DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

[TD 10015]

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Definition of Energy Property and Rules Applicable to the Energy Credit

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Final regulations.

SUMMARY: This document sets forth final rules relating to the energy credit, including rules for determining whether investments in energy property are eligible for the energy credit and for implementing certain amendments made by the Inflation Reduction Act of 2022. The final regulations impact taxpayers who invest in energy property eligible for the energy credit.

DATES:

Effective date: These regulations are effective on December 12, 2024.

Applicability dates: For dates of applicability, see §§ 1.48–9(g), 1.48–13(f), 1.48–14(j), and 1.6418–5(j).

FOR FURTHER INFORMATION CONTACT: Concerning the regulations, the IRS Office of the Associate Chief Counsel (Passthroughs and Special Industries) at (202) 317–6853 (not a toll-free number).

SUPPLEMENTARY INFORMATION:

Authority

This document contains amendments to the Income Tax Regulations (26 CFR part 1) under sections 48 and 6418 of the Internal Revenue Code (Code) issued by the Secretary of the Treasury or her delegate (Secretary) pursuant to the authority granted under sections 45(b)(12), 48(a)(3)(D), and (a)(16), 6418(g) and (h), and 7805(a) of the Code (final regulations).

Section 48(a)(3)(D) provides a specific delegation of authority for the Secretary to prescribe by regulations performance and quality standards for energy property after consulting with the Secretary of Energy.

Sections 45(b)(12) and 48(a)(16) provide specific delegations of authority with respect to the requirements of section 45(b), including the prevailing wage and apprenticeship (PWA) requirements of section 45(b)(7) and (8), as incorporated by section 48(a)(10) and (11), with each stating, ''[t]he Secretary shall issue such regulations or other guidance as the Secretary determines necessary to carry out the purposes of this subsection, including regulations or other guidance which provides for requirements for recordkeeping or information reporting for purposes of administering the requirements of this subsection.'' Section 48(a)(10)(C) grants authority for the Secretary to provide, by regulations or other guidance, for recapturing the benefit of any increase in the credit allowed under section 48(a) allowed to an energy project that initially satisfies the PWA requirements if such energy project should later fail to satisfy such requirements during the recapture period by applying rules similar to the rules of section 50(a) of the Code. Section 48(a)(16) provides a general grant of regulatory authority for section 48(a), by stating: ''The Secretary shall issue such regulations or other guidance as the Secretary determines necessary to carry out the purposes of this subsection, including regulations or other guidance which provides for requirements for recordkeeping or information reporting for purposes of administering the requirements of this subsection.''

Section 6418(g) provides several specific delegations of authority to the Secretary with regard to enforcing requirements for valid transfers of certain Federal income tax credits under section 6418 and recapturing excessive credit transfers. Section 6418(h) provides a specific delegation of authority with respect to the transfer of credits under section 6418, stating, in part, that ''[t]he Secretary shall issue such regulations or other guidance as may be necessary to carry out the purposes of this section.''

Finally, section 7805(a) authorizes the Secretary to ''prescribe all needful rules and regulations for the enforcement of [the Code], including all rules and regulations as may be necessary by reason of any alteration of law in relation to internal revenue.''

Background

I. Overview

Section 38 of the Code allows certain business credits against the Federal income tax imposed by chapter 1 of the Code (chapter 1). Among the credits allowed by section 38 are the investment credit determined under section 46 of the Code, which includes the energy credit determined under section 48 (section 48 credit). See sections 38(b)(1) and 46(2). Section 48(a)(1) generally provides that the section 48 credit for any taxable year is the energy percentage of the basis of each energy property placed in service during such taxable year. For most types of energy property, eligibility for the section 48 credit and, in some cases, the amount of the section 48 credit depends upon meeting certain deadlines for beginning construction of the energy property or for placing the energy property in service.

Section 48 originally was enacted by section 2 of the Revenue Act of 1962, Public Law 87–834, 76 Stat. 960, 963 (October 16, 1962), to spur economic growth by encouraging investments in various capital projects across many industries including energy, transportation, and communications. Section 48 has been amended many times since its enactment, most recently by section 13102 of Public Law 117–169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 (IRA). The IRA amended section 48 in several ways, including by making additional types of energy property eligible for the section 48 credit, providing a special rule to allow certain lower-output energy properties to include amounts paid for qualified interconnection property in connection with the installation of energy property, and providing an increased credit amount for energy projects that satisfy prevailing wage and apprenticeship requirements, a domestic content bonus credit amount, and an increase in credit rate for energy communities.

The Income Tax Regulations at § 1.48–9 in effect prior to December 12, 2024 (former § 1.48–9), which provide definitions and rules for determining whether property is energy property eligible for the section 48 credit, originally were published on January 23, 1981 (T.D. 7765, 46 FR 7287). Those regulations were amended on July 21, 1987 (T.D. 8147, 52 FR 27336) to provide rules for dual use property. Thus, former § 1.48–9 has not been updated since 1987, which is before many of the current types of energy property became eligible for the section 48 credit.

II. Prior Guidance

Prior to proposing the amendments to the regulations under section 48 being finalized by this treasury decision, the Department of the Treasury (Treasury Department) and the IRS twice requested comments on issues to be addressed in these regulations. On October 26, 2015, the Treasury Department and the IRS published Notice 2015–70, 2015–43 I.R.B. 604, requesting comments regarding statutory updates to section 48 preceding those made by the IRA. On October 24, 2022, in response to the passage of the IRA, the Treasury Department and the IRS published Notice 2022–49, 2022–43 I.R.B. 321, requesting general as well as specific

comments on issues arising under section 48, among other sections, that were amended or added by the IRA.

On August 30, 2023, the Treasury Department and the IRS published a notice of proposed rulemaking (REG–100908–23) in the **Federal Register** (88 FR 60018), *corrected* in 88 FR 73807 (Oct. 27, 2023), *corrected* in 89 FR 25550 (April 11, 2024), proposing rules regarding the increased credit amounts available for taxpayers satisfying PWA requirements established by the IRA (PWA Proposed Regulations). Comments were requested and a public hearing was held November 21, 2023.

On November 22, 2023, after consideration of all the comments submitted in response to Notice 2015–70 and Notice 2022–49, and after consultation with the Department of Energy (DOE), the Treasury Department and the IRS published a notice of proposed rulemaking and a notice of public hearing (REG–132569–17) in the **Federal Register** (88 FR 82188), *corrected in* 89 FR 2182 (January 12, 2024), proposing rules that would provide guidance under section 48 (Proposed Regulations). On February 22, 2024, the Treasury Department and the IRS published a second correction to the Proposed Regulations in the **Federal Register** (89 FR 13293) that re-opened the comment period through March 25, 2024 (Correction). The Proposed Regulations withdrew certain portions of the PWA Proposed Regulations and re-proposed regulations that would provide additional guidance on the PWA requirements under section 48, including the statutory exception for energy projects with a maximum output of less than one megawatt (MW) and the recapture rules under section 48(a)(10)(C) related to the PWA requirements.

Although the Proposed Regulations withdrew certain portions of the PWA Proposed Regulations, the Explanation of Provisions section in the preamble to the PWA Proposed Regulations generally remained relevant. Therefore, to the extent consistent with the preamble to the Proposed Regulations, the Explanation of Provisions section of the PWA Proposed Regulations was incorporated in the preamble to the Proposed Regulations.

The preamble to the Proposed Regulations did not address written comments that were submitted in response to the PWA Proposed Regulations. Any comments received in response to the Proposed Regulations, including comments on the re-proposed regulations addressing the PWA requirements specific to section 48, are addressed in the Summary of Comments and Explanation of Revisions section of this preamble. The Proposed Regulations did not extend the comment period or affect the scheduled hearing for the PWA Proposed Regulations. The PWA Proposed Regulations, other than the portions that were withdrawn, were adopted as final regulations by Treasury Decision (T.D. 9998), which was published in the **Federal Register** (89 FR 53184) on June 25, 2024 (PWA Final Regulations).

On June 21, 2023, the Treasury Department and the IRS published a notice of proposed rulemaking (REG–101610–23) in the **Federal Register** (88 FR 40496) proposing rules concerning the election under section 6418 to transfer certain Federal income tax credits, including the section 48 credit (6418 Proposed Regulations). Proposed § 1.6418–5 of the 6418 Proposed Regulations included proposed rules addressing notification requirements and the impact of the credit recapture rules under sections 50(a), 49(b), and 45Q(f)(4) on the transfer of Federal income tax credits. Comments were requested and a public hearing on the 6418 Proposed Regulations was held on August 23, 2023.

The Proposed Regulations would supplement the 6418 Proposed Regulations by adding provisions to proposed § 1.6418–5 addressing notification requirements and the impact of the recapture rules for failing to satisfy the PWA requirements under section 48(a)(10) if an election under § 1.6418–2 or § 1.6418–3 has been made. The preamble to the Proposed Regulations did not address written comments that were submitted in response to the regulations proposed in the 6418 Proposed Regulations. Any comments received in response to the Proposed Regulations, including the additions to proposed § 1.6418–5 described in the Proposed Regulations, are addressed in the Summary of Comments and Explanation of Revisions section of this preamble. The Proposed Regulations did not otherwise extend the comment period for the 6418 Proposed Regulations. On April 30, 2024, a Treasury Decision (T.D. 9993) adopting the 6418 Proposed Regulations as final regulations (6418 Final Regulations) was published in the **Federal Register** (89 FR 34770). The 6418 Final Regulations did not finalize the portion of proposed § 1.6418–5 that was included in the Proposed Regulations.

Summary of Comments and Explanation of Revisions

The Treasury Department and the IRS received 350 written comments in response to the Proposed Regulations. The comments are available for public inspection at *https://www.regulations.gov* or upon request. After full consideration of the comments received in response to the Proposed Regulations, these final regulations adopt the Proposed Regulations with modifications as described in this Summary of Comments and Explanation of Revisions.

Comments addressing the requirements for energy property are described in part I of this Summary of Comments and Explanation of Revisions. Comments addressing the PWA requirements are described in part II of this Summary of Comments and Explanation of Revisions. Comments addressing rules applicable to energy property are described in part III of this Summary of Comments and Explanation of Revisions.

Comments summarizing the statute or the Proposed Regulations, recommending statutory revisions, or addressing issues that are outside the scope of this rulemaking (such as revising other Federal regulations and recommending changes to IRS forms) generally are not addressed in this Summary of Comments and Explanation of Revisions or adopted in these final regulations. In addition to modifications described in this Summary of Comments and Explanation of Revisions, the final regulations also include non-substantive grammatical or stylistic changes to the Proposed Regulations. Unless otherwise indicated in this Summary of Comments and Explanation of Revisions, provisions of the Proposed Regulations with respect to which no comments were received are adopted without substantive change.

I. Requirements for Energy Property

For purposes of the section 48 credit, energy property consists of all the components of property that meet the statutory requirements for an energy property as defined by section 48(a)(3) and (c).

Section 48(a)(3)(B) through (D) provide general requirements for all types of energy property. Section 48(a)(3)(B) limits energy property to property that is constructed, reconstructed, or erected by the taxpayer or that the taxpayer acquires if the original use of such property commences with the taxpayer. Section 48(a)(3)(C) provides that to be eligible as energy property, depreciation (or amortization in lieu of depreciation) must be allowable for the property. Section 48(a)(3)(D) provides that to be eligible as energy property, the property must also meet any performance and

quality standards that have been prescribed by the Secretary, after consultation with the Secretary of Energy, and are in effect at the time of the taxpayer's acquisition of the property. Under section 48(a)(3), energy property does not include property that is part of a qualified facility the production from which is allowed a renewable electricity production credit determined under section 45 (section 45 credit) for the taxable year or any prior taxable year. Lastly, if the statutory text of section 48 provides dates by which construction of energy property must begin or when energy property must be placed in service, such energy property must meet those deadlines to be eligible for the section 48 credit at specified energy percentages.

A. Definitions Related to Requirements for Energy Property

Before 1990, section 48 defined the term ''section 38 property'' to include, among other types of property, energy property eligible for the section 48 credit. The Revenue Reconciliation Act of 1990, Public Law 101–508, 104 Stat. 1388 (November 5, 1990) removed the term ''section 38 property'' in amending section 48. However, section 48 is one of the credits that comprise the investment credit for any taxable year determined under section 46, which is included in section 38(b)(1) and remains subject to the general business credit rules under section 38. As a result, rules related to ''section 38 property'' remain generally applicable to the section 48 credit.

Sections 1.48–1 and 1.48–2 provide guidance with respect to section 38 property. Section 1.48–1 was last substantially revised on October 11, 1988 (T.D. 8233, 53 FR 39592) and § 1.48–2 was last revised on June 28, 1985 (T.D. 8031, 50 FR 26698). Although subsequent amendments to section 48 have made some of the rules provided by these regulations inapplicable, those rules continue to provide useful definitions related to requirements for energy property, some of which would be adopted under proposed § 1.48–9.

1. Performance and Quality Standards for Energy Property

Section 48(a)(3)(D) provides that energy property is property that meets the performance and quality standards (if any) that have been prescribed by the Secretary by regulations (after consultation with the Secretary of Energy) and are in effect at the time of the acquisition of the property. Former § 1.48–9(m)(1) provided that ''energy property must meet quality and performance standards, if any, that have been prescribed by the Secretary (after consultation with the Secretary of Energy) and are in effect at the time of acquisition.'' Generally, proposed § 1.48–9(c)(2)(i) would adopt this rule for performance and quality standards for energy property from former § 1.48–9(m)(1) by providing that energy property must meet performance and quality standards, if any, which have been prescribed by the Secretary (after consultation with the Secretary of Energy) and are in effect at the time of acquisition of the energy property. The final regulations adopt this rule as proposed.

2. Performance and Quality Standards for Electrochromic Glass Property

Proposed § 1.48–9(c)(2)(ii)(B) would provide rules for performance and quality standards for electrochromic glass property by stating that to be eligible for the section 48 credit, electrochromic windows must be rated in accordance with the National Fenestration Rating Council (NFRC) and secondary glazing systems must be rated in accordance with the Attachments Energy Rating Council (AERC) Rating and Certification Process, or subsequent revisions.

A few commenters addressed the performance and quality standards for electrochromic glass provided in the Proposed Regulations. Generally, these commenters suggested methods to satisfy the NFRC rating requirement and were particularly interested in a simulation-based process. For example, a commenter advocated for a process that emphasizes simulation-based validation to expedite compliance and reduce barriers to implementation, particularly given the lengthy delays associated with physical testing. This commenter stated that simulations, supported by advanced and reliable modeling software, have become a standard practice within the industry. Another commenter also emphasized the need to use simulations to satisfy the NFRC rating requirement.

In response to these comments, the Treasury Department and the IRS consulted with the DOE and learned that the existing NRFC and the AERC ratings systems incorporate simulation methodologies that should address the commenters' concerns. Accordingly, the final regulations adopt this rule as proposed.

3. Placed in Service

a. General Rules

Section 48(a) provides that the section 48 credit for any taxable year is the energy percentage of the basis of each energy property placed in service during such taxable year. As part of the regulations under section 46 for the investment credit, § 1.46–3(d)(1) provides general rules for determining when a taxpayer has placed a property in service for purposes of the section 48 credit. Under § 1.46–3(d)(1) property is considered placed in service in the earlier of the taxable year in which, under the taxpayer's depreciation practice, the period for depreciation with respect to such property begins; or the taxable year in which the property is placed in a condition or state of readiness and availability for a specifically assigned function, whether in a trade or business, in the production of income, in a tax-exempt activity, or in a personal activity.

Proposed § 1.48–9(b)(5) largely proposed to adopt the general rules of § 1.46–3(d)(1) for determining when a taxpayer has placed an energy property in service. However, to be eligible for the section 48 credit, energy property must be property with respect to which depreciation (or amortization in lieu of depreciation) is allowable. Accordingly, proposed § 1.48–9(b)(5)(i) would provide that the taxable year in which energy property is placed in service is the earlier of the taxable year in which, under the taxpayer's depreciation practice, the period for depreciation of such property begins, or the taxable year in which the energy property is placed in a condition or state of readiness and availability for a specifically assigned function in either a trade or business or in the production of income.

A commenter requested that the final regulations provide a different placed in service rule for energy storage technology. Because energy storage technology may charge and discharge prior to commercial readiness, the commenter suggested that energy storage technology should be treated as placed in service when: (i) such property has all licenses, permits, and approvals required to store and dispatch power; (ii) pre-operational testing is complete; (iii) the taxpayer has title to the property; and (iv) the property is available to store and discharge power on a regular, commercial basis.

Proposed § 1.48–9(b)(5) would adopt the general placed in service rules of § 1.46–3(d)(1), which have applied to the section 48 credit since its enactment, with a modification to reflect the requirement that the property be eligible for depreciation or amortization. Until the IRA amended section 48, energy storage property (referred to as ''energy storage technology'' after the IRA amendments)

was considered a component of energy property. Without providing specific indicia that an energy property is placed in service, the rule provided at proposed § 1.48–9(b)(5) would provide general principles for a taxpayer to determine when an energy property has been placed in service that are broadly applicable to all types of energy property, well-understood, and widely relied upon by industry. The general principles provided by the final rule are sufficiently broad to address the commenter's concerns. Therefore, the final regulations do not adopt these comments and instead adopt the placed in service rules as proposed.

b. Lease-Passthrough Election

Section 1.46–3(d)(3) provides that, notwithstanding the provisions of § 1.46–3(d)(1), property with respect to which an election is made under § 1.48–4 to treat the lessee as having purchased such property is considered placed in service by the lessor in the taxable year in which possession is transferred to such lessee. Proposed § 1.48–9(b)(5)(ii) would adopt the special rule from § 1.46–3(d)(3) for determining when a leased property has been placed in service. Several commenters provided comments relating to the rule for leased property in the context of qualified biogas property.

A commenter requested clarification on the application of the lease passthrough election under § 1.48–4 to treat a lessee as having purchased such energy property from the lessor with respect to any property comprising a qualified biogas property, including both component properties considered functionally interdependent as a single unit of energy property and property treated as an integral part of energy property. This commenter asked for illustrative examples of the application of the lease passthrough election in the context of a renewable natural gas (RNG) qualified biogas property if the equipment comprising the qualifying biogas production property, including equipment treated as an integral part of the qualifying biogas property, is owned by multiple taxpayers.

Another commenter suggested allowing a single taxpayer to consolidate deemed ownership of an entire qualified biogas property to permit a more efficient use and/or transfer of the section 48 credit under the section 6418 credit transfer rules by relying on existing lease passthrough rules that apply to energy property. The commenter asserted that this would permit greater qualified investment and use of the section 48 credit if, for regulatory or environmental permitting reasons, some portion of the section 48 credit-eligible qualified biogas property simply cannot be owned by a single or related taxpayers. The commenter acknowledged that under the 6418 Proposed Regulations, the transfer of the tax credits to a lessee under a lease passthrough election will preclude further transfers under section 6418.

Guidance on eligibility for the lease passthrough election is beyond the scope of the Proposed Regulations because proposed § 1.48–9(b)(5)(ii) merely proposed a rule for determining when property with respect to which a lease passthrough election is made under § 1.48–4 is placed in service. Guidance on eligibility for the lease passthrough election is addressed elsewhere, such as in § 1.48–4 and the 6418 Final Regulations. Accordingly, these final regulations do not adopt these comments.

4. Acquisition of Energy Property

Proposed § 1.48–9(b)(2) would provide that the term acquisition of energy property means a transaction by which a taxpayer obtains rights and obligations with respect to energy property, including title to the energy property under the law of the jurisdiction in which the energy property is placed in service, unless the property is possessed or controlled by the taxpayer as a lessee, and physical possession or control of the energy property. This definition was intended to require that the taxpayer establish tax ownership of the energy property for Federal income tax purposes. The final regulations modify the definition in proposed § 1.48–9(b)(2) to make this requirement explicit.

B. Types of Energy Property

Proposed § 1.48–9(e) would expand the definitions of energy property provided in former § 1.48–9 to account for new technologies that were added by amendments to section 48, including by the IRA. Generally, the definitions of the types of energy property provided in the Proposed Regulations incorporate the definitions provided in section 48(a)(3) and (c) but do not provide specific beginning of construction or placed in service deadlines. Taxpayers should refer to the current definitions of energy property provided by section 48 for specific requirements applicable to each type of energy property. The definitions of the types of energy property provided in proposed § 1.48–9(e) were developed by the Treasury Department and the IRS in consultation with the DOE.

