

KPMG observation

The new unit and addition of capacity rules should not be confused with the retrofitting of an existing facility. The proposed regulations adopt the same 80/20 rule found in Rev. Rul. 94-31 with respect to wind facilities. Under the 80/20 rule, the qualified facility is treated as new, and a new full, 10-year PTC period is available if the value of the used property is no more than 20% of the value of the new facility (defined as the value of the used property and the cost of the new property).

Excluded emissions

Notably, the proposed regulations clarify that certain on-site emissions are excluded for purposes of the GHG emissions calculations.

These exclusions include emissions from backup generators used for critical systems during power outages, emissions from routine operational and maintenance activities integral to electricity production, emissions from step-up transformers, emissions that occur prior to or after commercial operations, emissions from facility infrastructure such as road construction, and emissions from electricity distribution to consumers. The proposed regulations further provide that the amount of greenhouse gases emitted into the atmosphere by a facility in the production of electricity does not include any qualified carbon dioxide that is captured by the taxpayer and is either (1) disposed of by the taxpayer in secure geological storage pursuant to any regulations established under section 45Q, or (2) utilized by the taxpayer in a manner described in section 45Q.

KPMG observation

This means that a facility could qualify even if it produces greenhouse gas emissions as long as 100% of its emissions are captured and sequestered (or utilized) as outlined in section 45Q. Note that a taxpayer cannot claim the section 45Q credit for the capture and sequestration (or utilization) of carbon oxide and the section 45Y credit at the same facility.

Determining GHG emissions rates for combustion and gasification (C&G)

There are three ways that a C&G Facility can demonstrate that it produces GHG emissions of no more than zero: (1) the technology type is listed in an annual table (“Annual Table”), (2) the taxpayer performs a lifecycle analysis study that demonstrates that the facility does not produce net GHG emissions, or (3) the taxpayer seeks a letter from the DOE certifying that the facility does not produce net GHG emissions. Each of these are described more fully below. If a taxpayer is demonstrating zero emissions using either a lifecycle analysis (LCA) or a DOE certification, it must also then petition the IRS to allow for the use of a provisional emissions rate (PER).

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Annual table

The proposed regulations provide that, as required by the statute, the Secretary will publish a table that sets forth the GHG emissions rates for types or categories of facilities annually. Taxpayers must use this annual table for the purposes of section 45Y.

Treasury and the IRS intend to publish the first annual table after the publication of the final regulations.

LCA study

An LCA refers to the comprehensive assessment of the greenhouse gas emissions associated with a C&G Facility. It considers the net rate of greenhouse gases emitted into the atmosphere by the facility, factoring in all stages of the production of electricity, including emissions from the entire lifecycle of the facility's operations.

If the technology is not listed on the Annual Table, and if an applicable LCA model is designated by the IRS, the taxpayer must submit a petition with its tax return for the year it intends to claim the section 45Y credit that states the emissions value ("provisional emissions rate") using the applicable LCA model. The current proposed regulations do not specify a particular LCA model but instead seek feedback on the factors that should be considered when determining appropriate models for this purpose.

In connection with this petition, the taxpayer is required to provide to the IRS information to support its determination of the emissions value in the form and manner prescribed by the IRS. Providing this required supporting documentation with the annual return does not, however, result in a conclusion that the facility qualifies. The IRS retains authority to audit the position on the return.

The proposed regulations provide that the starting boundary for an LCA involving generation-derived feedstocks (such as biogenic feedstocks) is feedstock generation, and the starting boundary for an LCA involving extraction-derived feedstocks (such as fossil fuel feedstocks) is feedstock extraction. This includes the processes necessary to produce and collect or extract the raw materials used to produce electricity from C&G technologies. This includes the emissions effects of relevant land management activities or changes related to or associated with feedstock production. The ending boundary for electricity that is transmitted to the grid or electricity that is used on-site is the meter at the point of production of the C&G Facility. The distribution, transmission, and use of such electricity generated by a C&G Facility outside of the LCA boundary.

DOE process

If a facility type is not listed on the Annual Table and an LCA process is not available, an applicant may submit a request for an emissions value from the DOE. In terms of timing, an applicant may request an emissions value from DOE only after a front-end engineering and design (FEED) study or similar indication of project maturity, as determined by DOE, such as the completion of a project specification and cost estimation sufficient to inform a final investment decision for the facility.

An emission value obtained from the DOE will be based on an analytical assessment of the emissions rate associated with the facility, performed by one or more National Laboratories, in consultation with other agency experts as appropriate. A taxpayer would be required to retain in its books and records the request to DOE for an emissions value, including any information provided by the taxpayer to DOE pursuant to the emissions value request process.