Some commenters requested clarification concerning whether a particular type of technology would fall into one of the categories of energy property. For example, a commenter requested guidance concerning what type of energy property would include sewage energy recovery property and provided three options: geothermal heat pump (GHP) property by reference to ''underground fluids,'' energy storage technology, or waste energy recovery property (WERP). A definitive response to such comments would require the Treasury Department and the IRS to conduct a complete factual analysis of the property in question, which may include information that was not provided by the commenters. Because more information is needed to make the determinations requested by the commenters, these final regulations do not address the requested clarifications concerning the categorization of specific technologies.

1. Combined Heat and Power System Property

Section 48(a)(3)(A)(v) includes combined heat and power system (CHP) property as a type of energy property. Section 48(c)(3)(A) defines CHP property as property comprising a system that, among other requirements, uses the same energy source for the simultaneous or sequential generation of electrical power, mechanical shaft power, or both, in combination with the generation of steam or other forms of useful thermal energy (including heating and cooling applications). Section 48(c)(3)(A) further provides, in part, that a CHP property must produce at least 20 percent of its total useful energy in the form of thermal energy that is not used to produce electrical or mechanical power (or combination thereof), and at least 20 percent of its total useful energy in the form of electrical or mechanical power (or combination thereof), and that the energy efficiency percentage of the system must exceed 60 percent.

Section 48(c)(3)(B) provides that the amount of the section 48 credit with respect to CHP property is reduced to the extent that a CHP property has an electrical or mechanical capacity in excess of applicable limits. Subject to the exception for CHP property that uses closed or open-loop biomass as feedstock, CHP property with capacity in excess of the applicable capacity limit (15 MW or a mechanical capacity of more than 20,000 horsepower or an equivalent combination of electrical and mechanical energy capacities) is eligible for only a fraction of the otherwise allowable section 48 credit. This fraction is equal to the applicable capacity limit divided by the capacity of the CHP property. However, CHP

property with a capacity in excess of 50 MW or a mechanical energy capacity in excess of 67,000 horsepower or an equivalent combination of electrical and mechanical energy capacities does not qualify for the section 48 credit.

Section 48(c)(3)(C) provides that the energy efficiency percentage of a CHP property is the fraction (i) the numerator of which 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, and (ii) the denominator of which is the lower heating value of the fuel sources for the system. The energy efficiency percentage and the percentages under section 48(c)(3)(A)(ii) are determined on a British thermal unit (Btu) basis. Section 48(c)(3)(C)(iii) specifically provides that the term ''combined heat and power system property'' does not include property used to transport an energy source to the facility or to distribute energy produced by the facility.

Additionally, section 48(c)(3)(D) provides that a CHP property with a fuel source that is at least 90 percent from closed or open-loop biomass that would otherwise qualify for the section 48 credit but for the failure to meet the efficiency standard is eligible for a credit reduced in proportion to the degree to which the system fails to meet the efficiency standard. For example, a system that would otherwise be required to meet the 60-percent efficiency standard, but that only achieves 30-percent efficiency, would be permitted to claim a credit equal to one-half of the otherwise allowable credit.

Proposed § 1.48–9(e)(6)(i) would provide generally that CHP property is property comprising a system that uses the same energy source for the simultaneous or sequential generation of electrical power, mechanical shaft power, or both, in combination with the generation of steam or other forms of useful thermal energy (including heating and cooling applications). Proposed § 1.48–9(e)(6)(i) would also provide that CHP property must produce at least 20 percent of its total useful energy in the form of thermal energy that is not used to produce electrical or mechanical power (or combination thereof), and at least 20 percent of its total useful energy in the form of electrical or mechanical power (or combination thereof). Further, proposed § 1.48–9(e)(6)(i) would provide that the energy efficiency percentage of CHP property must exceed 60 percent (except in the case of CHP systems that use biomass within the meaning of section 45). Proposed § 1.48–9(e)(6)(i) would also provide that CHP property does not include any property comprising a system if such system has a capacity in excess of 50 MW or a mechanical energy capacity in excess of 67,000 horsepower or an equivalent combination of electrical and mechanical energy capacities. Proposed § 1.48–9(e)(6)(ii) would provide that CHP property does not include property used to transport the energy source to the generating facility or to distribute energy produced by the facility.

A commenter requested that the final regulations clarify whether a CHP property would be eligible for the section 48 credit, assuming all other criteria are met, if the fuel source is exclusively non-renewable natural gas. There is no requirement that a CHP property use a specific fuel or feedstock. The Treasury Department and the IRS emphasize that all CHP property must meet the requirements of section 48(c)(3) and those provided in proposed § 1.48–9(e)(6)(i), which the final regulations adopt as proposed.

2. Geothermal Heat Pump Property

Section 48(a)(3)(A)(vii) provides, in part, that energy property includes equipment that uses the ground or ground water as a thermal energy source to heat a structure or as a thermal energy sink to cool a structure (geothermal heat pump or GHP property). Proposed § 1.48–9(e)(8) would adopt the statutory definition of GHP property while providing the modification that in addition to the ground and ground water, other underground working fluids may be used as a thermal energy source or as a thermal energy sink. Accordingly, proposed § 1.48–9(e)(8) would provide that GHP property is equipment that uses the ground, ground water, or other underground fluids as a thermal energy source to heat a structure or as a thermal energy sink to cool a structure.

Several commenters requested revisions to the definition of GHP property to include recovered heat as a thermal energy source. For example, representative of these comments, a commenter requested clarification that equipment used to circulate recovered heat qualifies as GHP property. This commenter asserted that the same GHP property that uses a ground heat exchanger as a source or sink can be designed to operate in a heat recovery mode, simply recycling heat around a building if the potential exists. Another commenter noted that the use of GHP property in heat recovery mode should be considered a qualified energy source for purposes of the calculation to determine whether the GHP property qualifies as dual use property.

As defined in proposed § 1.48–14(b)(1), the term ''dual use property'' would mean property that uses energy derived from both a qualifying source (that is, from an energy property including a qualified facility for which a section 48(a)(5) election has been made) and from a non-qualifying source (that is, sources other than an energy property including a qualified facility for which a section 48(a)(5) election has been made). As proposed § 1.48–14(b)(2) would further provide, if dual use property uses energy derived from both a qualifying source and a non-qualifying source it will qualify as energy property if its use of energy from non-qualifying sources does not exceed 50 percent of its total energy input during an annual measuring period (Dual Use Rule). Further, if the energy used from qualifying sources is between 50 percent and 100 percent, only a proportionate amount of the basis of the energy property will be taken into account in computing the amount of the section 48 credit. For example, if 80 percent of the energy used by a dual use property is from qualifying sources, 80 percent of the basis of the dual use property will be taken into account in computing the amount of the section 48 credit.

The Treasury Department and the IRS decline to adopt these suggested revisions because they would conflict with the statutory definition of GHP property. Section 48(a)(3)(A)(vii) specifically provides that GHP property includes equipment that uses the ground or ground water as a thermal energy source. While the Proposed Regulations would provide that underground fluids may be included, this is a clarification that underground fluids other than water may offer another medium that contains thermal energy from the ground or ground water. The statute does not include any other thermal energy sources. For further discussion of the Dual Use Rule see part III.B. of this Summary of Comments and Explanation of Revisions.

Additionally, a few commenters suggested expanding the definition to allow GHP property to be used to heat domestic hot water in addition to a structure. For example, a commenter requested that the final rule clarify that domestic hot water generation by GHP property is included in the definition of GHP property. Another commenter asserted that GHP property eligible for the section 48 credit should also be permitted to provide hot water generation because it would be counterintuitive if heating hot water for space conditioning is included in the

definitions, but heating of domestic hot water is not. The statute requires GHP property heat a structure or cool a structure; therefore, the suggestion to expand the definition is not authorized by the statute. The Treasury Department and the IRS decline to adopt these suggested revisions. The final regulations adopt this rule as proposed.

A commenter mentioned that the energy property definition in proposed § 1.48–9(e)(3) concerning geothermal energy property includes clarifying language on the scope of included property, specifically addressing production and distribution equipment. The commenter recommended including similar language for GHP property described in section 48(a)(3)(A)(vii). The Treasury Department and the IRS declined to adopt this suggestion in the Proposed Regulations, and explained in the preamble to the Proposed Regulations that, while section 48(a)(3)(A)(vii) does not specify energy distribution equipment and components of a building's heating and/or cooling system as components of GHP property, such equipment may be integral to the function of the GHP property to heat or cool a structure. Thus, energy distribution equipment may be considered GHP property for the reasons stated in the preamble to the Proposed Regulations.

3. Waste Energy Recovery Property

Section 48(a)(3)(A)(viii) provides that energy property includes waste energy recovery property (WERP). Section 48(c)(5) defines WERP as property (with a capacity not in excess of 50 MW) that generates electricity solely from heat from buildings or equipment if the primary purpose of such building or equipment is not the generation of electricity. Additionally, section 48(c)(5)(C) prevents taxpayers from claiming a double benefit by providing that any property that could be treated as WERP (determined without regard to section 48(c)(5)(C)) and is part of a CHP property is not treated as WERP for purposes of section 48 unless the taxpayer elects not to treat such system as a CHP property for purposes of section 48.

Proposed § 1.48–9(e)(9)(i) would provide that WERP is property that generates electricity solely from heat from buildings or equipment if the primary purpose of such building or equipment is not the generation of electricity. Proposed § 1.48–9(e)(9)(i) would also provide examples of buildings or equipment the primary purpose of which is not the generation of electricity including, but not limited to, manufacturing plants, medical care facilities, facilities on college campuses, pipeline compressor stations, and associated equipment. Further, proposed § 1.48–9(e)(9)(i) would provide that WERP does not include any property that has a capacity in excess of 50 MW. Proposed § 1.48–9(e)(9)(ii) would provide that any WERP that is part of a system that is a CHP property is not treated as WERP for purposes of section 48 unless the taxpayer elects to not treat such system as a CHP property for purposes of section 48.

Several commenters requested that specific technologies, including ''pressure reduction'' equipment or ''pressure letdown'' equipment, sometimes referred to as ''turboexpanders,'' which generally allow high pressure gas to expand and produce heat, be added to the examples of WERP that would be provided in proposed § 1.48–9(e)(9)(i). Another commenter requested that ''pressure reduction'' equipment be included as an example of WERP because pipeline transmissions (regardless of geographic distance) require high pressure, but at pressure letdown stations and within industrial facilities where the pressure is reduced, pressure reduction affords an opportunity for energy collection. A commenter requested that district energy systems paired with WERP be added to the examples of WERP, while another commenter suggested adding carbon dioxide power system technology to the examples of WERP.

In response to these requests, the Treasury Department and the IRS highlight that proposed § 1.48–9(e)(9) would provide non-exhaustive examples of buildings and facilities at which WERP may function rather than examples of technology that may qualify as WERP. This approach provides a function-oriented approach to determine whether a technology is WERP that is broad enough to encompass nascent technologies without rendering the regulations quickly obsolete. Therefore, the final regulations do not adopt the requested revisions to the definition of WERP, and the final regulations adopt this rule as proposed.

4. Energy Storage Technology

Section 48(a)(3)(A)(ix), which was added by the IRA, provides that energy property includes energy storage technology. Section 48(c)(6)(A)(i) defines energy storage technology to mean property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) that receives, stores, and delivers energy for conversion to electricity (or, in the case of hydrogen, that stores energy), and has a nameplate capacity of not less than 5 kilowatt-hours (kWh). Section 48(c)(6)(A)(ii) provides that thermal energy storage property is also energy storage technology.

Section 48(c)(6)(B) provides a rule for modifications of energy storage technology. In the case of any property that either was placed in service before August 16, 2022, and would be described in section 48(c)(6)(A)(i), except that such property has a capacity of less than 5 kWh and is modified in a manner that such property (after such modification) has a nameplate capacity of not less than 5 kWh, or is energy storage technology (as described in section 48(c)(6)(A)(i)) and is modified in a manner that such property (after such modification) has an increase in nameplate capacity of not less than 5 kWh, such property is treated as energy storage technology (as described in section 48(c)(6)(A)(i)) except that the basis of any existing property prior to such modification is not taken into account for purposes of the section 48 credit.

Section 48(c)(6)(C) defines thermal energy storage property, for purposes of section 48(c)(6), as property comprising a system that: is directly connected to a heating, ventilation, or air conditioning system; removes heat from, or adds heat to, a storage medium for subsequent use; and provides energy for the heating or cooling of the interior of a residential or commercial building. Section 48(c)(6)(C)(ii) provides that thermal energy storage property does not include a swimming pool, a CHP property, or a building or its structural components.

Commenters requested clarifications regarding the treatment of energy storage technology co-located with, an integral part of, or shared with a facility that is otherwise eligible for certain Federal tax credits. For example, a commenter requested clarification concerning boundaries between energy storage technology eligible for the section 48 credit and qualified clean hydrogen production facilities eligible for the credit under section 45V. Another commenter requested confirmation that energy storage technology, including a hydrogen energy storage property, separately qualifies for the section 48 credit regardless of whether it is part of a facility for which a credit under section 45, 45V, or 48 is or has been allowed. A commenter also requested confirmation that energy storage technology will be treated as separate property for section 48 and other Code

provisions. The Treasury Department and the IRS confirm that energy storage technology is eligible for the section 48 credit if it satisfies the requirements of section 48 even if the energy storage technology is co-located with or shared by a facility that is otherwise eligible for the section 45, 45V, or 48 credits.

a. Hydrogen Energy Storage Property

Proposed § 1.48–9(e)(10)(iv) would provide that hydrogen energy storage property is property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) that 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 (scf) of hydrogen. Proposed § 1.48–9(e)(10)(iv) would also require hydrogen energy storage property to store hydrogen that is solely used for the production of energy and not for other purposes such as for the production of end products such as fertilizer. Proposed § 1.48–9(e)(10)(iv) would also provide a non-exhaustive list of components of hydrogen energy storage property that would include, but would not be limited to, a hydrogen compressor and associated storage tank and an underground storage facility and associated compressors.

In the preamble to the Proposed Regulations, the Treasury Department and the IRS requested comments on alternative approaches to assessing limitations on the use of hydrogen energy storage property, including whether additional clarification is needed regarding the production of energy from hydrogen, and what type of documentation would be needed to demonstrate that a hydrogen energy storage property was used to store hydrogen that is solely used for the production of energy.

A commenter particularly endorsed the approach taken in the Proposed Regulations by providing that the nameplate capacity requirement for hydrogen is 0.127 kilograms for 5 kWh. The commenter suggested this rule be retained in the final regulations.

Generally, commenters disagreed with the requirement that hydrogen energy storage property must store hydrogen that is solely used for the production of energy and not for other purposes, which the commenters referred to as the ''end use requirement.'' For example, a commenter stated that the final regulations should be revised to align with the statutory language and asserted that the end use requirement is not in accord with legislative intent, would cause delays, is unworkable, and misaligns with the Biden Administration's U.S. National Clean Hydrogen Strategy and Roadmap. Some commenters asserted that the end use requirement is simply unworkable due to lack of tracing mechanisms once hydrogen enters the stream of commerce.

Multiple commenters also asserted that imposing an end use requirement on hydrogen energy storage property is unsupported by the statute and would be impossible to administer. Commenters expressed concerns that the end use requirement would render the credit useless, impact markets inappropriately, and lead to confusion. Commenters also asserted that section 48(c)(6)(A)(i) requires only that hydrogen energy storage property ''store energy'' and does not require that it actually be used for the production of energy. Another commenter noted that because hydrogen is a form of energy, that hydrogen storage is per se energy use.

With respect to administrability, commenters explained the difficulties of both requiring exclusive energy use and obtaining the information to make this determination. For example, a commenter stated that it is too difficult for the storage owner to predict how hydrogen will be used and another asserted that requiring stored hydrogen to be used solely for the production of energy would, in cases of bulk storage, be nearly impossible. Another commenter likewise stated that taxpayers do not have full control of, or even information regarding, the use of hydrogen once it leaves their storage facilities and will be unable to have the certainty needed regarding end use to obtain project financing. This commenter, along with others, also noted the significant burden of documenting the end use of the stored hydrogen. This commenter explained that currently there are no recordkeeping or documentation precedents available for a taxpayer to efficiently demonstrate the end-use of hydrogen, a fungible molecule, stored in a taxpayer's hydrogen energy storage property. The commenter asserted that because there is no available documentation pathway for tracking hydrogen molecules through to their end use, it would be both impractical and prohibitively costly for a taxpayer to develop and implement such recordkeeping practices. Another commenter requested that the end use requirement conclude with the recapture period.

Lastly, commenters explained how the end use requirement would limit the usefulness of the credit. For example, a commenter asserted that the end use requirement would render the section 48 credit largely useless as a means of encouraging the development of the large-scale hydrogen storage capability that will be essential to the establishment of a robust hydrogen ecosystem in the United States. Additionally, a commenter stated that an end use requirement would cause several problems, including deterring the provision of hydrogen storage services to a significant portion of the hydrogen market sector (for example, for ammonia production). This commenter also requested clarification regarding the appropriate treatment in a case in which hydrogen is another step removed from ammonia production with electricity production as an interim step. Generally, under the Proposed Regulations, this scenario satisfies the end use requirement.

A commenter noted that the end use requirement would lead to a risk of creating two separate markets for hydrogen: those that are able to use the section 48 credit and those that are not. Emphasizing the same points, another commenter stated that restricting the end-use of the clean hydrogen to ''energy'' may materially impact the ability of producers to secure offtake agreements and/or restrict the usage of hydrogen storage and transportation networks to only certain types of hydrogen end-uses.

Another commenter noted that energy storage technology neutrality is very important. This commenter stated that it believes that the ''energy only'' end use requirement would make hydrogen storage a second (or even third) class technology if compared to battery energy storage for purposes of the section 48 credit. The commenter added that one way of reading the positioning of hydrogen and battery storage within the same statutory provision is that this reflects the intent of Congress to not favor one form of energy storage over the other. This commenter further asserts that the absence of an end use requirement imposed on battery storage property indicates that no such requirement should be imposed on hydrogen energy storage property.

While the majority of commenters objected to including the end use requirement, several commenters provided suggestions if the end use requirement is adopted. Several of these commenters suggested the use of an allocation rule similar to the Dual Use Rule under proposed § 1.48–14(b)(2) and discussed in part III.B. of this Summary of Comments and Explanation of Revisions. A commenter suggested revising the Proposed Regulations to

require a reasonable allocation between qualifying energy uses and nonqualifying non-energy uses of stored hydrogen similar to the requirements found in the Dual Use Rule. Another commenter stated that the final regulations should provide flexibility and permit any reasonable method to establish the annual use of the stored hydrogen similar to proposed § 1.48–14(b)(2)(ii). A commenter proposed that the final regulations provide a Dual Use safe harbor for a portion of a hydrogen energy storage property.

Alternatively, several commenters suggested linking the end use requirement to the rules for the credit for production of clean hydrogen under section 45V of the Code. These commenters proposed that hydrogen energy storage be eligible for the section 48 credit regardless of end use, if the hydrogen stored is at least 50 percent qualified clean hydrogen under section 45V(c)(2).

Commenters also requested clarifications regarding what would be considered energy use for purposes of applying the end use requirement. For example, a commenter requested a clarification that the definition of energy use is inclusive of an application in which hydrogen is fully consumed in the manufacturing of a downstream molecule, which is in turn clearly used in an energy application for which hydrogen would be qualified if used directly. Another commenter noted that the examples provided in the preamble to the Proposed Regulations are too narrow and should be expanded to reflect various uses of hydrogen as energy, including ammonia as a feedstock for fuel. A commenter asked for clarification that storage of hydrogen that is solely used as energy includes hydrogen used as energy for mobility purposes. Finally, a commenter requested that the final regulations allow for the storage of hydrogen whose end use is fertilizer for food production, because prohibiting hydrogen storage used in this way may encourage the parallel development of hydrogen storage and transportation infrastructure that could otherwise be shared.

Several commenters also requested clarification regarding substantiation of the end use requirement. A commenter suggested that taxpayers be permitted to rely on the use described in commercial sales contracts without the need to track the ultimate end use of hydrogen by third-party users. Another commenter asked that taxpayers be required only to maintain documentation, such as an agreement between the two parties or a certification, that the immediate purchaser of the stored hydrogen intends to use it for energy. This commenter stated that tracking use past the point of immediate purchaser to the end use of the molecule is impossible and as a result may make the credit unavailable to a variety of hydrogen storage projects. Another commenter noted that operators of clean hydrogen transport and storage systems will need to know what sort of assurances are needed from off-takers at the limits of their system to satisfy credit eligibility and ensure limited recapture risk.

Several commenters suggested that the final regulations provide a method for a taxpayer to demonstrate that a hydrogen energy storage property was used to store hydrogen solely used for the production of energy. A commenter recommended that taxpayers be able to meet this requirement through (i) an affirmative attestation of intent by the taxpayer that owns the storage property and (ii) a five-year lookback process, with reasonable threshold tests, to determine whether a recapture has occurred and what percentage of the credit should be recaptured. Another commenter recommended that the final regulations create a rebuttable presumption of energy use allowing taxpayers to demonstrate energy end use requirements under the relevant facts and circumstances.

The Proposed Regulations would require that the hydrogen energy storage property store hydrogen solely use for the production of energy and not for other purposes such as for the production of end products such as fertilizer. After consideration of comments received, the Treasury Department and the IRS agree that section 48(c)(6)(A)(i) does not require that hydrogen energy storage property store hydrogen that will be used for the production of energy. The Treasury Department and the IRS also understand commenters' concerns regarding the administrative challenges the end use requirement presents for taxpayers and agree that the final regulations require modification. Accordingly, the final regulations do not adopt the requirement that hydrogen energy storage property store hydrogen that is solely used for the production of energy and not for other purposes such as for the production of end products such as fertilizer.

Some commenters asserted that the preamble to the Proposed Regulations indicated that hydrogen energy storage property is not limited to hydrogen. Since hydrogen may be stored within ammonia or methanol, commenters requested that the final regulations state that hydrogen storage property that stores hydrogen in the form of ammonia, methanol, or another stable medium qualifies as energy storage technology if such product is produced directly from hydrogen and subject to any use limitation provided in the regulations. Another commenter requested that the final regulations clarify that equipment used to process hydrogen into ammonia, methanol, and other carriers, as well as storage for such hydrogen carriers, is hydrogen energy storage property.

The Treasury Department and the IRS decline to adopt the comments requesting that the final regulations provide that chemical storage, that is, equipment used to store hydrogen carriers (such as ammonia and methanol), is hydrogen energy storage property. Section 48(c)(6)(A)(i) specifically references only hydrogen, not compounds containing hydrogen. While most vessels designed for hydrogen storage (both above and below ground) may be capable of storing other gases, they are usually dedicated to a single gas (and not repurposed) to avoid contamination and mixing of gases.

Many commenters also provided feedback on the non-exhaustive list of components of property that may be considered part of hydrogen energy storage property as would be provided in proposed § 1.48–9(e)(10)(iv). A commenter endorsed the inclusion of ''compressor and storage tank'' as a component of hydrogen energy storage property. Several commenters requested that additional components of property be added to this list, some by asserting that the components should be eligible under rules for functionally interdependent or integral property. Other commenters requested that the final regulations expand the examples of integral and functionally interdependent equipment to be more inclusive of existing and future hydrogen energy storage property technologies.

Specifically, commenters requested that hydrogen energy storage property include hydrogen liquefaction and related equipment, equipment required to operate underground hydrogen storage property, as well as dedicated hydrogen distribution equipment such as pipelines located on the storage side of custody meters, hydrogen trailers (for example, cryogenic liquid tankers, or cylinders hauled by modules or chassis) and railcars. Another commenter proposed that the final regulations treat hydrogen liquefaction equipment and related equipment in the same manner as power conditioning and transfer equipment may be treated with respect to certain energy property that generates electricity.

The Treasury Department and IRS agree that additional clarity on the definition of hydrogen energy storage property is warranted. The Treasury Department and IRS understand that hydrogen liquefaction equipment may prepare hydrogen for storage in the hydrogen energy storage property, making such property an integral part of hydrogen energy storage property.

Section 48(c)(6)(A)(i) provides that energy storage technology does not include property primarily used in the transportation of goods or individuals and not for the production of electricity. Pipelines, trailers, and railcars are property primarily used in the transportation of goods or individuals not for the production of electricity. However, hydrogen energy storage property may have gathering and distribution lines to transport hydrogen within the hydrogen energy storage property, making such property an integral part of the hydrogen energy storage property. Therefore, the gathering and distribution lines used within a hydrogen energy storage property are not pipelines used to transport hydrogen outside of the hydrogen energy storage property. The final regulations provide that property that is an integral part of hydrogen energy storage property includes, but is not limited to, hydrogen liquefaction equipment and gathering and distribution lines within a hydrogen energy storage property.

Several commenters requested clarification regarding the costs included in hydrogen energy storage property. In the context of salt caverns, a commenter asserted that the final regulations should confirm that eligible costs for a salt cavern include not only the costs to acquire and construct the eligible property but also all direct and indirect costs associated with the development and construction of the salt cavern and referenced rules under section 263A of the Code. Another commenter requested clarification regarding what equipment from an operational storage facility would be includible in basis for purposes of the section 48 credit. A commenter requested that power-to-gas methanation facility qualify as hydrogen energy storage.

As stated for other energy properties, the Treasury Department and the IRS emphasize that the rule for determining what constitutes a unit of energy property is function-based. Because more information is needed to make the determinations requested by the commenters, the final regulations do not adopt these comments.

b. Electrical Energy Storage Property

Proposed § 1.48–9(e)(10)(ii) would provide that electrical energy storage property is property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) that receives, stores, and delivers energy for conversion to electricity, and has a nameplate capacity of not less than 5 kWh. For example, subject to the exclusion for property primarily used in the transportation of goods or individuals, electrical energy storage property includes, but is not limited to, rechargeable electrochemical batteries of all types (such as lithium ion, vanadium flow, sodium sulfur, and lead-acid); ultracapacitors; physical storage such as pumped storage hydropower, compressed air storage, flywheels; and reversible fuel cells.

Multiple commenters requested clarification concerning specific technologies that may be electrical energy storage property. A commenter requested that the definition be expanded to include compressed fluid storage in addition to compressed air storage so as to include liquid and gas applications. Because these applications generally are used by pipelines, which are property primarily used in the transportation of goods or individuals and not for the production of electricity, the Treasury Department and the IRS decline to adopt these revisions.

Multiple commenters requested that load controllers be described as an integral part of electrical energy storage technology while other commenters requested that bidirectional chargers be eligible as energy storage technology. Another commenter requested that the final regulations explicitly include thermal batteries capable of storing energy for conversion to electricity in its non-exhaustive list of eligible ''electrical energy storage property'' due to confusion related to thermal energy storage (TES) being a separate category.

As has been noted previously, the Proposed Regulations are intended to provide a function-oriented method to determine whether a technology is energy storage technology that is broad enough to encompass nascent technologies without rendering the regulations quickly obsolete. It is impossible to enumerate every single technology that may be eligible for the section 48 credit given the ever-changing nature of the industry and technological development. Although these regulations do not list all technologies that may qualify for the section 48 credit, the Proposed Regulations provide adequate guidance and examples to illustrate the application of the rules for taxpayers to analyze a particular technology. The Treasury Department and the IRS, therefore, do not adopt commenters' requests concerning specific technologies.

Multiple commenters questioned what primarily used in the transportation in section 48(c)(6)(A)(i) means in the case of electrical energy storage property. A commenter explained that pipeline systems can be multi-tasked with a section of the pipe to act as energy storage and requested that the phrase ''primarily used in the transportation of goods'' specifically exclude equipment that is mobile but include stationary property such as pipelines. Another commenter requested a bright line rule for technologies that are not primarily used in transportation of goods or individuals to qualify for the section 48 credit. This commenter suggested that property, including school buses, that receives, stores, and delivers energy for conversion to electricity and that is used less than 35 percent of the hours in a calendar year for transporting goods or individuals is not primarily used for transportation. In response to these commenters, the Treasury Department and the IRS note that pipelines and school buses are both primarily used in transportation. In addition, there are other IRA tax incentives intended to benefit some technologies for which commenters seek section 48 credit eligibility. For instance, section 45W provides a tax credit for electric school buses. Furthermore, a notice of proposed rulemaking (REG–118269–23) published in the **Federal Register** (89 FR 76759) on September 19, 2024, regarding the section 30C alternative fuel vehicle refueling property credit (30C Proposed Regulations) proposed a definition for property primarily used in the transportation of goods or individuals and not for the production of electricity for purposes of sections 48 and 48E. In particular, proposed § 1.48–9(e)(10)(vi) of the 30C Proposed Regulations would provide that energy storage property is primarily used in the transportation of goods or individuals and not for the production of electricity, and therefore is not energy storage technology eligible for the section 48 credit, if a credit is claimed under section 30C for such property. Accordingly, comments regarding this proposed definition will be addressed when the 30C Proposed Regulations are finalized.

In the context of a pumped storage hydropower facility, a commenter suggested that the scope of eligible

electrical energy storage technology be defined to include all property necessary to receive, store, and deliver energy for conversion to electricity, consistent with the definition in section 48(c)(6)(A)(i), and include all tangible personal property and other tangible property up to and including the step-up transformer at the substation prior to transmission to the grid. This commenter also suggested that an example be included to illustrate these concepts. Another commenter stated that the final regulations should confirm that the term ''energy storage technology'' includes all the qualified property up to and including the step-up transformer at the substation prior to transmission to the grid, and that this property would include the two reservoirs, the powerhouse (including the generators, turbines, and associated electrical equipment), the piping and pumps, the tunnel, substation equipment, and other integral property.

A definitive response to such comments would require the Treasury Department and the IRS to conduct a complete factual analysis of the property in question, which may include information beyond that which was provided by the commenters. Because more information is needed to make the determinations requested by the commenters, the requested clarifications are not addressed in these final regulations.

c. Thermal Energy Storage Property

Proposed § 1.48–9(e)(10)(iii) would provide that thermal energy storage property is property comprising a system that is directly connected to a heating, ventilation, or air conditioning (HVAC) system; removes heat from, or adds heat to, a storage medium for subsequent use; and provides energy for the heating or cooling of the interior of a residential or commercial building. Thermal energy storage property includes equipment and materials, and parts related to the functioning of such equipment, to store thermal energy for later use to heat or cool, or to provide hot water for use in heating a residential or commercial building. It does not include a swimming pool, CHP property, or a building or its structural components. The Proposed Regulations included a non-exhaustive list of examples of thermal energy storage property.

Commenters requested clarifications on what constitutes thermal energy storage property. A commenter requested clarification that thermal energy storage property includes all air-source heat pumps, electric boilers, and hot water heat pumps, but does not include fossil-fuel-powered water boilers. The commenter also requested that the final regulations clarify that ground and air source heat pumps qualify as energy storage technology and suggested that thermal energy stored in one medium may be transferred and stored in a second medium for subsequent use. The commenter also requested that the use of the term ''subsequent'' in the definition of thermal energy storage property under section 48(c)(6)(C)(i)(II) not require a specific interval of time between storage and use for a process to qualify. Another commenter stated that the point at which the scope of thermal energy storage property ends is unclear and requested clarification regarding whether ''equipment'' extends to the thermal energy source for thermal energy storage property. This commenter also requested clarity on whether the thermal energy source equipment (for example, chiller, heat pump, or furnace) may be used for multiple purposes or if the thermal energy source equipment must be dedicated to the thermal energy storage property. Another commenter asked whether equipment that uses thermal energy to heat or cool a structure is also thermal energy storage property. Some commenters endorsed the proposed examples of thermal energy storage property, while other commenters requested additions, such as including ''chilled water'' to ice and electric boilers that use electricity to heat water and later use this stored energy to heat a building through the HVAC system.

The Treasury Department and IRS agree that the definition of thermal energy storage property requires clarification. Thermal energy storage property is defined, in part, as a system which ''removes heat from, or adds heat to, a storage medium for subsequent use.'' The Treasury Department and IRS, in consultation with DOE, understand the phrase ''adds heat to'' as including 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 just adds (or removes) heat includes technologies, like heat pumps, that draw heat from the ambient air or other stores of heat, and add that heat to a storage medium. By contrast, equipment that transforms other forms of energy into heat in the first instance, for example through combustion or electric resistance, is not property that ''removes heat from, or adds heat to'' a storage medium and is therefore not an eligible component of a thermal energy storage property. For example, a conventional gas boiler with an integrated storage tank would not generally be thermal energy storage property. While the gas boiler elements would not be part of such property, the integrated storage tank, however, may be thermal energy storage property if it otherwise meets the thermal energy storage property definition. Further, an air-to-water heat pump with a thermal storage tank, for example, would generally be thermal energy storage property provided that it otherwise meets the thermal energy storage definition. This could be the case even if the heat pump also serves a purpose in the connected HVAC system's real-time heating or cooling of a building. In that case, the thermal storage tank would be thermal energy storage property and the heat pump may also qualify as part of that eligible property to the extent the taxpayer's costs exceed the cost of an HVAC system without thermal storage capacity that would meet the same functional heating or cooling needs as the heat pump system with a storage medium, other than time shifting of heating or cooling.

The Proposed Regulations included an example of electric furnaces that use electricity to heat bricks to high temperatures and later use this stored energy to heat a building through the HVAC system. The Treasury Department and IRS acknowledge that this example needs to be refined to more precisely delineate the scope of eligible thermal energy storage property. Whereas the heated bricks and equipment that adds heat generated by the furnace to those bricks, or removes heat from the bricks, is eligible thermal energy storage property, the electric furnace equipment that transforms energy into the thermal energy in the first instance is not. The final regulations clarify that thermal energy storage property does not include property that transforms other forms of energy into heat in the first instance and this example has been revised accordingly in the final regulations.

With respect to the requirement for subsequent use, the Treasury Department and IRS also agree that additional clarity is warranted. The statute requires that thermal energy storage property must be able to perform certain functions, not simply performing heat transfer. Any heat transfer may take some amount of time and heat does not immediately dissipate even if no effort is made to store it. While some may assert that such heat transfer is subsequent use, the Treasury Department and IRS disagree. A plain reading of the statute indicates that

thermal energy storage property does not include property that simply engages in heat transfer. The thermal energy storage property must be able to *store* the heat. The Treasury Department and IRS, in consultation with DOE, find that a minimum time interval for subsequent use provides certainty for taxpayers and sound tax administration. Accordingly, the final regulations clarify that 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. The final regulations also provide a safe harbor for thermal energy storage property. 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 the minimum of one hour, it is deemed to have the 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.

The Treasury Department and IRS have revised the definition of thermal energy storage property and the examples in the final regulations to illustrate what constitutes thermal energy storage property. These final regulations also add that thermal energy storage property may store thermal energy in an artificial pit, an aqueous solution, or a solid-liquid phase change material, in addition to the underground tank or a borehole field already included in the proposed regulation, in order to be extracted for later use for heating and/or cooling. The final regulations clarify that a heat pump system that transfers heat into and out of a storage medium is thermal energy storage property. However, consistent with § 1.48–14(d), if thermal energy storage property, such as a heat pump system, includes equipment, such as a heat pump, that also serves a purpose in an HVAC system that is installed in connection with the thermal energy storage property, the taxpayer's basis in the thermal energy storage property includes the total cost of the thermal energy storage property and HVAC system less the cost of an HVAC system without thermal storage capacity that would meet the same functional heating or cooling needs as the heat pump system with a storage medium, other than time shifting heating or cooling.

Commenters also requested clarifications regarding whether specific components may be part of thermal energy storage. A commenter requested that pipes to distribute stored thermal energy to and within buildings (including for multiple residential or commercial buildings such as through a district heating system) and equipment in building heating and/or cooling systems—such as coils, radiators, and other end-use equipment—necessary to convey stored thermal energy to building space or domestic hot water supply be included in thermal energy storage property.

With respect to the request to include pipes and equipment in building heating and/or cooling systems, the statutory definition of thermal energy storage property provides, in part, that it is directly connected to an HVAC system, not that it is an HVAC system. The Proposed Regulations would provide a function-oriented method to evaluate whether property is a functionally interdependent or an integral part of thermal energy storage property. With respect to the request to include equipment necessary to convey domestic hot water supply, the statutory definition further provides, in part, that thermal energy storage property provides energy for the heating or cooling of the interior of a residential or commercial building. The statute does not provide for stored energy for domestic hot water supply for consumptive use. Therefore, property that provides energy for domestic hot water supply exclusively for consumptive use and not for heating or cooling of the interior of such a building is not eligible under the statute. The final regulations do not adopt these comments.

Another commenter requested clarification that if property that would otherwise qualify as thermal energy storage property is connected to a district heating system that provides energy for the heating or cooling of multiple buildings, it would nonetheless be considered ''directly connected to a heating, ventilation, or air conditioning system''. Proposed § 1.48–9(e)(10)(iii) would not preclude thermal energy storage technology property that is directly connected to more than one HVAC system from being a thermal energy storage property. The final regulations do not modify the example.

Commenters also requested modification of the definition of thermal energy storage property in proposed § 1.48–9(e)(10)(iii). A commenter suggested adding ''refrigeration'' to ''is directly connected to a heating, ventilation, or air conditioning system'' because industrial refrigeration systems are considered part of the HVAC system in construction. This commenter also joined another in recommending adding ''industrial'' to ''for use in heating a residential or commercial building'' to prevent restricting the use of thermal energy storage in industrial sites and to eliminate confusion regarding commercial and industrial building types. To maintain consistency with the statutory text, the final regulations maintain the wording set forth in section 48(c)(6)(C)(i)(I) and (III) as is.

Commenters also expressed concerns that the language ''directly connected to . . .'' in proposed § 1.48–9(e)(10)(iii) might exclude thermal energy storage property that directly functions as a heating system itself without connecting to an HVAC system. A commenter suggested providing guidance to clarify that thermal energy storage property that functions as a self-contained heating or cooling system is eligible thermal energy storage property under proposed § 1.48–9(e)(10)(iii). Section 48(c)(6)(C)(i)(I) requires that thermal energy storage property is directly connected to a heating, ventilation, or air conditioning system, but does not include the HVAC system itself as eligible thermal energy storage property. Therefore, these comments are not adopted because they would be inconsistent with the statute. However, elements of such a system could constitute eligible thermal energy storage property.

Additionally, a commenter requested clarification that thermal energy storage property may be considered battery storage technology for the purpose of claiming the credit available to residential customers under section 25D(d)(6) of the Code. The Treasury Department and the IRS decline to address this request because it is outside of the scope of section 48 and, therefore, these final regulations.

d. Modifications of Energy Storage Property

Proposed § 1.48–9(e)(10)(v) would provide that with respect to electrical energy storage property and hydrogen energy storage property placed in service after December 31, 2022, energy storage technology that is modified as set forth in proposed § 1.48–9(e)(10)(v) is treated as electrical energy storage property or hydrogen energy storage property, except that the basis of any existing property prior to such modification is not taken into account for purposes of the section 48 credit. Proposed § 1.48–9(e)(10)(v) applies to any electrical energy storage property

and hydrogen energy storage property that either: (A) was placed in service before August 16, 2022, and would be described in section 48(c)(6)(A)(i), except that such property had a capacity of less than 5 kWh and is modified in a manner that such property (after such modification) has a nameplate capacity (after such modification) of not less than 5 kWh; or (B) is described in section 48(c)(6)(A)(i) and is modified in a manner that such property (after such modification) has an increase in nameplate capacity of not less than 5 kWh.

A commenter asked if the section 48 credit is available for repurposed batteries used to build energy storage systems. Whether a battery is repurposed and eligible for the section 48 credit requires a factual determination that is beyond the scope of these regulations. The 80/20 Rule provides general rules for taxpayers that include some used components when placing in service an energy property.

Another commenter requested that the requirement that any modified energy storage property must increase the nameplate capacity of the energy storage property by 5 kWh or more be removed. Section 48(c)(6)(B) sets forth the 5 kWh requirement for modifications to energy storage property so it cannot be removed. The final regulations do not adopt this comment.