DOE will publish guidance and procedures to request and obtain a provisional emissions rate. The IRS and Treasury anticipate that the emissions value request process will open after the publication of the final regulations. The taxpayer must attach a DOE letter setting forth the PER with its petition filed with its tax return for the year in which it intends to claim the section 45Y credit.

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The preamble to the proposed regulations describes various potential considerations for facilities that produce electricity from biogas, renewable natural gas (RNG), or fugitive sources of methane. For instance, the preamble describes a potential first productive use rule, under which if a biogas had already been put to productive use in a tax year before the relevant electricity production facility was operational, then any GHG benefits typically associated with using biogas would not be considered. Instead, it would be treated similarly to natural gas in terms of its emissions value. In addition, the preamble describes how final rules may include requirements such as book and claim systems to track energy attributes, separate LCAs by feedstock, and different considerations depending on whether a facility is directly connected to an RNG source versus RNG from a common carrier. The proposed regulatory text does not include specific rules relating to biogas, RNG or fugitive methane.

KPMG observation

The preamble language regarding biogas, RNG, and fugitive methane reflects similar considerations and comment requests as those provided in the preamble to section 45V clean hydrogen production tax credit. It is clear that productions processes, sourcing and related environmental attributes of biogas, RNG and fugitive sources of methane are areas under continued evaluation by Treasury and the IRS.

Documentation

Documentation that is sufficient to substantiate that a facility had a GHG emissions rate of not greater than zero includes documentation or a report prepared by an unrelated party that verifies that a facility had such an emissions rate.

Statutory overview of section 48E

The section 48E credit is an investment tax credit.

The amount of the section 48E credit is equal to the applicable percentage of the qualified investment in a qualified facility or a EST. Like current law section 48, the applicable percentage is a two-tier structure of a base rate of 6%, and an alternative rate of 30% (provided the taxpayer meets the wage and workforce requirements).

Additionally, as with the existing section 48 credit, the section 48E credit provides bonus credit amounts for qualified facilities located in an energy community and for those that meet certain domestic content requirements.

Rules similar to those under section 45Y apply in determining the definition a qualified facility, the phase out, the rules for multiple owners, the rules for new units, the rules for increases in capacity, the 80/20 retrofit rule, and the definitions for determining greenhouse gas emissions.

Qualified facility

For purposes of defining the property included in a qualified facility for 48E, the IRS and Treasury incorporate a number of the principles applicable to section 48, including as provided in the recently issued section 48 proposed regulations.

The proposed regulations clarify that any property that is an integral part of a qualified facility is considered part of the qualified facility regardless of its location.

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The proposed regulations clarifies that an integral part of a qualified facility includes power conditioning equipment and transfer equipment. Power conditioning equipment includes equipment that modifies the characteristics of electricity into a form suitable for use or transmission or distribution. Also, parts related to the functioning or protection of power conditioning equipment are also treated as power conditioning equipment.

The proposed regulation states that multiple qualified facilities, whether owned by one or more taxpayers, can share property that is considered an integral part of each facility. Shared property components that are essential to both types of qualified facilities will not affect their eligibility to claim their respective credits. The proposed regulations provide examples to illustrate this point such as a shared transformer.

Qualified investment in a qualified facility

Qualified property of a qualified facility or EST is defined as tangible personal property or other tangible property (excluding buildings or their structural components) that is an integral part of a qualified facility or EST. This property must be eligible for depreciation (or amortization in lieu of depreciation) and must either be constructed, reconstructed, or erected by the taxpayer, or acquired by the taxpayer with its original use starting with them.

Qualified interconnection property associated with a qualified facility constitutes a qualified investment under section 48E. Such property must have a maximum net output of no more than five megawatts (measured in alternating current).

New unit

In the case of a new unit or an increase in capacity, the amount of the investment tax credit is multiplied by a fraction, the numerator of which is the increase in nameplate capacity and the denominator is the total nameplate capacity ("haircut").

KPMG observation

This a departure from current law section 48, which doesn't provide a similar rule; and for which, historically, no such haircut was required.

Credit recapture

The proposed regulations further provide that the section 48E credit calculated is subject to recapture for any qualified facility that has a GHG emissions rate that exceeds 10 grams of CO_2e per kWh during the five-year period beginning on the date such qualified facility is originally placed in service (five-year recapture period). The IRS and Treasury clarify that a change to the GHG emissions rate for a type or category of facility that is published in the Annual table after the facility is placed in service does not result in a recapture event.

Further, the recapture rules that currently apply under section 48 (found in section 50) also apply to the section 48E credit.

Conclusion

Although the regulations with respect to sections 45Y and 48E are still taking shape, the proposed regulations have offered clarity for taxpayers who are planning projects that will be subject to the new regime.

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