Multiple commenters requested clarification that the minimum 5 kWh capacity increase needed for modifications of energy storage under section 48(c)(6)(B) be the nameplate capacity not actual capacity (which may have decreased due to degradation). The commenters explained that focusing on nameplate capacity will provide greater certainty than measuring actual capacity. Another commenter explained that nameplate capacity should be tested at the time of purchase, rather than on the date of modification, especially due to non-degrading systems and storage augmentation. The commenter noted that if augmentations are implemented, the installed energy storage capacity of the energy storage technology is increased (original installation nameplate capacity plus the augmentation totaling the amount installed), but the nameplate capacity of the property and interconnection agreement remains unchanged.

Section 48(c)(6)(B) provides that, for purposes of the modification rule, nameplate capacity is examined at the time of the modification and must result in a nameplate capacity increase from below 5 kWh to not less than 5 kWh (for energy storage property originally placed in service before enactment of the IRA) or by at least 5 kWh (for energy storage technology placed in service after the enactment of the IRA that is later modified). Consistent with the statute, the Proposed Regulations would not take into account actual capacity but instead use nameplate capacity. The only instance in which section 48(c)(6)(B) uses the term ''capacity'' alone, rather than ''nameplate capacity'', is nonetheless still a reference to nameplate capacity. Specifically, section 48(c)(6)(B)(i) refers to property that ''would be described in subparagraph (A)(i), except that such property has a capacity of less than 5 kilowatt hours''. The referenced section 48(c)(6)(A)(i) text makes clear that the 5 kWh capacity threshold is, in fact, a nameplate capacity threshold. Therefore, for the avoidance of doubt, the final regulations at § 1.48–9(e)(10)(v)(A) clarify that the relevant pre-modification capacity is the nameplate capacity. Therefore, other than the minor clarification noted above, these comments were not adopted in the final regulations.

Additionally, a commenter requested clarification whether capacity must be added within the bounds of an existing electrical storage property enclosure, or whether the enclosure may be expanded or an additional enclosure added to accommodate the increased capacity. Another commenter requested clarification that adding new battery racks to an existing enclosure would be eligible for the section 48 credit if the nameplate capacity of the new battery rack is at least 5 kWh. The Proposed Regulations would provide no limitation on the physical space occupied by an energy storage technology and the final regulations retain this approach.

5. Qualified Biogas Property

Section 48(a)(3)(A)(x) was added by the IRA to provide that energy property includes qualified biogas property. Section 48(c)(7)(A) defines qualified biogas property as property comprising a system that converts biomass (as defined in section 45K(c)(3), as in effect on the date of enactment of section 48(a)(7) (August 16, 2022)) into a gas that consists of not less than 52 percent methane by volume, or is concentrated by such system into a gas that consists of not less than 52 percent methane, and captures such gas for sale or productive use, and not for disposal via combustion. Section 48(c)(7)(B) provides that qualified biogas property includes any property that is part of such system that cleans or conditions such gas.

Proposed § 1.48–9(e)(11) would adopt the statutory definition of qualified biogas property. Proposed § 1.48–9(f)(2)(i) would provide that components of property are considered qualified biogas property if they are functionally interdependent, that is, if the placing in service of each component is dependent upon the placing in service of each of the other components in order to perform the intended function of the qualified biogas property as described in proposed § 1.48–9(e)(11)(i). The Proposed Regulations adopted this approach because it provides a function-oriented method to determine what is considered included in a qualified biogas property and is broad enough to encompass technological changes. Additionally, proposed § 1.48–9(e)(11)(i) would provide examples of functionally interdependent components of a qualified biogas property including, but not limited to, a waste feedstock collection system, a landfill gas collection system, mixing or pumping equipment, and an anaerobic digester.

Proposed § 1.48–9(e)(11)(i) would clarify that upgrading equipment is not a functionally interdependent component of qualified biogas property. The preamble to the Proposed Regulations stated that the upgrading equipment that is necessary to condition biogas into the appropriate mixture for injection into the pipeline is not functionally interdependent with the qualified biogas property that converts biomass into a gas containing not less than 52 percent methane and captures such gas for sale or productive use as specified in the statute. The preamble to the Proposed Regulations also stated that while this upgrading equipment makes the injection of biogas into a pipeline possible, such upgrading equipment is not necessary to satisfy the statutory requirements that the biogas converted from biomass contain not less than 52 percent methane, and that it be captured for sale or productive use.

a. Correction and Cleaning and Conditioning Property

The Correction published on February 22, 2024, stated that a correction was needed to clarify that gas upgrading equipment that is necessary to concentrate the gas from qualified biogas property into the appropriate mixture for injection into a pipeline through removal of other gases such as carbon dioxide, nitrogen, or oxygen, would be energy property if it is an integral part of an energy property as defined in proposed § 1.48–9(f)(3). Accordingly, the Proposed Regulations

were corrected by revising the following sentence: ''However, gas upgrading equipment necessary to concentrate the gas into the appropriate mixture for injection into a pipeline through removal of other gases such as carbon dioxide, nitrogen, or oxygen is not included in qualified biogas property.'' to read as follows: ''However, gas upgrading equipment necessary to concentrate the gas into the appropriate mixture for injection into a pipeline through removal of other gases such as carbon dioxide, nitrogen, or oxygen is not a functionally interdependent component (as defined in paragraph (f)(2)(ii) of this section) of qualified biogas property.''

The Proposed Regulations and Correction requested comments regarding what types of components may be included within the definition of cleaning and conditioning property provided in the definition of qualified biogas property in section 48(c)(7)(B). The Treasury Department and the IRS received numerous comments regarding the components that should be included in qualified biogas property.

Commenters universally supported the inclusion of upgrading equipment in qualified biogas property and some asserted that the Proposed Regulations' exclusion of upgrading equipment conflicts with analogous provisions in the Proposed Regulations that allow the inclusion of power conditioning and transfer equipment such as that allowed in offshore wind projects. Most commenters asserted that upgrading equipment should be considered functionally interdependent to qualified biogas property and therefore, eligible for the section 48 credit. A commenter requested that biogas energy property include a definition of system for section 48(c)(7)(A) purposes that includes all integrated property.

Commenters also expressed concern that the Proposed Regulations and the Correction unduly limit what would be included as qualified biogas property. For example, a commenter stated that property used to capture, clean, condition, upgrade, and perform ''chemical, mechanical, or thermochemical conversion'' are all necessary to convert biogas into usable products. Commenters explained that the Proposed Regulations would allow only biogas property with limited utility to qualify and would exclude a majority of costs related to biogas property. For example, a commenter stated that under the Proposed Regulations, property used to produce the raw biogas from the landfill, remove sulfur from the biogas, and remove the volatile organic compounds from the biogas would appear to qualify for the section 48 credit, whereas property used to remove carbon dioxide, nitrogen, and oxygen from biogas and to otherwise prepare the gas for injection into a natural gas pipeline would not qualify for the section 48 credit. The commenter asserted that the equipment used in these latter processes are essential components of a RNG system and comprise approximately 85 percent of overall capital investment in an RNG project.

A commenter asserted that the Proposed Regulations read the sale or productive use language out of the statute. Another commenter stated that the Proposed Regulations would limit eligibility for the section 48 credit to essentially raw biogas (if it can meet the 52 percent methane threshold). According to the commenter, raw biogas generally cannot be used without some treatment due to the contaminants present in the gas stream and even if the raw biogas can be used, such use is typically through combustion (that is, burned on-site for electricity or as process energy), which is excluded under the statute. The commenter explained that, at best, the Proposed Regulations may allow some medium-BTU gas, which is biogas that received only limited treatment to remove certain contaminants, to be eligible for the section 48 credit. However, medium-BTU gas is not as valuable as RNG and is typically used locally.

Generally, many commenters agreed that the utility of biogas is significantly limited without proper cleaning and conditioning. These commenters stated that, without upgrading, the extracted biogas faces considerable challenges for marketability because its high moisture content and corrosive properties make it difficult to safely store, compress, mix with other gases, transport, inject into the natural gas system, or market. Consequently, the non-upgraded biogas is of limited utility, such as on-site combustion to create process heat, generate electricity, or to be flared into the atmosphere. In contrast, a commenter described the marketable uses of upgraded RNG as including, but not limited to, advanced electricity generation in fuel cells, hydrogen production, advanced liquid fuels for aviation, and RNG for use in trucking, industrial processes, and space heating.

Generally, commenters requested the final regulations correct the treatment of ''gas upgrading equipment'' in the Proposed Regulations to instead treat it as property that ''cleans and conditions'' gas, asserting that such treatment is consistent with the plain text of the statute and the intention of Congress. To support this position, a commenter asserted that the statute and legislative history do not contemplate any limitation on what property ''cleans or conditions'' gas. Several commenters cited certain congressional statements regarding the Agriculture Environmental Stewardship Act to support their reading of the definition of qualified biogas property added to section 48 by the IRA.

Similarly, many commenters asserted there is a misunderstanding in the Proposed Regulations that the term ''upgrading'' is interchangeable with the phrase ''cleaning and conditioning.'' For example, a commenter stated that the exclusion of upgrading equipment appears contradictory to the statute, which expressly includes cleaning and conditioning property. This commenter noted that the Proposed Regulations misunderstand the ''upgrading'' process, which is an industry verbiage, but is essentially part of the ''cleaning and conditioning process'' necessary to process biogas to standards that support its productive use or sale. Another commenter stated that the DOE uses these terms interchangeably.

Additionally, a few commenters stated that the Proposed Regulations incorrectly implemented the 52 percent measurement as a ceiling rather than a floor. For example, a commenter pointed to the preamble to the Proposed Regulations as mistakenly interpreting that the statute was enacted to incentivize taxpayers to produce 52 percent methane (and nothing greater). The commenter stated that this is contrary to the statute, to the relevant legislative history, and to an understanding of how the quantities of biogas that can be produced by RNG developers can be used.

Several commenters also pointed to the reference to ''such gas'' in the statute to evidence that ''such gas'' refers to biogas not less than 52 percent methane and captured for sale or productive use. A commenter asserted that the reference to ''such gas'' provides a two-prong test. According to the commenter, first the system must convert the biomass into a gas that is between 52 percent and 100 percent methane by volume and second the system must capture ''such gas for sale or productive use, and not for disposal via combustion''; thus, in the commenter's view, the reference to ''such gas'' is to gas described in the first prong.

Another commenter stated that the reference to ''such gas'' includes biogas that is at least 52 percent methane by volume. The commenter concluded therefore, that the statute does not exclude from qualified biogas property

cleaning and conditioning equipment that is used to process biogas that is already 52 percent methane by volume.

Another commenter stated that the statute uniquely and broadly defines the term ''cleaning and condition property'' not as the Proposed Regulations suggest, which limits its applicability to instances in which an otherwise ineligible property needs cleaning and conditioning to be eligible. Instead, the commenter noted that the Proposed Regulations' interpretation of section 48(c)(7)(B) ignores the reference to ''such gas,'' referring to the definition in section 48(c)(7)(A), which clearly states ''any property which is part of such system which cleans or conditions such gas.'' The commenter asserted that the term ''such gas'' refers to biogas that is not less than 52 percent methane and captured for sale or productive use, as confirmation that cleaning and conditioning equipment for gas that has already met the conditions set forth in section 48(c)(7)(A), is qualified biogas property.

Commenters also objected to the exclusion of gas upgrading equipment provided in the Proposed Regulations because commenters assert that it could negatively impact investment and financing for biogas projects, especially those on small farms, agricultural projects, and municipal projects. A commenter, who works with smaller scale farms including dairy farms, asserted that the upgrading equipment is integral to the cleaning and conditioning process, and crucial for achieving energy output suitable for productive use or sale, especially for projects in rural and remote communities. The commenter concluded that the limitation on upgrading equipment provided in the Proposed Regulations will prevent projects from moving forward and disproportionately impact small agricultural projects.

Several commenters asserted that the statute supports redefining the components of property that are considered functionally interdependent to a qualified biogas property. A commenter suggested redefining qualified biogas property as property that is placed in service to upgrade biogas for sale or a productive use beyond the point that such gas is typically vented or flared. This commenter explained that this definition properly places the focus on property used to convert an unproductive substance (such as landfill gas) into a productive substance (such as RNG).

Another commenter agreed with the inclusion of the gas upgrading equipment as integral property but stated that the Correction is limited to technology specific to upgrading for pipeline injection and therefore, is out of line with the technology neutral definition in the statute. The commenter asserted that upgrading, processing, or reforming should be viewed without limitation to specific technology and that many biomass resources may not be close to natural gas pipelines or have other limitations on pipeline injection. The commenter further stated that the focus should be on the components required for property that captures such gas for sale or productive use. Therefore, if additional onsite steps are required to process raw biogas that meets the minimum 52 percent methane content threshold into a usable product, whatever the product may be, then the property necessary to take those steps should be considered qualified biogas property.

The Treasury Department and the IRS agree with the commenters that the proposed rule addressing gas upgrading equipment is too restrictive. As commenters explained, upgrading equipment is used interchangeably with cleaning and conditioning equipment and such equipment may be needed to make the biogas suitable for sale or productive use. The Treasury Department and IRS also agree that specific upgrading equipment should not be identified for injection into a pipeline. Therefore, the final regulations provide more generally that gas upgrading equipment is cleaning and conditioning property.

Commenters requested clarifications regarding what types of equipment are considered qualified biogas property, including as functionally interdependent components or as property integral to the qualified biogas property. For example, a commenter requested that a list of equipment be included as qualifying biogas property in the final regulations including gas removal equipment, pressure and temperature control equipment, moisture removal equipment, compression equipment, thermal oxidizer equipment, gas recycling equipment, and synthetic methane production equipment. Another commenter proposed revisions to the example in proposed § 1.48–9(e)(11)(i) to include as qualified biogas property cleaning and conditioning equipment used to remove toxins or any other impurities from raw biogas or concentrate the gas into the appropriate mixture for sale or productive use through removal of other gases such as carbon dioxide, nitrogen, or oxygen. A commenter requested the inclusion of landfill municipal solid waste as a renewable resource to produce renewable natural gas as energy property because such a system may implement thermal gasification and other relevant technologies. Another commenter suggested that qualified biogas property should include the pipeline and compression equipment necessary to transport the gas from the production plant to the common carrier pipeline.

Another commenter suggested that the Proposed Regulations be modified to specifically provide that the property comprising a biogas conversion/concentration and capture system, including any property that is part of such system and that cleans and conditions, is a single unit of energy property (collectively referred to as a RNG Production System). This commenter also suggested that the gas upgrading equipment necessary to concentrate the gas into the appropriate mixture for injection into a pipeline through the removal of other gases and impurities is a functionally interdependent component of the RNG Production System. This commenter also described a second type of property, a landfill gas collection system (LFG Collection System), and noted that the LFG Collection System is property that is an integral part of, but not functionally interdependent with, the RNG Production System because the placing in service of an LFG Collection System is not dependent upon placing in service the RNG Production System, but the LFG Collection System is used directly in and essential to the completeness of the intended function of the RNG Production System. While this commenter's focus was on landfills, the commenter noted the same analysis would apply to other collection systems such as anaerobic digesters operating at farms. Some commenters asserted that anaerobic digesters were functionally interdependent property, while others asserted that anaerobic digesters were integral property.

After consultation with the DOE, the Treasury Department and IRS understand that the methane content of biogas in an anaerobic digester can vary between 44% and 68%. Thus, if biogas processed by an anaerobic digester consists of not less than 52% methane and all other statutory requirements are met, an anaerobic digester would be a unit of energy property. Commenters explained that although biogas exiting an anaerobic digester might not be put to productive use, the statute requires that qualified biogas property capture the gas ''for sale or productive use.'' To illustrate, if a taxpayer places in service

an anaerobic digester, which generates biogas meeting the not less than 52% methane requirement, and sells the biogas to another taxpayer who in turn places in service cleaning and conditioning property to clean such biogas, each taxpayer has a qualified biogas property and may be eligible for the section 48 tax credit. On the other hand, if the biogas in the anaerobic digester does not meet the not less than 52% methane requirement, then such digester is not, by itself, a qualified biogas property. Nevertheless, the anaerobic digester still may be an integral part of other qualified biogas property, such as a system that cleans and conditions the biogas.

The Treasury Department and the IRS intend that the final regulations provide a function-oriented approach to determining what property is considered energy property, including qualified biogas property. The Proposed Regulations provided examples of types of property that are included as qualified biogas property, which were intended to be illustrative but not exclusive. Therefore, the final regulations do not include additional examples of property that is included as qualified biogas property but do clarify that property that is an integral part of qualified biogas property includes, but is not limited to, a waste feedstock collection system, landfill gas collection system, and mixing and pumping equipment.

b. Flaring Allowance

The preamble to the Proposed Regulations explained that a commenter to Notice 2022–49 stated that some properties that produce electricity from gas using a combustion process may flare waste or tail gas, including during commissioning or maintenance periods. This commenter recommended a de minimis exception. In response to this concern, the Proposed Regulations requested comments regarding whether such an exception is necessary and what should be considered de minimis for this purpose.

All comments received in response to this request were in favor of an exception. Some comments pointed to the overarching purpose of the qualified biogas property and noted that nominal leakage should not prevent property from qualifying. For example, a commenter asserted that if the overarching purpose of the biogas is for sale or productive use, then the combustion of a de minimis portion should not prevent a property that produced such gas from being a qualified biogas property. Similarly, a commenter recommended allowing a de minimis exception for flare waste or tail gas so that otherwise eligible biomass systems will not be disqualified from the credit due to small amounts of leakage arising from normal business operations.

Another commenter pointed to the benefit of hazard reduction associated with nominal flaring. This commenter stated that flaring in appropriate circumstances should not disqualify a facility, because ''flares are often required as a safety and emissions hazard reducer to be used in case of emergency, accidental release, start-up and shut-down procedures, and other rare occurrences.''

The Treasury Department and the IRS understand commenters' concerns regarding whether flaring performed for commissioning, maintenance, safety, or other reasons may impact eligibility for the section 48 tax credit. Qualified biogas property is defined, in part, as capturing biogas ''for sale or productive use, and not for disposal via combustion.'' The Treasury Department and the IRS interpret this statutory requirement to not impact a qualified biogas property that combusts, or flares, some biogas under standard operating conditions, provided the primary purpose of the qualified biogas property is sale or productive use of biogas and any flaring complies with all relevant Federal, State, regional Tribal, and local laws and regulations. After consulting the DOE, the Treasury Department and the IRS understand that flare permits are specific to a given biogas facility design. Determining the amount of flaring appropriate for safety purposes is specific to each qualified biogas property and enforcing that limit is best left to relevant Federal, State, regional, local, and/or Tribal regulators. Flaring performed in accordance with applicable permits from relevant Federal, State, regional, local, and/or Tribal regulators should not jeopardize a qualified biogas property's eligibility for the section 48 credit. Accordingly, the final regulations at § 1.48–9(e)(11) provide that while a qualified biogas property generally may not capture biogas for disposal via combustion, combustion in the form of flaring will not disqualify a qualified biogas property, provided the primary purpose of the qualified biogas property is sale or productive use of biogas and any flaring complies with all relevant Federal, State, regional, Tribal, and local laws and regulations.

c. Point of Measurement

Proposed § 1.48–9(e)(11)(ii) would provide that the methane content requirement described in section 48(c)(7)(A)(i) and in the Proposed Regulations is measured at the point at which gas exits the biogas production system, which may include an anaerobic digester, landfill gas collection system, or thermal gasification equipment. This measurement point was described in the Proposed Regulations as the point at which a taxpayer generally must determine whether it will convert the biogas to fuel for sale or use it directly to generate heat or to fuel an electricity generation unit.

Several commenters requested clarification regarding the point of measurement for the methane content requirement. A commenter specifically requested clarification regarding the point at which the gas exits the biogas production system. Several commenters noted that the point of measurement provided in the Proposed Regulations was incorrect because it is too early in the process. These comments responded to the Proposed Regulations as well as the Correction. This sentiment generally is consistent with the commenters' view that biogas upgrading equipment should be considered eligible biogas property.

One commenter stated that the Correction does not address the measurement point for the methane content requirement for purposes of determining whether the definition of ''qualified biogas property'' is met. The commenter asserted that the final rule must clarify that the 52 percent methane content requirement is measured at the point at which the biogas is going to be sold or put to productive use, which would be after the biogas has been passed through the cleaning and conditioning and/or gas upgrading equipment. The commenter suggested that a change should be made regardless of whether gas upgrading equipment is considered ''integral'' or ''functionally interdependent.'' The commenter submitted another comment after the Correction was issued urging that the methane content of 52 percent should be measured at the point at which the gas is ready for sale or applicable productive use, that is, at the end of the cleaning and conditioning process. Several commenters supported these comments and incorporated them into their own comments.

Another commenter similarly stated that the methane content should be measured at the end of the cleaning and conditioning process, which would be the point at which the biogas is going to be sold or put to a productive use, to ensure it consists of at least 52 percent methane. Many commenters have asserted that the 52 percent measurement is a floor (not a

ceiling).Therefore, even if the measurement point were to occur earlier, taxpayers that later upgrade the biogas could still satisfy the 52 percent requirement.

The Treasury Department and the IRS agree that the point of measurement in the Proposed Regulations was too early in the biogas production process, which could potentially frustrate compliance with the ''sale or productive use'' requirement. Therefore, the final regulations adopt at § 1.48–9(e)(11)(ii) the rule that the methane content requirement described in section 48(c)(7)(A)(i) and in the Proposed Regulations is measured at the point at which the biogas exits the qualified biogas property.

6. Microgrid Controllers

Section 48(a)(3)(A)(xi) provides that energy property includes microgrid controllers. Section 48(c)(8)(A) defines a microgrid controller as equipment that is part of a qualified microgrid and designed and used to monitor and control the energy resources and loads on such microgrid. Section 48(c)(8)(B) defines a qualified microgrid as an electrical system that includes equipment that is capable of generating not less than 4 kW and not greater than 20 MW of electricity; is capable of operating in connection with the electrical grid and as a single controllable entity with respect to such electrical grid, and independently (and disconnected) from such electrical grid; and is not part of a bulk-power system (as defined in section 215 of the Federal Power Act (16 U.S.C. 824o)).

Proposed § 1.48–9(e)(12)(i) would provide generally that a microgrid controller is equipment that is part of a qualified microgrid and is designed and used to monitor and control the energy resources and loads on such microgrid. A qualified microgrid is an electrical system that includes equipment that is capable of generating not less than 4 kW and not greater than 20 MW of electricity; is capable of operating in connection with the electrical grid and as a single controllable entity with respect to such electrical grid, and independently (and disconnected) from such electrical grid; and is not part of a bulk-power system (as defined in section 215 of the Federal Power Act (16 U.S.C. 824o)). Proposed § 1.48–9(e)(12)(ii) would provide that for purposes of proposed § 1.48–9(e)(12), a qualified microgrid includes an electrical system that is capable of operating in connection with the larger electrical grid, regardless of whether a connection to the larger electrical grid exists.

The preamble to the Proposed Regulations requested comments on whether the rules for functionally interdependent property as would be provided in proposed § 1.48–9(f)(2)(ii) would be sufficient to determine the components that should be included as part of a microgrid controller, or whether another test is needed due to the specific role of microgrid controllers and their components. A few commenters advocated for the application of the functional interdependence standard to microgrid controllers. For example, one commenter stated that the functional interdependence standard is thoughtful, provides direct language applicable to the definition of microgrid controllers, and creates an easy and thorough way to identify the multi-faceted infrastructure that goes into microgrid controllers to generate and store energy.

However, several commenters requested that particular components of property be listed specifically in the definition of microgrid controllers: optimization software, communications software, communications equipment, incoming service, cables, wiring, ethernet switches, computer hardware, load controllers, programmable logic controllers, meters and relays, building management systems, local human management interface screens, protective relays, breakers, routers, and other hardware necessary to monitor and control the energy resources and loads on a qualified microgrid.

Additionally, two commenters specifically requested the inclusion of switchgear in the definition of microgrid controllers. One of the commenters explained that switchgear is the true backbone of the microgrid controls system. However, the commenter also pointed out that switchgear is an essential part of any building's electrical operations with or without a microgrid. This commenter also noted that because switchgear is a critical piece of a building's infrastructure, it is usually also owned by the building owner. The commenters generally suggested that if switchgear is owned by the building owner but paid for by the taxpayer that owns the microgrid controller, then the cost of the switchgear should be included in the basis of the taxpayer's section 48 credit for the microgrid controller similar to the inclusion of interconnection property costs in the credit basis of certain lower-output energy properties.

The two commenters also suggested that if switchgear is part of an existing building, and a microgrid controller is added in a case in which a taxpayer is applying the 80/20 Rule, then the switchgear should not be taken into account for purposes of the 80/20 Rule. For example, one of the commenters explained that switchgear in an existing building may be sufficient for connecting microgrid controls with relevant distributed energy resources and load resources either as is or with some additional pieces of equipment and because all microgrid control components will connect through the switchgear, it is critical that the integrated but standalone microgrid control equipment is not considered as retrofitting of the switchgear in existing buildings under the 80/20 Rule. The other commenter likewise recommended that equipment integrated into switchgear to enable the installation of a microgrid controller should not be considered retrofitted equipment but a separate purchase of functionally interdependent energy property.

The Treasury Department and the IRS consulted with the DOE and confirmed that while switchgear may be a necessary part of a microgrid, switchgear is neither functionally interdependent nor integral to a microgrid controller. Switchgear plays a vital role in ensuring the reliability and safety of microgrids by managing power distribution, providing protection, and maintaining system integrity. However, the microgrid controller is responsible for the overall management and optimization of a microgrid's energy resources and its interaction with the main grid. For example, in the building context, technically a fuse or circuit breaker could be considered a switchgear, in which case they would exist in buildings with or without microgrid control. As a result, switchgear is not part of the energy property defined as a ''microgrid controller'' and is not taken into account for purposes of the 80/20 Rule. For further discussion of the 80/20 Rule see part III.A. of this Summary of Comments and Explanation of Revisions.

After considering comments requesting that the final regulations add more examples of specific components eligible as part of a microgrid controller, the Treasury Department and the IRS decline to do so. The Treasury Department and the IRS have further considered the unit of energy property as applied to microgrid controllers and conclude that the proposed rule is clear.

Commenters also requested clarification concerning what is included as a ''microgrid'' for purposes of section 48. Two commenters requested the adoption of language clarifying that an eligible microgrid includes an electrical system that is

capable of operating in connection with the larger electrical grid regardless of whether the microgrid is physically connected to the electrical grid. Another commenter noted that until it is clarified that single-family homes with systems greater than 4 kW are eligible ''microgrids,'' tax equity investors likely will be reluctant to finance the installation of load controllers associated with rooftop solar, storage, and residential microgrid installations. Similarly, another commenter asserted that the term ''qualified microgrid'' applies both to microgrids as they are conventionally known, which could involve many households or businesses, and to ''nanogrids,'' which usually involve a single household. Regarding the request for clarification about a microgrid needing to be physically connected to the electrical grid, proposed § 1.48–9(e)(12)(ii) already provides that a qualified microgrid includes an electrical system that is capable of operating in connection with the larger electrical grid, regardless of whether a connection to the larger electrical grid exists. Regarding the other comments, proposed § 1.48–9(e)(12)(i) adopts the statutory definition of a qualified microgrid as an electrical system that includes equipment that is capable of generating not less than 4 kW and not greater than 20 MW of electricity. This definition encompasses a wide range of technologies. To the extent that such ''nanogrids'' used in single family homes meet the definition under the statute and proposed § 1.48–9(e)(12)(i), it is unnecessary to change the definition to identify this certain technology. The proposed rule is adopted without change.

C. Definition of Energy Property and Scope of Included Components

Since shortly after the enactment of section 48, energy property eligible for the section 48 credit has been interpreted by the Treasury Department and the IRS to include, in addition to energy generation property, costs related to components such as power conditioning equipment, transfer equipment, and parts related to the functioning of that equipment.

On November 9, 1978, the Energy Tax Act of 1978, amended section 48 by adding a new subsection (then section 48(l)) to define ''energy property.'' Public Law 95–816, 92 Stat. 2174. On January 23, 1981, the Treasury Department and the IRS promulgated T.D. 7765, 46 FR 7287–01, to provide additional guidance regarding the definition of energy property. The preamble to T.D. 7765 states that ''[i]n response to comments, the definition of solar energy property was expanded to make it clear that it includes storage devices, power conditioning equipment, transfer equipment, and property solely related to the functioning of those items. However, such equipment does not include transmission equipment.''

The preamble to T.D. 7765 also states that ''[a] number of comments cited specific legislative history to the effect that wind energy property includes 'transfer equipment.''' T.D. 7765 defines ''transfer equipment'' as including equipment that permits the aggregation of electricity generated by several windmills and equipment that alters voltage in order to permit transfer to a transmission line. T.D. 7765 adds transfer equipment, but not transmission lines, to the definition of wind energy property.

Former § 1.48–9(d)(3) defines ''solar energy property'' as equipment that uses solar energy to generate electricity, and includes storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning of those items. This provision also provides that solar energy property used to generate electricity includes only equipment up to (but not including) the stage that transmits or uses electricity.

Former § 1.48–9(e) defines ''wind energy property'' as consisting of a windmill, wind-driven generator, storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning of those items. Section 48(a)(3) no longer includes wind energy property as a type of energy property. However, qualified wind facilities (including qualified offshore wind facilities) may be qualified investment credit facilities that a taxpayer may elect to treat as energy property if they meet all the requirements provided in section 48(a)(5).

While not specifically addressed in section 48, guidance published in the Internal Revenue Bulletin interpreting section 48 has provided that functionally interdependent components are considered components of energy property eligible for the section 48 credit. In Notice 2018–59, 2018–28 I.R.B. 196, the Treasury Department and the IRS clarified components that are considered part of an energy property. Section 7.01(1) of Notice 2018–59 states that an energy property generally includes all components of property that are functionally interdependent (unless such equipment is an addition or modification to an energy property). Notice 2018–59 also provides that components of property are functionally interdependent if the placing in service of each component is dependent upon the placing in service of each of the other components in order to generate electricity. Further, Notice 2018–59 cites Revenue Ruling 94–31, 1994–1 C.B. 16, in stating that functionally interdependent components of property that can be operated and metered together and can begin producing electricity separately from other components of property within a larger energy project will be considered an energy property.

In the context of defining ''section 38 property,'' § 1.48–1(d)(4) provides that ''section 38 property'' is ''used as an integral part of one of the specified activities [for which section 38 property may function] if it is used directly in the activity and is essential to the completeness of the activity.'' Section 1.48–1(d)(4) also provides that ''[p]roperty shall be considered used as an integral part of one of the specified activities if so used either by the owner of the property or by the lessee of the property.'' Notice 2018–59 incorporates the concept of integral property from § 1.48–1(d) to provide that certain property that is an integral part of an energy property is included in energy property for purposes of the section 48 credit.

Notice 2018–59 also explains that property that is ''functionally interdependent'' to the generation of electricity is treated as a unit of energy property. Further, Notice 2018–59 provides that certain other property integral to the production of electricity is included in determining what costs to include in the basis of energy property and the date on which construction of the energy property began. Section 7.02(1) of Notice 2018–59 includes an example illustrating that, while a transmission tower located at a site where energy property is located is not energy property because transmission is not an integral part of the activity performed by the energy property, a custom-designed transformer that steps up the voltage of electricity produced at an energy property to the voltage needed for transmission is power conditioning equipment, which is an integral part of the activity performed. In addition, section 7.02(2) of Notice 2018–59 explains that onsite roads used to operate and maintain the energy property are integral to the production of electricity, but not roads used primarily to access the site or primarily for employee or visitor vehicles. Similarly, section 7.02(3) and (4) of Notice 2018–59 explain that fences are not integral to the production of

electricity nor are buildings, unless the building is essentially an item of machinery or equipment, or a structure that houses property that is integral to the activity of an energy property if the use of the structure is so closely related to the use of the housed energy property that the structure clearly can be expected to be replaced if the energy property it initially houses is replaced.

One challenge in defining components that are included in energy property is determining the components that are common to all energy property, without limiting or constraining future technological advances. To avoid limiting future energy technologies, the Treasury Department and the IRS consulted with the DOE and determined that the best option is to adopt a function-oriented approach to describe the types of components that are considered energy property. Accordingly, proposed § 1.48–9(f) would adopt the concepts of functional interdependence and property that is an integral part of an energy property as provided in guidance published in the Internal Revenue Bulletin issued previously by the Treasury Department and the IRS.

Further, consistent with prior guidance, proposed § 1.48–9(f)(1) would provide the general rule that an energy property includes a unit of energy property that meets the requirements for energy property, is not excluded from energy property, and is of a type of energy property included in section 48(a)(3). Property owned by the taxpayer that is an integral part of an energy property is treated as energy property. Energy property does not include any electrical transmission equipment, such as transmission lines and towers, or any equipment beyond the electrical transmission stage. With the exception of the modification of energy storage technology (as provided in proposed § 1.48–9(e)(10)(iii)) and the application of the 80/20 Rule (as provided in proposed § 1.48–14(a)(1)), energy property does not include equipment that is an addition or modification to an existing energy property.

1. Unit of Energy Property

Proposed § 1.48–9(f)(2)(i) would provide, in part, that the term unit of energy property means all functionally interdependent components of property (as defined in proposed § 1.48–9(f)(2)(ii)) owned by the taxpayer that are operated together and that can operate apart from other energy properties within a larger energy project (as defined in proposed § 1.48–13(d)). For rooftop solar energy property, all components of property that are installed on a single rooftop would also be considered a single unit of energy property under the Proposed Regulations.

A commenter requested additional examples regarding the ''unit of energy property'' with respect to electrical energy storage and other energy property. For example, the commenter requested an example illustrating that an individual battery capable of operating on its own or with other batteries is a ''unit of energy property.'' The commenter asserted that this should be the clear result if such a battery can ''operate apart from other energy properties,'' including, for example, a single storage container with multiple battery packs. The commenter noted that this is also consistent with prior guidance published in the Internal Revenue Bulletin regarding wind farms. The commenter asserted that if under this prior guidance, the addition of a new wind turbine is treated as the addition of a new unit of energy property, then the same rule should apply to batteries. A definitive response to such comments would require the Treasury Department and the IRS to conduct a complete factual analysis of the property in question, which may include information beyond that which was provided by the commenters. Because more information is needed to make the determinations requested by the commenters, the requested clarifications are not addressed in these final regulations.

With respect to solar energy property, some commenters suggested that the Proposed Regulations did not clearly draw the line between the unit of energy property and property integral to the unit of energy property. For example, a commenter stated that the final regulations need to clarify that a unit of solar energy property includes all solar panels, racks, wires, cables, and equipment connected through a single inverter (rather than all property through the transformer). This commenter referred to *Example 1* in proposed § 1.48–9(f)(5)(i) and recommended adding an example (or modifying the existing example) to clarify the components in the unit of solar energy property. This commenter explained that this is necessary to comport with the definition of a unit of energy property as all functionally interdependent components, since each group of components connected through an inverter may be operated independently. Similarly, a commenter requested that the final regulations clarify that a solar project may have multiple units of energy property connected through a single inverter. Another commenter also requested a new or revised example to illustrate that for a larger-scale ground-mounted solar array, a ''unit of energy property'' is a single string or block of panels connected to each other and through a common inverter.

As highlighted by commenters, solar energy property may be configured in different ways. The Treasury Department and IRS agree with commenters that clarity on how the definition of a unit of energy property is applied to solar energy property is warranted. Under the Proposed Regulations, a unit of energy property means all functionally interdependent components of property (as defined in proposed § 1.48–9(f)(2)(ii)) owned by the taxpayer that are operated together and that can operate apart from other energy properties within a larger energy project (as defined in proposed § 1.48–13(d)). In applying this definition to a solar energy property, the Treasury Department and IRS view the unit of energy property as all the solar panels that are connected to a common inverter, which would be considered an integral part of the energy property, or connected to a common electrical load, if a common inverter does not exist. Accordingly, a large, ground-mounted solar energy property may be comprised of one or more units of energy property depending upon the number of inverters. The example in the final regulations is updated to reflect this. The final regulations adopt the definition of unit of energy property as proposed.

For rooftop solar energy property, all components of property that are installed on a single rooftop would also be considered a single unit of energy property under the Proposed Regulations. The final regulations adopt this rule as proposed.

2. Functional Interdependence

Proposed § 1.48–9(f)(2)(ii)(A) would provide that except as provided in proposed § 1.48–9(f)(2)(ii)(B), with respect to components of a unit of energy property, the term functionally interdependent means that the placing in service of each component is dependent upon the placing in service of each of the other components in order to generate or store electricity, thermal energy, or hydrogen as provided by section 48(c) and as described in proposed § 1.48–9(e).

Proposed § 1.48–9(f)(2)(ii)(B) would provide that in the case of solar process heat equipment, fiber-optic solar energy property, electrochromic glass property, GHP property, qualified biogas property,

and microgrid controllers, with respect to components of such property, the term functionally interdependent means that the placing in service of each component is dependent upon the placing in service of each of the other components in order to perform the intended function of the energy property as provided by section 48(c) and as described in proposed § 1.48–9(e).

Many commenters requested that taxpayers be permitted to claim a credit for a functionally interdependent piece of property without owning the entire unit of energy property. These comments addressing ownership are discussed in part III.D. of this Summary of Comments and Explanation of Revisions.

Other commenters asserted that the statute does not require ownership of a unit of energy property; instead, the taxpayer must only own something that fits the relevant definition of ''energy property.'' These commenters stated that the proposed definitions of the unit of energy property based on ''functional interdependence'' and integral property have no basis in section 48. A commenter stated that section 48 does not require or permit the Treasury Department or the IRS to discriminate between types of energy property, whether based on functionality, ownership, or otherwise. This commenter referred to the flush language at section 48(a)(3)(D): ''[energy property] shall not include any property which is part of a facility the production from which is allowed as a credit under section 45 for the taxable year or any prior taxable year.'' The commenter said this language clearly signals that Congress recognizes that property may be part of a facility, but that the term ''property'' represents something less than a facility. The commenter also referred to Technical Advice Memorandum 8528001 (January 8, 1985) for the principle that components of property that may function together can also retain their separate identity for tax purposes. Lastly, the commenter stated that section 48 is focused on capitalized expenditures on items of property that are tangible personal property for Federal income tax purposes that are used in a trade or business. As a result, the commenter asserted that to define the types of property that qualify for the section 48 credit, taxpayers should focus on items of property that are integral to a process that Congress has chosen to incentivize, for example, the production of energy using certain inputs. This commenter requested the removal of the functional interdependence standard at proposed § 1.48–9(f) and asserted that while this standard is needed for section 45 to determine a qualified facility and for beginning of construction purposes, this standard is not needed for purposes of section 48.

Another commenter stated that the Proposed Regulations contradict the language and intent of the IRA by distinguishing between ''functionally interdependent'' components and ''integral parts'' of energy property to determine the owner or owners of energy property who may claim the section 48 credit. The commenter noted that this distinction contravenes the plain text of section 48, which permits the section 48 credit to be claimed by the owner of energy property if the original use of that energy property began with such owner.

The concept of a unit of energy property also is intertwined with the discussion of the 80/20 Rule in part III.A. of this Summary of Comments and Explanation of Revisions. In the context of the 80/20 Rule, a few commenters also did not agree with this concept. For example, a commenter highlighted the statutory language and pointed out that certain definitions of energy property use the word ''equipment'' as opposed to ''system.'' A commenter explained that some energy properties are defined as equipment that serves a function, such as solar energy property defined in section 48(a)(3)(A)(i) and GHP property defined in section 48(a)(3)(A)(vii). This commenter contrasted those definitions with statutory definitions of other types of energy property as comprising a system, such as the definition of CHP property in section 48(c)(3), thermal energy storage property as defined in section 48(c)(6)(C)(i), and qualified biogas property as defined in section 48(c)(7). The commenter concluded that the ''unit of energy property'' concept as provided in proposed § 1.48–9(f)(2)(i) is appropriate for energy properties defined as systems, but it should not be applied to energy properties defined as equipment.

Another commenter made a similar point about misalignment of the ''unit of energy property'' concept by focusing specifically on its application to geothermal energy property. The commenter stated that despite the statute defining ''energy property'' at the equipment level, ''equipment used to produce, distribute, or use energy derived from a geothermal deposit,'' the Proposed Regulations use the term ''unit of energy property,'' a term defined more expansively, such that it could be interpreted to be equivalent to an entire facility in the case of geothermal energy property. By using the term ''unit of energy property,'' the commenter asserted that the Proposed Regulations give a misleading appearance that the rules comport with the statutory text of section 48 but define that term so that it is functionally equivalent to the term ''facility'' as applied in section 45.

In the context of microgrid controllers, some commenters agreed with the application of the functional interdependence standard. A commenter stated that microgrids are highly customizable, and the functional interdependence standard as proposed would allow accommodation of the different engineering requirements of qualified microgrids to future-proof the definition and allow for technological advances. This commenter agreed that the functional interdependence standard is sufficiently flexible for microgrid controllers.

The statute supports the Proposed Regulations' definition and use of the terms ''functionally interdependent'' and ''unit of energy property.'' Additionally, these concepts have been adopted in previous guidance published in the Internal Revenue Bulletin under section 48, particularly Notice 2018–59, which provides guidance regarding the beginning of construction rules for the section 48 credit.

There are three key reasons for requiring an energy property to include all functionally interdependent components that are part of a unit of energy property. First, the statutory definition of each type of energy property as provided in section 48(a)(3) and (c) is included at proposed § 1.48–9(e). The unit of energy property definition at § 1.48–9(e)(2) aligns with these statutory definitions by encompassing the property required to generate electricity or perform the required function as described in the statute. If a taxpayer owns merely a component of property within a larger unit of energy property and is not required to place in service the entire unit of energy property, then in some cases there would be no certainty that the generation of electricity or other statutorily required function would be satisfied when the taxpayer claims the credit.

Some commenters suggested that this uncertainty could be eliminated or reduced by a coordinated operating plan among separate taxpayers. However, section 48 provides a credit only if a taxpayer places in service ''energy property'' as defined by statute. It does not provide a credit for placing in service a mere component of energy property, regardless of whether it is subject to an operating plan. In addition, taxpayers claim the section 48 credit by

filing Form 3468, *Investment Credit,* with their Federal income tax return. The IRS has no authority to compel taxpayers to coordinate tax credit claims or share tax return information with other taxpayers. Any taxpayer claiming a section 48 credit must satisfy the statutory requirements, as described by Congress, for each type of energy property, and the functional interdependence standard provided in the Proposed Regulations would ensure that the statutory requirements are met.

Second, focusing on the statutory language in section 48(a)(1), which provides that ''the energy credit for any taxable year is the energy percentage of the basis of each energy property placed in service during such taxable year,'' the definition of the unit of energy property using a functional interdependence standard is consistent with how the term ''placed in service'' has been interpreted by the courts and developed in various forms of guidance. Proposed § 1.48–9(b)(5) largely incorporates the general rules provided by § 1.46–3(d)(1) for determining when a taxpayer has placed a property in service for the section 48 credit. An energy property is considered ''placed in service'' in the earlier of the taxable year in which, under the taxpayer's depreciation practice, the depreciation of such energy property begins or the taxable year in which the property is ''placed in a condition or state of readiness and availability for a specifically assigned function.'' *See* §§ 1.46–3(d)(1) and 1.167(a)–11(e)(1)(i).

To determine the taxable year in which depreciation begins, it is the energy property described in section 48(a)(3)(A) that must be depreciable. See section 48(a)(3)(C). As stated earlier, this energy property cannot be a mere component that would be depreciated in isolation from the rest of the components that would make up a unit of energy property. Treating individual components within a unit of energy property as an energy property would make it practically impossible to determine the taxable year in which the depreciation of components that comprise an energy property begins.

The Tax Court has said that ''when an individual component that is designed to operate as a part of a larger system is incapable of contributing to the system in isolation, it is not regarded as placed in service until the entire system reaches a condition of readiness and availability for its specifically assigned function.'' *Green Gas Del. Statutory Tr.* v. *Commissioner,* 147 T.C. 1, 52 (2016), *aff'd,* 903 F.3d 138 (D.C. Cir. 2018). The Tax Court further explained that components ''are not to be considered placed in service separately from the system of which they are an essential part.'' *Olsen* v. *Commissioner,* T.C. Memo 2021–41, aff'd 52 F.4th 889 (10th Cir. 2022). *See also Sealy Power, Ltd.* v. *Commissioner,* 46 F.3d 382, 390 (5th Cir. 1995), *aff'g in part, rev'g in part on other grounds* T.C. Memo. 1992–168; *see Pub. Serv. Co.* v. *United States,* 431 F.2d 980, 984 (10th Cir. 1970) (holding that individual components of a power plant could not be considered separately because no component ''would serve any useful purpose'' on its own). As demonstrated by these rulings, courts have long interpreted the placed in service requirement to apply to all of the functionally interdependent components of a unit of property that must be placed in service collectively.

Lastly, in amending section 48 for taxable years after the enactment of the IRA, Congress did not contradict or displace these concepts, which had already been established in guidance published in the Internal Revenue Bulletin. In Notice 2018–59, the Treasury Department and the IRS clarified what components are considered part of an energy property. Section 7.01(1) of Notice 2018–59 states that an energy property generally includes all components of property that are functionally interdependent (unless such equipment is an addition or modification to an energy property). Further, Notice 2018–59 provides that components of property are functionally interdependent if the placing in service of each component is dependent upon the placing in service of each of the other components to generate electricity. Notice 2018–59 relies upon the rationale provided in Revenue Ruling 94–31, 1994–1 C.B. 16, that functionally interdependent components of property that can be operated and metered together and can begin producing electricity separately from other components of property within a larger energy project will be considered an energy property.

3. Integral Part of an Energy Property

Proposed § 1.48–9(f)(3)(i) would provide that for purposes of the section 48 credit, property owned by a taxpayer is an integral part of an energy property owned by the same taxpayer if it is used directly in the intended function of the energy property as provided by section 48(c) and as described in proposed § 1.48–9(e) and is essential to the completeness of the intended function. Property that is an integral part of an energy property is energy property. A taxpayer may not claim the section 48 credit for any property not owned by the taxpayer that is an integral part of the taxpayer's energy property. Multiple energy properties (whether owned by one or more taxpayers) may include shared property that may be considered an integral part of each energy property so long as the cost basis for the shared property is properly allocated to each energy property. The total cost basis of such shared property divided among the energy properties may not exceed 100 percent of the cost of such shared property. In addition, property that is an integral part of an energy property that is also shared by a qualified facility (as defined in section 45(d)) will not be considered property that is not energy property under proposed § 1.48–9(d). This means that property that is also used by a qualified facility (as defined in section 45(d)) may still be energy property.

Proposed § 1.48–9(f)(3)(ii) would provide that property that is an integral part of energy property includes power conditioning equipment and transfer equipment used to perform the intended function of the energy property as provided by section 48(c) and as described in proposed § 1.48–9(e). Power conditioning equipment includes, but is not limited to, transformers, inverters, and converters, which modify the characteristics of electricity or thermal energy into a form suitable for use or transmission or distribution. Parts related to the functioning or protection of power conditioning equipment are also treated as power conditioning equipment and include, but are not limited to, switches, circuit breakers, arrestors, and hardware and software used to monitor, operate, and protect power conditioning equipment.

Transfer equipment includes equipment that permits the aggregation of energy generated by components of energy properties and equipment that alters voltage to permit transfer to a transmission or distribution line. Transfer equipment does not include transmission or distribution lines. Examples of transfer equipment include, but are not limited to, wires, cables, and combiner boxes that conduct electricity. Parts related to the functioning or protection of transfer equipment are also treated as transfer equipment and may include items such as current transformers used for metering, electrical interrupters (such as circuit breakers, fuses, and other switches), and hardware and software used to monitor, operate, and protect transfer equipment.

Power conditioning equipment and transfer equipment that are integral to an energy property may be integral to another energy property or used by a qualified facility (as defined in section

45(d)), so long as the total cost basis of the integral property is not exceeded for purposes of the section 48 credit claimed with respect to any energy property or qualified facility that share such property.

Proposed § 1.48–9(f)(3)(iii) would provide that roads that are an integral part of an energy property are integral to the activity performed by the energy property such as onsite roads that are used for equipment to operate and maintain the energy property. Roads primarily for access to the site, or roads used primarily for employee or visitor vehicles, are not integral to the activity performed by an energy property.

Proposed § 1.48–9(f)(3)(iv) would provide that fencing is not an integral part of an energy property because it is not integral to the activity performed by the energy property. A commenter disagreed that fencing is not integral and asserted that concerns of national security dictate the fences, along with security systems and monitoring devices, be treated as integral to electricity generation. Fencing is not considered property integral to an energy property because it is not essential to the completeness of the intended function of an energy property, whether electricity generation or another specific function of energy property. This rule originally was provided in Notice 2018–59 and was included in the Proposed Regulations. The proposed rule is adopted without change.

For the various section 48 energy properties, commenters requested confirmation that certain property is an integral part of an energy property. A commenter requested clarification that an HVDC (high-voltage direct current) power system is either a ''unit of energy property'' or a ''functionally interdependent component'' of an offshore wind facility. If the HVDC power system is used directly in the intended function of the energy property and is essential to the completeness of the intended function, then the HVDC power system would be an integral part to an energy property, and thus, treated as part of that energy property. However, because the generation or storage of electricity or thermal energy is not dependent upon the placing in service of an HVDC power system, it is not a functionally interdependent component of an energy property and not a separate ''unit of energy property.'' Further, the Proposed Regulations included an offshore wind example, retained in these final regulations, that illustrates the application of the energy property rules and addresses this commenter's concern.

Another commenter requested that the final regulations clarify that software that operates, monitors, or protects the project applies more broadly than power conditioning and transfer equipment and may be considered property integral to an energy property. The commenter asserted that certain types of software used as a part of energy management systems, battery management systems, and microgrid controllers should be considered property integral to an energy property. This commenter also requested that software that optimizes and automates integral parts also be eligible. Finally, this commenter believed that the final regulations should clarify that a taxpayer who owns an energy property can include software costs in the basis of the energy property to compute the section 48 credit. Another commenter stated that the definition of power conditioning equipment expressly includes software used to ''monitor, operate, and protect'' such equipment and requested this definition be modestly expanded. As discussed in this part I.B.6. of the Summary of Comments and Explanation of Revisions, software may be integral to different types of energy property, including microgrid controllers. Therefore, software that optimizes and automates may be integral if it meets the integral property rule in § 1.48–9(f)(3). To the extent the commenter is asking whether software costs may be capitalized, that issue is beyond the scope of these regulations. The proposed rules are adopted without change.

In the context of qualified biogas property, commenters requested additional examples of what components may be integral property. Specifically, a commenter asked for clarification that mobile trailers or containers used to transfer biogas are integral to biogas energy property. The final regulations do not adopt these comments, as these regulations are meant to apply to all energy properties and do not provide an exclusive list of components of property that may be included in energy property. The final regulations do provide certain examples of property that is an integral part of qualified biogas property including, but not limited to, a waste feedstock collection system, a landfill gas collection system, and mixing or pumping equipment.

Additionally, a few commenters requested clarification regarding the determination of when construction begins in cases in which two or more energy properties share integral property. The commenters proposed that the beginning of construction on one energy property does not determine when construction begins on another energy property, even if they share property integral to both energy properties. The Treasury Department and the IRS have addressed the beginning of construction rules in several pieces of Internal Revenue Bulletin guidance. The Proposed Regulations do not address these rules and they are beyond the scope of the final regulations.

In the context of solar energy property, a commenter requested that the Treasury Department and the IRS confirm that power conditioning equipment, including transformers, is not considered a component of a unit of energy property; rather, power conditioning equipment is an ''integral part'' of energy property. This commenter noted that the example included in proposed § 1.48–9(f)(5)(i) says this, but requested that the Treasury Department and the IRS clarify that the language in this example, ''[a]ll components of the Property, up to and including the transformer are either functionally interdependent components of the Property or are integral parts of the Property,'' means it is the transformer that is the ''integral part'' and the other solar components that are the functionally interdependent components of the property. This same commenter also requested that gen-tie lines be clarified as integral property. The final regulations, at § 1.48–9(f)(3)(ii), provide that power conditioning and transfer equipment is considered an integral part of an energy property and provide a nonexclusive list of types of property that are considered power conditioning equipment, including transformers, and transfer equipment.

Another commenter requested confirmation that offshore generating assets and components of island-based hydropower facilities qualify for the section 48 credit. This commenter also requested that similar rules and examples as those provided in the Proposed Regulations for offshore wind facilities apply to marine and hydrokinetic energy property. As discussed in more detail in part III.F. of this Summary of Comments and Explanation of Revisions, offshore wind facilities and qualified hydropower facilities are both qualified facilities under section 45(d) for which a taxpayer may make an election to claim the section 48 credit in lieu of the section 45 credit. Whether certain assets are included in an offshore wind facility or qualified hydropower facility as defined

in section 45(d) is beyond the scope of these final regulations.

4. Property Excluded From Energy Property

Proposed § 1.48–9(d)(2) would provide that energy property does not include power purchase agreements, goodwill, going concern value, or renewable energy certificates. A commenter requested additional clarification and examples of the potential bifurcation of tax basis between renewable energy certificates and an associated energy property. A definitive response to this comment would require the Treasury Department and the IRS to conduct a complete factual analysis of the renewable energy certificates and associated energy property, which may include information beyond that which was provided by the commenters. Because more information is needed to provide the clarification requested by the commenters, the requested clarification is not addressed in these final regulations. The final regulations adopt the rule as proposed.

II. Rules Relating to the Increased Credit Amount for Satisfying Certain Prevailing Wage and Apprenticeship Requirements and the Energy Project Rule

Section 48(a)(9) provides for an increased credit amount for energy projects for taxpayers who satisfy certain requirements. Section 48(a)(9)(A)(i) provides a general rule that in the case of any energy project that satisfies the requirements of section 48(a)(9)(B), the amount of the credit determined under section 48(a) (determined after the application of section 48(a)(1) through (8) and (15), and without regard to section 48(a)(9)(A)(i)) is equal to such amount multiplied by 5.

Section 48(a)(9)(A)(ii) provides that for purposes of section 48(a), the term ''energy project'' means a project consisting of one or more energy properties that are part of a single project.

Section 48(a)(9)(B) provides that a project meets the requirements of section 48(a)(9)(B) if it is one of the following: (i) a project with a maximum net output of less than 1 megawatt of electrical (as measured in alternating current) or thermal energy (One Megawatt Exception); (ii) a project the construction of which begins before the date that is 60 days after the Secretary publishes guidance with respect to the requirements of section 48(a)(10)(A) and (11) (BOC Exception); and (iii) a project that satisfies the requirements of section 48(a)(10)(A) and (11) (PWA requirements).

Section 48(a)(10) provides rules with respect to the prevailing wage requirements (Prevailing Wage Requirements) under section 48, including the special recapture provision under section 48(a)(10)(C). Section 48(a)(10)(B) provides that rules similar to the correction and penalty procedures for a failure to satisfy the Prevailing Wage Requirements under section 45(b)(7)(B) apply, and those rules generally apply prior to a recapture event under section 48(a)(10)(C). Section 48(a)(11) provides that rules similar to the rules of section 45(b)(8) apply with respect to the apprenticeship requirements (Apprenticeship Requirements).

Under the BOC Exception in section 48(a)(9)(B)(ii), taxpayers may claim the amount of the increased credit without satisfying the PWA requirements if construction ''begins before the date that is 60 days after the Secretary publishes guidance with respect to the [PWA requirements].'' The Treasury Department and the IRS published Notice 2022–61, 2022–52 I.R.B. 560, on November 30, 2022, providing initial guidance with respect to the PWA requirements and starting the 60-day period described in those sections. To qualify for the BOC Exception, a taxpayer must begin construction of a section 48 energy project before January 29, 2023. Unless the One Megawatt Exception applies, taxpayers who do not meet the BOC Exception under section 48 would need to satisfy the applicable PWA requirements to claim the increased amount of credit.

A. PWA Requirements

Comments on the general PWA requirements (including comments that referenced section 48 but addressed the PWA requirements more generally) were addressed in the PWA Final Regulations. Comments received regarding the specific PWA requirements under section 48, the One Megawatt Exception under section 48, and the recapture rules contained in section 48(a)(10)(C) were not addressed in the PWA Final Regulations and are addressed in this Summary of Comments and Explanation of Revisions.

To the extent consistent with this Summary of Comments and Explanation of Revisions section of these final regulations, the Summary of Comments and Explanation of Revisions section of the PWA Final Regulations is incorporated in these final regulations. Therefore, general comments addressed in the preamble to the PWA Final Regulations are not addressed again in this Summary of Comments and Explanation of Revisions.

The PWA Final Regulations provide generally applicable rules on the PWA requirements. These final regulations generally adopt by cross-reference those rules in the PWA Final Regulations promulgated under section 45(b)(7) and (8); specifically, in § 1.45–7 (Prevailing Wage Requirements), § 1.45–8 (Apprenticeship Requirements), and § 1.45–12 (recordkeeping and reporting). Consistent with the PWA Final Regulations, the PWA requirements under section 48 apply with respect to the creditable portion of an energy project within the meaning of section 48(a)(9)(A) and these final regulations.

As stated in the preamble to the PWA Final Regulations, the Treasury Department and the IRS have determined that given the complexity of the PWA requirements, the uncertainty regarding the potential retroactive effects of the PWA requirements, and the benefits to tax administration gained with consistency across the various Code sections containing PWA requirements, a transition rule is appropriate. The PWA Final Regulations provide that any work performed before January 29, 2023 (that is, the date that is 60 days after the publication of Notice 2022–61) is not subject to the PWA requirements, regardless of whether there is an applicable BOC Exception. This transition rule also applies for taxpayers that may initially satisfy the BOC Exception, but later fail to meet the BOC Exception (for example, by failing to meet certain continuity requirements). These taxpayers must satisfy the PWA requirements for construction, alteration, or repair (as applicable) that occurs on or after January 29, 2023, but do not need to meet the PWA requirements for work that occurred prior to that date. For those reasons described in the preamble to the PWA Final Regulations, this transition rule also applies to the PWA requirements under section 48 and is adopted by reference into §§ 1.45–7 and 1.45–8 in these final regulations.

The PWA Final Regulations also provide a limited transition waiver for the penalty payment with respect to the correction and penalty procedures described in section 45(b)(7)(B) for a failure to satisfy the Prevailing Wage Requirements. The PWA Final Regulations provide that the penalty payment is waived with respect to a laborer or mechanic who performed work in the construction, alteration, or repair of a qualified facility on or after January 29, 2023, and prior to June 25, 2024, if the taxpayer relied upon Notice

2022–61 or the PWA Proposed Regulations for determining when the obligation to pay prevailing wages began, provided the taxpayer makes the appropriate correction payments to the impacted workers within 180 days of June 25, 2024. These final regulations clarify that this limited transition waiver applies to section 48 provided the taxpayer makes the appropriate correction payments to the impacted workers within 180 days of the publication of these final regulations.

Similarly, these final regulations also allow taxpayers to use Notice 2022–61 for determining when construction begins for purposes of the applicable percentage of labor hours performed by qualified apprentices required under section 48(a)(11) (by reference to section 45(b)(8)) in satisfying the Labor Hours Requirement described in § 1.45–8. These transition rules are explained further in the preamble to the PWA Final Regulations.

The PWA Final Regulations provide special rules applicable to Indian Tribal governments. These final regulations also adopt by cross-reference the special rules with respect to Indian Tribal governments under § 1.45–7 for purposes of the Prevailing Wage Requirements.

B. Section 48(a)(10)(C) Recapture Rules

Section 48(a)(10)(C) authorizes the Secretary, by regulations or other guidance, to provide for recapturing the benefit of any increase in the credit allowed under section 48(a) by reason of section 48(a)(10) with respect to any project that does not satisfy the requirements under section 48(a)(10)(A) (after application of section 48(a)(10)(B)) for the period described in section 48(a)(10)(A)(ii) but that does not cease to be investment credit property within the meaning of section 50(a). The period and percentage of such recapture is to be determined under rules similar to the rules of section 50(a).

Proposed § 1.48–13(c)(9) provides a rule to coordinate the recapture of an increase credit amount in a prior taxable year with recapture under section 50(a) in a current taxable year. These final regulations do not adopt proposed § 1.48–13(c)(9) because the proposed rule may have resulted in an inaccurate calculation of the amount of the ''aggregate decrease in credit allowed'' calculated under section 50(a). Section 50(a) and §§ 1.47–1, 1.47–2, and 1.50–1 provide rules governing recapture of the investment credit, including the section 48 credit.

Proposed § 1.48–13(c)(3)(i) would provide generally that the increased credit amount under proposed § 1.48–13(b)(3) is subject to recapture for any project that does not satisfy the Prevailing Wage Requirements in § 1.45–7(b) through (d) and proposed § 1.48–13(c)(1) for any period with respect to an alteration or repair of such project during the five-year period beginning on the date such project is originally placed in service (five-year recapture period) (but that does not cease to be investment credit property within the meaning of section 50(a)). Further, proposed § 1.48–13(c)(7) would provide that, in addition to the general reporting requirements described in § 1.45–12, a taxpayer that has claimed an increased credit amount under proposed § 1.48–13(b)(3) or transferred a specified credit portion under section 6418 that includes an increased credit amount under proposed § 1.48–13(b)(3) is required to provide to the IRS, information on the payment of prevailing wages with respect to any alteration or repair of the project during the five-year recapture period at the time and in the form and manner prescribed in IRS forms or instructions or in publications or guidance published in the Internal Revenue Bulletin.

Commenters requested more detail on the ''annual prevailing wage compliance report'' because the Proposed Regulations do not specify what information is required to be reported to the IRS. A commenter noted that the Proposed Regulations do not provide any applicable procedures if the IRS should disagree with the completeness of the information or provide detail on the scope of prevailing wages for an alteration or repair. The commenter further asserted that the guidance should avoid imposing any additional burdens on the taxpayer and creating any further uncertainty with respect to the already substantial compliance obligations created by the PWA Proposed Regulations.

The details requested by these commenters were addressed in the PWA Final Regulations. The PWA Final Regulations provided definitions of terms, including what constitutes an alteration or repair, and detail on the required recordkeeping and reporting for the purposes of the PWA requirements. Further, as provided in the Proposed Regulations, information on the payment of prevailing wages with respect to any alteration or repair of the project during the five-year recapture period is to be provided in the form and manner as described in IRS instructions or in publications or guidance published in the Internal Revenue Bulletin. Accordingly, these comments are not addressed again in this Summary of Comments and Explanation of Revisions. These final regulations do clarify that if there is no alteration or repair that occurs during the relevant year during the five-year recapture period, then the taxpayer is deemed to satisfy the Prevailing Wage Requirements for that year.

Proposed § 1.6418–5(f) would provide rules addressing the notification requirements and the impact of recapture under section 48(a)(10)(C). The final regulations update the rules in proposed § 1.6418–5(f) because the 6418 Final Regulations, which included updated recapture rules in § 1.6418–5, were published after publication of proposed § 1.6418–5(f). Thus, it is necessary to update § 1.6418–5(f), which was reserved in the 6418 Final Regulations, in these final regulations to ensure consistency with the updated recapture rules in the 6418 Final Regulations.

C. Definition of Energy Project

Section 48(a)(9)(A)(ii) defines the term ''energy project'' as a project consisting of one or more energy properties that are part of a single project. Proposed § 1.48–13(d)(1) would provide that, for purposes of the increased credit amount under section 48(a)(9) and proposed § 1.48–13(b) and (c), the domestic content bonus credit amount under section 48(a)(12), and the increase in credit rate for energy communities provided in section 48(a)(14), the term ''energy project'' means one or more energy properties (multiple energy properties) that are operated as part of a single energy project. Proposed § 1.48–13(d)(1) would provide that multiple energy properties will be treated as one energy project if, at any point during the construction of the multiple energy properties, they are owned by a single taxpayer (subject to the related taxpayer rule provided in proposed § 1.48–13(d)(2)) and any two or more of the following factors are present:

(i) The energy properties are constructed on contiguous pieces of land;

(ii) The energy properties are described in a common power purchase, thermal energy, or other off-take agreement or agreements;

(iii) The energy properties have a common intertie;

(iv) The energy properties share a common substation, or thermal energy off-take point;

(v) The energy properties are described in one or more common environmental or other regulatory permits;

(vi) The energy properties are constructed pursuant to a single master construction contract; or

(vii) The construction of the energy properties is financed pursuant to the same loan agreement.

Proposed § 1.48–13(d)(2) would define the term ''related taxpayers'' and provide a related taxpayer rule. Proposed § 1.48–13(d)(3) would require consistent treatment as an energy project.

1. Challenges for Project Structures

The Treasury Department and the IRS received several comments regarding the energy project definition, and commenters raised concerns regarding the single project rule. Emblematic of commenters' views, a commenter summarized its concerns that the Proposed Regulations would expand the definition of a ''project'' by potentially grouping energy properties that would not commonly be considered as a single energy project if those energy properties were paid for under the same construction contract or financing agreement, even if the properties were operated separately. The commenter explained that the problems caused by the grouping of multiple energy properties as a single project are particularly acute for behind the meter solar facilities in different locations that are typically sized to provide power for their respective dedicated sites. This commenter described several concerns including geographic and time disparity, the impact on small bidders, the ability to plan around the proposed definition's factors, and the impact on domestic content bonus credit amount requirements. Another commenter stated that the single project rule in the Proposed Regulations would capture energy properties located on contiguous parcels that are owned by the same tax equity partnership (which is overinclusive and does not take into account projects for which the owner of each project is a disregarded special purpose entity), yet the energy properties are subject to separate permits, separate power purchase agreements, separate substations and gen-tie lines, separate construction contracts, and separate construction loans and permanent debt, and ownership of the underlying real estate is separate.

A commenter explained that typically, each project partnership will have a separate engineering, procurement, and construction (EPC) agreement. If, for example, project partnerships A, B, C, and D hold four separate energy properties and four separate EPC agreements are entered into on four separate dates, that would create four distinct prevailing wage rates that need to be tracked for prevailing wage purposes. If all four energy properties owned by the four project partnerships are deemed to be a single energy project, then each project partnership would still have to determine separately whether it met the PWA requirements due to the differing prevailing wage rates from the various dates the EPC contracts were signed. The commenter suggested that if any one of the four energy properties comprising the single energy project does not meet the PWA requirements, then none would be treated as meeting the requirements.

Another commenter explained that the single project rule would make thousands of separate residential rooftop systems one ''energy project,'' because two of the factors (common construction and loan agreements) always will be met. This commenter explained that these systems generally are constructed under the same EPC contract and financed via the same debt facility purely as a matter of convenience and not because the systems are intended to be operated together as a single project. Therefore, the commenter explained that all rooftop photovoltaic (PV) solar systems installed by any individual EPC contractor (even if installed years apart and in separate States) potentially could be treated as one energy project under the Proposed Regulations. This commenter also raised concerns that this approach creates uncertainty and is thus administratively unworkable with regard to the timing of credit claims.

Several commenters had concerns and requested clarification regarding the application of the single project rule to co-located energy property and energy storage technology (such as solar energy property and battery storage). A commenter explained that battery storage co-located within the solar array would meet the criteria that the projects be contiguous to one another (indeed integrated), and other criteria could apply as well, for example, that both types of energy property are part of the same construction contract and subject to the same permits. This commenter explained that the listed criteria in the Proposed Regulations appear to be focused on traditional energy generating projects, which makes sense if there are multiple energy properties that should be treated as a single energy project but could inadvertently bring energy storage technology under the umbrella of a section 45 credit solar project. Additionally, several commenters requested that if the single project rule is adopted in final regulations, such regulations should confirm that ''[s]ection 45 qualified facilities that are co-located with section 48 energy property will not be considered part of an energy project (unless they elect under section 48(a)(5) to be treated as energy property),'' as stated in the preamble to the Proposed Regulations.

Another commenter provided an example of a project in a school district (District) for which potentially varying PWA requirements must be met. The District installs solar energy properties on a school, district offices, and a supply warehouse located across separate non-contiguous locations within the District boundaries. The District issues a single series of tax-exempt bonds to finance construction costs at all properties. After a single request for proposal, the District selects a single contractor to construct the energy properties at each location. Even if the District were to send out requests for proposals for each separate property, the same contractor may be selected for all sites. In addition, although the District could issue separate series of bonds for each site, those bonds may be considered a single issue under § 1.150–1. Under the Proposed Regulations, the various solar energy properties would be considered a single energy project even though the energy properties are distinct and located miles apart.

Many commenters proposed alternatives to the Proposed Regulations' definition of energy project. Several commenters recommended re-instituting the facts and circumstances single project test from Notice 2018–59. A commenter also suggested allowing taxpayers an option, but not a requirement, to elect to have multiple energy properties be ''treated as one energy project'' if they meet the single project rule with two factors and common ownership found in the Proposed Regulations. This commenter stated that if the Proposed Regulations' definition of energy project is retained, the rule should change the timing for analyzing common ownership from ''at any point during the construction'' to ''when the energy property is placed in service.'' This commenter also suggested removing the related taxpayer rule and instead providing an option to elect to be treated as one taxpayer. Another commenter proposed that the final regulations could instead create a rebuttable presumption under which taxpayers can avoid having multiple energy properties treated as a single energy project by demonstrating that the project covers multiple technologies, taxpayers, taxable years, or interconnection agreements.

A commenter proposed that to the extent that the Treasury Department and the IRS are concerned with the potential for abuse, the final regulations could require meeting three or four factors before mandating single project treatment. Alternatively, consistent with the approach taken in regulations under section 48(e) (T.D. 9979, 88 FR 55506 (Aug. 15, 2023), *corrected in* 88 FR 59446 (Aug. 29, 2023), *corrected in* 88 FR 87903 (Dec. 20, 2023)), these final regulations could limit the application of the facts and circumstances determination to smaller projects (that is, under five megawatts). Another commenter offered as an alternative that the final regulations add a requirement for satisfaction of an additional factor or factors (that is, more than two) and provide that aggregation will only occur if the projects are clearly operated together. Another commenter similarly suggested that three factors should be met.

Additionally, one commenter suggested that, if the rule were retained, further clarification is needed regarding what qualifies as a loan agreement and whether the definition of ''energy project'' applies to projects of any size. This commenter requested that the final regulations clarify that the definition does not include tax equity positions. This commenter also recommended that the final regulations align the effective date of the new energy project definition with the construction of an energy property or an energy project beginning on or after January 29, 2023, to eliminate any confusion regarding the new definition and to mitigate additional risk to taxpayers.

A commenter supported the Proposed Regulations' definition of energy project in a comment submitted in response to the PWA Proposed Regulations stated that the Treasury Department and the IRS should make clear that a taxpayer seeking the increased credit rate for satisfying the PWA requirements cannot subdivide projects and construction contracts to evade the PWA requirements. The commenter stated that certain factors, including ownership and proximity, should determine whether multiple qualified facilities or units of equipment constitute one single qualified facility for purposes of determining whether the One Megawatt Exception applies. For example, with respect to solar projects, the commenter suggested that multiple energy properties should be treated as one single project if they are owned by a single legal entity, or the energy properties are constructed and/or installed in the same general geographic location or on adjacent or contiguous pieces of land. The same general geographic location may include more than one State, provided that the multiple energy properties are on adjacent or contiguous pieces of land.

Overall, commenters expressed a view that the single project rule as drafted in the Proposed Regulations would apply to an overly broad range of energy properties and lead to illogical groupings and practical difficulties in complying with various bonus credit amounts and increased credit rates under section 48. Based on the concerns raised in these comments, the Treasury Department and the IRS acknowledge that additional flexibility is warranted. See part II.C. 4 of this Summary of Comments and Explanation of Revisions.

2. Facts and Circumstances Approach

Commenters asserted that a facts and circumstances approach should be applied to the definition of energy project. Several commenters raised concerns about inconsistency with prior guidance published in the Internal Revenue Bulletin with regard to the beginning of construction rules applicable to section 48. Commenters also stated that the Proposed Regulations would implement the energy project definition differently than a similar rule provided in the beginning of construction guidance and Notice 2022–61 (which addresses the application of PWA requirements), by mandating single-project treatment if common ownership and any two factors are met, rather than applying a facts and circumstances test. Similarly, commenters stated that regulations under section 48(e) for the Low-Income Communities Bonus Credit Program provide a single project definition that uses a facts and circumstances test.

The Treasury Department and the IRS confirm that the definition of energy project in the Proposed Regulations adopts a different approach than the facts and circumstances test used in other tax guidance. These comments requesting alternatives to the Proposed Regulations' definition of energy project are not adopted because the increased credit rate for satisfying the PWA requirements, the domestic content bonus credit amount, and the increase in the credit rate for energy communities under section 48 require a greater degree of certainty for taxpayers and the IRS. Further, the Low-Income Communities Credit Program is a competitive, allocated credit program which requires an application; the section 48 credit does not. This difference in the process for claiming the section 48 tax credit supports the need for a more specific approach for the credit. Accordingly, the definition of energy project in these final regulations provides particular and specific requirements rather than a facts and circumstances approach.

3. Interaction With Domestic Content Bonus Credit Amounts

Several commenters asserted that the definition of ''energy project'' in proposed § 1.48–13(d) is inconsistent with the initial domestic content guidance set forth in Notice 2023–38, 2023–22 I.R.B. 872. A few commenters stated that the application of the single project rule in the Proposed Regulations may cause any co-located energy properties to be aggregated for domestic content bonus credit amount purposes. The commenters suggested that this aggregation of different classes or categories of energy property as a single project is inappropriate and may create significant issues in qualifying for the domestic content bonus credit amount, including potentially distorting the domestic content calculation by overinclusion of costs for energy storage technology.

Commenters provided specific examples with domestic content bonus credit amount implications. In one such example, a taxpayer places a solar array in service in 2023 and then places a battery energy storage system (BESS) associated with the array in service in 2026. Construction of the BESS began, for example, by clearing and grading at the site of the BESS in 2023. The solar array and the BESS are on contiguous parcels and share a common substation. Under the proposed rule, the array and the BESS would be treated as a single energy project. The array would qualify for the domestic content bonus credit amount, but the addition of the BESS would put the energy project below the applicable percentage calculation for domestic content purposes, despite the ''project'' involving different technologies and different tax years. The taxpayer may be unable to avoid this result for projects with limited access to substations or if required upgrades would exceed the value of the domestic content bonus credit amounts, and thus may choose not to add new BESS to the grid, in clear contravention of Congressional intent. However, assuming no other factors under the single project rule are present, the taxpayer could avoid this result simply by placing the BESS on a non-contiguous parcel, a result that is likely to be technically inefficient, and more importantly, is inconsistent with the intent of the domestic content bonus

credit as set forth by Congress in the IRA.

Another commenter provided additional feedback on domestic content issues arising from placing different types of energy property in service in different taxable years. This commenter explained that if multiple energy properties were treated as a single project for purposes of the domestic content bonus credit amount, then the energy properties would be tested on a combined basis for the steel, iron, and manufactured components requirements. This could affect situations in which different types of energy properties are co-located, and the domestic content bonus credit amount could be pursued for one type of energy property but not for the other type of energy property. According to the commenter, the result likely would be that foreign products would be sourced for both types of energy property. Further, the commenter noted that combined testing would raise questions regarding the impact to energy properties that are placed in service years apart. For example, the commenter noted that if an earlier phase of an energy project did not qualify for the domestic content bonus credit amount, then it would likely be impossible for a later phase of the project to qualify if tested on a combined basis. Alternatively, the commenter noted that if an earlier phase of an energy project qualified for the domestic content bonus credit amount, then it could later become ineligible for the domestic content bonus credit amount if a later phase of that energy project caused the project to fail to meet the domestic content requirements.

Another commenter stated that the Proposed Regulations' definition of energy project would deter many taxpayers from attempting to satisfy the domestic content bonus credit amount requirements and disqualify otherwise qualifying energy properties. This commenter explained that, increasingly, procurement decisions are made earlier in the project life cycle due to long lead times. Therefore, the commenter noted that a developer might be able to secure enough domestic equipment or steel to allow one energy property to satisfy the domestic content bonus credit amount requirements but not enough for additional energy properties. However, the commenter stated that if these multiple energy properties were aggregated and treated as a single energy project, that energy project likely would not qualify for the domestic content bonus credit amount since the combined domestic cost percentage would be unlikely to satisfy the adjusted percentage rule as defined in Notice 2023–38.

Some commenters asserted that the Proposed Regulations' definition of energy project should apply only to energy properties that are within the same category for purposes of section 48. These commenters also requested clarification that energy storage technology such as a BESS is treated as an ''energy project'' separate from solar energy property and other categories of energy property for purposes of the domestic content bonus credit amount. For example, a commenter highlighted the concern that ''energy project'' may be read broadly to apply to all energy properties that are owned by the same taxpayer and co-located, even if the energy properties are of different classes or categories and have separate pathways to eligibility. This commenter requested that the final regulations clarify the ''energy project'' definition by providing that the reference to ''one or more energy properties'' in section 48(a)(9)(A)(ii) should be properly interpreted to refer only to the same class or category of energy property. The commenter concluded that a better approach to the definition of ''energy project'' would be to treat specific types of energy property, such as solar, wind, and other categories, as separate from energy storage technology property even if co-located, owned by the same taxpayer, and sharing common facilities and infrastructure.

Section 48 applies the domestic content bonus credit amounts to an entire energy project defined as one or more energy properties that are part of a single project. As a result, all types of energy property, including energy storage technologies that meet the criteria as would be provided in proposed § 1.48–13(d) are included within an energy project for purposes of the domestic content bonus credit amount. As noted earlier, the Treasury Department and the IRS recognize that additional flexibility is warranted with respect to the definition of energy project. The final regulations revise the definition of energy project to allow the taxpayer to choose when to assess the factors of an energy project, either at any point during construction or during the taxable year energy properties are placed in service. However, multiple types of energy property may be appropriately treated as a single energy project in certain situations. Accordingly, the final regulations do not adopt comments requesting that an energy project must be limited to energy properties of the same type.

4. Revisions to Definition of Energy Project

The Treasury Department and the IRS agree with commenters that the Proposed Regulations' definition of energy project, described as ownership plus two factors, is too rigid and could have unintended impacts, such as preventing small rooftop solar installations from being eligible for the One Megawatt Exception and treating multiple energy properties that are located in different States as a single energy project. Further, the Treasury Department and the IRS understand that the ''at any point during construction'' language in the Proposed Regulations may be problematic for taxpayers, potentially grouping energy properties that will be placed in service in different taxable years.

In response to the concerns raised by commenters, the definition of energy project is modified in the final regulations. The Proposed Regulations would have required two or more factors to be present. In the case of multiple energy properties owned by a taxpayer, the final regulations require that four or more factors be present and that the factors may be assessed, at the taxpayer's choice, either at any point during construction or during the taxable year the energy properties are placed in service. The Treasury Department and the IRS understand that taxpayers require flexibility given the varied landscape of energy property development and financing structures. However, the Treasury Department and the IRS disagree that a facts and circumstances analysis should be applied to the definition of energy project. Energy project is the statutory term for the unit of property to which the PWA requirements, the domestic content bonus credit amount, and the increase in credit rate for energy communities are applied. In addition, in promulgating these final regulations pursuant to the express delegation of authority in section 48(a)(16), the Treasury Department and the IRS determined that using particular and specific factors in the definition of energy project will increase certainty for taxpayers and the IRS. That increased certainty will promote sound tax administration and help to carry out the purposes of section 48(a).

Separately, a commenter requested confirmation that an energy project will be deemed placed in service when the final energy property within the energy project is placed in service. Section 48(a)(9)(A)(ii) defines an ''energy project'' as a project consisting of one or more energy properties that are part of

a single project. Because the PWA requirements, the domestic content bonus credit amount, and the increase in credit rate for energy communities are each applied at the energy project level, the determination of whether an energy project meets any of these requirements cannot be made before the last of the multiple energy properties within such energy project are placed in service. Accordingly, the final regulations clarify the definition of energy project consistent with this comment.

Further, the final regulations do not adopt proposed § 1.48–13(d)(3). The Proposed Regulations would have provided that, if multiple energy properties are treated as a single energy project for beginning of construction purposes with respect to the section 48 credit, then the multiple energy properties also will be treated as a single energy project for purposes of the PWA requirements, the domestic content bonus credit amount, and the increase in credit rate for energy communities. The Treasury Department and the IRS recognize that this proposed rule may conflict with existing BOC guidance and the definition of ''energy project'' that is being adopted in these final regulations. Accordingly, the final regulations do not adopt this proposed rule.

D. One Megawatt Exception

1. Nonapplication to Certain Energy Properties

Proposed § 1.48–13(e) would provide rules for nameplate capacity for purposes of the One Megawatt Exception. Proposed § 1.48–13(e) would provide that for purposes of proposed § 1.48–13(b)(1), the determination of whether an energy project has a maximum net output of less than one MW of electrical (as measured in alternating current) or thermal energy is determined based on the nameplate capacity. Proposed § 1.48–13(e) would provide that if applicable, taxpayers should use the International Standard Organization (ISO) conditions to measure the maximum electrical generating output or usable energy capacity of an energy project. Lastly, proposed § 1.48–13(e) would provide that because electrochromic glass property (as defined in proposed § 1.48–9(e)(2)(ii)), fiber-optic solar energy property (as defined in proposed § 1.48–9(e)(2)(i)), and microgrid controllers (as defined in proposed § 1.48–9(e)(12)) do not generate electricity or thermal energy, these energy properties are not eligible for the One Megawatt Exception.

Two commenters supported the rule as proposed, including disallowing the exception for certain properties. One of the commenters stated that the proposed rules for the One Megawatt Exception will provide certainty with respect to the applicability of labor standards and prevent fraud. Both commenters requested the Treasury Department and the IRS to retain the nameplate capacity rule for maximum net output in the final regulations.

One commenter asserted that the One Megawatt Exception, as proposed, is too broad, undermining the PWA requirements, and should not apply to any energy properties that do not generate or produce electrical or thermal energy. This commenter disagreed with the alternatives provided for some types of energy property and requested clarity that others also should not be eligible, including GHP property, energy storage technology, clean hydrogen production facilities, and qualified biogas property.

Conversely, most commenters asserted that the One Megawatt Exception should be available for non-energy generating property. Some commenters suggested that the final regulations provide a de minimis threshold to the One Megawatt Exception. A commenter suggested consideration of a basis dollar threshold with respect to prevailing wage exemptions for types of energy property that do not generate electricity, namely electrochromic glass, fiber-optic solar energy property, and microgrid controllers.

Another commenter stated that these excluded types of energy property should be included if part of an ''energy project.'' Commenters explained that the One Megawatt Exception in section 48(a)(9)(B)(i) applies to ''energy projects'' and therefore, can apply to microgrid controllers, fiber-optic solar energy property, or electrochromic glass that are combined with other types of energy property (for example, solar energy property) as part of an ''energy project.''

Several commenters made the same point specifically regarding microgrid controllers. For example, a commenter stated that the final regulations should include microgrid controllers within the One Megawatt Exception. This commenter said that a strict statutory interpretation would mean that if the sum capacity of all energy properties within an energy project is below one MW, then the One Megawatt Exception is satisfied. The commenter asserted that this statutory interpretation is simple, straightforward, and accurately reflects the IRA. Similarly, a commenter suggested that to ensure small microgrid projects can take advantage of the One Megawatt Exception, the rule should allow microgrid controllers used in a microgrid for which the cumulative nameplate capacity value of the electrical generating distributed energy resources is less than one MW to be eligible for the One Megawatt Exception.

Another commenter noted that the ineligibility of microgrid controllers for the One Megawatt Exception contradicts the definition of a qualified microgrid, which requires that a qualified microgrid includes equipment capable of generating not less than 4 kW and not greater than 20 MW of electricity. This commenter asserted that if the aggregate of the nameplate capacity of the assets managed by a qualified microgrid is under one MW, or if there are other physical limitations built into the microgrid that limit generation to one MW, then the microgrid controller should qualify for the One Megawatt Exception.

Another commenter stated that because microgrid controllers do not generate energy, they should be considered to generate under one MW and thus should qualify for the One Megawatt Exception. This commenter asserted that because Congress did not specifically exclude energy properties with a maximum net output of less than one MW of electrical energy (and could have)—even if that output is zero—microgrid controllers should qualify under the plain language of the statute. A similar suggestion was raised by several commenters in the context of electrochromic glass. One commenter stated that nothing in section 48(a)(9)(B)(i) suggests that the One Megawatt Exception is limited to generating property; the statute simply looks to the output of the project, if any. This commenter concluded that the simplest and clearest reading of section 48(a)(9)(B)(i) is that an energy property that does not generate electricity is eligible for the One Megawatt Exception.

Similarly, another commenter stated that section 48(a)(9)(B)(i)'s focus on an energy project's energy output capability indicates that properties not producing any output could be considered for the One Megawatt Exception. This commenter asserted that the essence of the law was not to create a hierarchy favoring energy producers over non-producers but to encourage a broad spectrum of energy efficiency and conservation measures.

Another commenter stated that the Proposed Regulations' interpretation of the One Megawatt Exception is highly counterintuitive as it runs contrary to

obvious mathematical logic. This commenter stated that the One Megawatt Exception should be considered in light of the clear legislative intent behind it, which is that PWA requirements are disproportionately burdensome for smaller projects. This commenter alleged that, most troublingly, the interpretation is not merely prospective, from the date of publication of either the Proposed Regulations or the final regulations, but also retroactive, and that applying this interpretation retroactively will harm market actors who made good faith, logical decisions in the absence of any IRS guidance. This commenter requested that, at a minimum, the Treasury Department and the IRS apply rules regarding the One Megawatt Exception on a prospective basis.

In addition to these comments, commenters also provided feedback on methods to measure the maximum net output of microgrid controllers to allow them to qualify for the One Megawatt Exception. One commenter proposed that a measurement of the maximum net generation that a microgrid controller can provide via interconnection to the grid be used to determine whether a microgrid controller is eligible for the One Megawatt Exception, and that the maximum net output be calculated as the nameplate capacity of the microgrid generation less the minimum historical microgrid load.

Commenters also provided methods for electrochromic glass to qualify for the One Megawatt Exception. Two commenters suggested using anticipated energy savings for a building on which electrochromic windows are installed. For example, a commenter suggested that a taxpayer should be able to measure the amount of energy expected to be saved by use of the electrochromic glass property and compare that amount to one MW. The commenter noted that this approach is similar to the approach used to determine whether energy efficient investments in a commercial building qualify for a deduction under section 179D of the Code; this commenter recommended that final regulations provide that the DOE program ''Energy Plus'' model be used to determine the amount of anticipated energy savings. Two commenters also proposed a safe harbor that would deem any electrochromic glass property installed in any building to meet the One Megawatt Exception if no more than 60,000 square feet of electrochromic glass is installed in the building. Another commenter highlighted administrative concerns with the non-application of the One Megawatt Exception to electrochromic glass. The commenter explained that electrochromic glass is one of many structural components installed in a building, and laborers who are involved in the construction, alteration or repair of electrochromic glass may also be involved in the construction, alteration or repair of other building components that are not qualified energy property, creating an additional recordkeeping burden for taxpayers.

The Treasury Department and the IRS have considered these comments on the One Megawatt Exception. The Treasury Department and the IRS appreciate the suggestions made by commenters in response to the request for comments in the Proposed Regulations regarding whether other methods of measurement may allow electrochromic glass property, fiber-optic solar energy property, and microgrid controllers to be eligible for the One Megawatt Exception. However, after considering the statute further as well as the intent of the rules in the context of the PWA requirements, the Treasury Department and the IRS have determined that the One Megawatt Exception applies only to the generation of electricity or thermal energy. The statutory language in section 48(a)(9)(B)(i) providing the increased credit amount for a project with a maximum net output of less than one MW of electrical (as measured in alternating current) or thermal energy, means that there must be output, and that output must be under one MW. The proposed conversion formulas for certain types of energy property, such as GHP property and energy storage property, do not undermine the PWA requirements. Rather, the proposed formulas provide clarity across various energy properties that generate output. Because electrochromic glass property, fiber-optic solar energy property, and microgrid controllers do not generate electrical or thermal energy, these types of energy property are not eligible for the One Megawatt Exception. These final regulations adopt this proposed rule without change.

2. Determination of Nameplate Capacity

As explained in the preamble to the Proposed Regulations, the DOE has advised the Treasury Department and the IRS that for energy projects that generate electrical or thermal energy, the determination of an energy project's nameplate capacity will provide the necessary guidance to determine the maximum electrical generating output in megawatts of electrical (as measured in alternating current) or thermal energy that the unit is capable of producing on a steady state basis and during continuous operation under standard conditions. Accordingly, proposed § 1.48–13(e) would provide that the determination of whether an energy project has a maximum net output of less than 1 MW of electrical (as measured in alternating current) or thermal energy is based on nameplate capacity. Proposed § 1.48–13(e)(1) would provide that in the case of an electrical generating energy property, the nameplate capacity is the maximum electrical generating output in MW that the unit of energy property 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.

Proposed § 1.48–13(e)(2) would provide that in the case of electrical energy storage property (as defined in proposed § 1.48–9(e)(10)(ii)), the nameplate capacity is the storage device's maximum net output.

Proposed § 1.48–13(e)(3) would provide that in the case of thermal energy storage property (as defined in proposed § 1.48–9(e)(10)(iii)) and other energy property that generates thermal energy for productive use (for example, direct geothermal use, GHP property, solar process heating), a taxpayer must use the equivalent of 3.4 million British Thermal Units per hour (mmBtu/hour) for heating and 284 tons for cooling (Btu per hour/3,412,140 = MW) to determine if the thermal energy storage property satisfies the One Megawatt Exception. For projects delivering thermal energy to a building or buildings, this determination can be made with respect to either the aggregate maximum thermal output of all individual heating or cooling elements within the building or buildings, or as the maximum thermal output that the entire project is capable of delivering to a building or buildings at any given moment.

Proposed § 1.48–13(e)(4) would provide that a hydrogen energy storage property (as defined in proposed § 1.48–9(e)(10)(iv)) or a specified clean hydrogen production facility (as defined in section 48(a)(15)(C)) must have a maximum net output of less than 3.4 mmBtu/hour of hydrogen or equivalently 10,500 scf per hour of hydrogen to satisfy the One Megawatt Exception.

Proposed § 1.48–13(e)(5) would provide that in the case of qualified biogas property, 3.4 mmBtu/hour can be used as equivalent to the One Megawatt Exception. Taxpayers may convert the maximum net output of 3.4 mmBtu/hour into an equivalent maximum net volume flow in scf per hour using the

appropriate high heat value conversion factors found in the Environmental Protection Agency (EPA) Greenhouse Gas Reporting Rule (GHGRR) at table C–1 to subpart C of part 98 (40 CFR part 98). Otherwise, taxpayers may calculate their own equivalent volumetric flow if the heat content of the gas is known.

Commenters provided feedback on the proposed conversion factors specific to certain types of property. For example, a commenter recommended that for thermal energy storage property and other property generating thermal energy, the conversion from mmBtu/hr to tons for cooling should be 3–5 times higher than proposed § 1.48–13(e)(3), which refers to 284 tons for cooling to determine if thermal energy property meets the One Megawatt Exception. This commenter said that the conversion factor provided by the Proposed Regulations is too low at a quarter of the conversion factor for electrical generating property, and instead the final regulations should use an electrical equivalent. This commenter stated that for buildings cooled by chilled-water systems, it is widely accepted that the electrical power (in kW) required to generate cooling (in ton) by chillers is approximately 0.6–0.7 kW/ton for water-cooled chillers, and 1.1–1.2 kW/ton for air-cooled chillers, and cited a few sources. This commenter proposed replacing the conversion factor with 1,550 tons for water-cooled systems or 870 tons for air-cooled systems.

Similarly, for qualified biogas property, a commenter stated that the proposed conversion factor of 3.4 mmBtu/hr in proposed § 1.48–13(e)(5) for the One Megawatt Exception should be increased. The commenter stated that this conversion factor for qualified biogas property is theoretical and not based in practical applications. The commenter also noted that any biogas plant producing onsite power typically does not produce more than 10 mmBtu/hr, and that a plant of this size would be very small and likely face economic constraints even with the section 48 credit.

In consultation with the DOE, the Treasury Department and the IRS have determined that the conversion formulas in the Proposed Regulations provide a direct and accurate conversion and that no changes are needed to the conversion factors for thermal energy property, thermal energy storage property, and other energy property that generates thermal energy for productive use, or for qualified biogas property. By providing a broadly-applicable rule, these conversion formulas should provide accurate results for a broad set of applications and technologies. The commenters' requests for specific formulas applicable to specific technologies conflict with the approach of these regulations to provide general rather than narrow rules. Therefore, the final regulations adopt these rules as proposed.

Other commenters stated general concerns regarding lack of clarity with the measurement methods included in the Proposed Regulations. These commenters focused their concerns on thermal energy storage property and property generating thermal energy. For example, a commenter stated that it is unclear whether the One Megawatt Exception applies with respect to the thermal energy generated from the thermal energy source for the thermal energy storage (TES) (for example, a chiller or heat pump), or to the nameplate capacity of the TES property itself (for example, peak discharge rate from TES). The commenter then asked what conditions govern the discharge rate of TES if the One Megawatt Exception refers to the nameplate capacity of the TES property itself. This commenter suggested that, alternatively, perhaps either could be used.

The Treasury Department and the IRS recognize that demonstrating the nameplate capacity of thermal energy storage property may be technically impractical for some types of thermal energy storage property such as commercial heat pump storage systems. The Treasury Department and the IRS, following consultation with the DOE, revise the rule in the final regulations to provide an option when nameplate capacity for the thermal energy storage property is not available, to use the nameplate capacity of the equipment that delivers thermal energy. For example, the nameplate capacity of the heat pump to a thermal energy storage property would be converted to megawatts based on the conversion factors set forth in § 1.48–13(e). For thermal energy storage property, as well as for other energy property that generates or distributes thermal energy for productive use, the final regulations clarify that the maximum thermal output that the entire system is capable of delivering is calculated as the greater of the maximum instantaneous rate of cooling or the rate of heating of the aggregate of all the equipment distributing energy for productive use, which for thermal energy storage is distributing the thermal energy from the thermal energy storage to the building or buildings. Alternatively, for purposes of thermal energy storage property only, when the nameplate capacity for the thermal energy storage property is unavailable, the maximum thermal output may be considered to be the greater of the rate of cooling or the rate of heating of the aggregate of the nameplate capacity of all the equipment delivering energy to the thermal energy storage property. Based on the comments, the Treasury Department and the IRS conclude that the revised rule will provide a clear, administrable standard of measurement.

Several commenters had similar concerns regarding the measurement standard for geothermal energy property. A commenter explained that by design, a distributed GHP property's maximum net output is always less than the total nameplate capacity. These commenters asserted that, for equipment generating thermal energy, it is not clear how nameplate capacity is defined. Commenters recommended that nameplate capacity be defined as either the published rating data on the Air Conditioning, Heating, and Refrigeration Institute (AHRI) Certification Directory or project specific selections at design temperatures. Commenters also stated that many buildings require redundant equipment to ensure consistent operating conditions within the building if a piece of equipment fails, but that because the redundant equipment is not used during normal operation it should be excluded from the calculation of the one-MW threshold. These commenters also suggested the final regulations provide an example illustrating the method of assessment based on the use of thermal output from a full year.

As previously explained, the final regulations provide that the discharge rate of a thermal energy source is based on the nameplate capacity of the equipment, which would be converted to megawatts based on the conversion factors set forth in § 1.48–13(e). Therefore, taxpayers must use the nameplate capacity of the equipment. Commenters' concerns for geothermal energy property appear to be more focused on how to determine that nameplate capacity if not all equipment will be used or will only be used to a specific temperature. Proposed § 1.48–13(e)(3) would provide that, for projects delivering thermal energy to a building or buildings, the measurement can be assessed as either the aggregate maximum thermal output of all individual heating or cooling elements within the building or buildings, or as the maximum thermal output that the entire project is capable of delivering to a building or buildings at any given moment. The Treasury Department and the IRS consulted with the DOE, and the

final regulations clarify that the maximum thermal output an entire project is capable of delivering at any given moment does not take into account the capacity of redundant equipment if such equipment is not operated when the system is at maximum output during normal operation. The determination of maximum thermal output is intended to reflect normal operating conditions for the energy project.

Another commenter requested clarification regarding the measurement method for electrical energy storage property. The commenter asserted that it is unclear at what stage to determine maximum electrical generating output for the One Megawatt Exception, and that the definition of ''nameplate capacity'' is ambiguous because it turns on the phrase ''maximum electrical generating output'' but does not provide a method for determining such output. The commenter stated that for inverter-based resources, like solar and energy storage technologies, ''maximum electrical generating output'' could be determined at different stages. It could be measured as the initial output from PV modules (as measured in direct current), the subsequent output from associated storage (usually measured in direct current), or the final output after the inverter (measured in alternating current).

In response to these comments, the Treasury Department and the IRS consulted with the DOE to provide a method of measuring nameplate capacity for an energy property that generates electricity in direct current. The final regulations provide a rule limited to energy properties that generate electricity in direct current. Under this rule, a taxpayer may choose to determine the maximum net output of each energy property that is part of the energy project (in alternating current) by using the lesser of (i) the sum of the nameplate generating capacities within the unit of energy property in direct current, which is deemed the nameplate generating capacity of the unit of energy property in alternating current; or (ii) 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) can be determined in an administrable and reasonably accurate manner for energy properties that generate electricity in direct current.

III. Rules Applicable to Energy Property

A. Retrofitted Energy Property (80/20 Rule)

Proposed § 1.48–14(a)(1) would provide generally that for purposes of section 48(a)(3)(B)(ii), (5)(D)(iv), and (8)(B)(iii), a retrofitted energy property may be originally placed in service even though it contains some used components of the unit of energy property only if the fair market value of the used components of the unit of energy property is not more than 20 percent of the total value of the unit of energy property taking into account the cost of the new components of property plus the value of the used components of the unit of energy property (80/20 Rule). Only expenditures paid or incurred that relate to the new components of the unit of energy property are taken into account for purposes of computing the section 48 credit with respect to the unit of energy property. The cost of new components of the unit of energy property includes all costs properly included in the depreciable basis of the new components. If the taxpayer satisfies the 80/20 Rule with regard to the unit of energy property and the taxpayer pays or incurs new costs for property that is an integral part of the energy property, then the taxpayer may include the new costs paid or incurred for property that is an integral part of the energy property in the basis of the energy property for purpose of the section 48 credit. Further, in the case of an energy project, the 80/20 Rule is applied to each unit of energy property comprising an energy project.

Proposed § 1.48–14(a)(2) would provide that costs incurred for new components of property added to used components of a unit of energy property may not be taken into account for purposes of the section 48 credit unless the taxpayer satisfies the 80/20 Rule by placing in service a unit of energy property for which the fair market value of the used components of property is not more than 20 percent of the total value of the unit of energy property taking into account the cost of the new components of property plus the value of the used components of property. Proposed § 1.48–14(a)(3) would provide examples illustrating the 80/20 Rule.

1. General Comments Regarding the 80/20 Rule

Several commenters provided comments regarding the 80/20 Rule. Some commenters favored retaining the 80/20 Rule for application in limited circumstances. Generally, commenters that opposed the use of the 80/20 Rule expressed similar concerns regarding the ownership rules in the context of certain types of energy property.

Commenters that opposed the 80/20 Rule asserted that it is inconsistent with previous Internal Revenue Bulletin guidance. Multiple commenters asserted that under current law, capital improvements to energy property are eligible for the section 48 credit without regard to the 80/20 Rule. These commenters pointed to existing § 1.48–2(b)(7) and the examples in existing § 1.48–2(c) to support this assertion. Existing § 1.48–2(b)(7) provides, in relevant part: ''The term 'original use' means the first use to which the property is put, whether or not such use corresponds to the use of such property by the taxpayer.'' A commenter noted that the examples in existing § 1.48–2(c) illustrate the difference between a reconditioned or rebuilt unit of energy property previously in service and the addition of ''some used parts,'' on the one hand, and the addition of new property or capital improvements, on the other. Additionally, the commenter asserted that Example 5 in existing § 1.48–2(c) establishes that capitalized costs are included in computing the section 48 credit. Importantly, existing regulations under § 1.48–2 do not reflect the current version of section 48 and are not informative to the extent those regulations do not take into account subsequent amendments to section 48, such as amendments made by the IRA.

Commenters also asserted that the purpose of the 80/20 Rule was to address the ''original use requirement'' or to achieve a new ''original placed in service date'' in the context of the production tax credit under section 45. These commenters explained that the 80/20 Rule was concerned with ensuring that taxpayers do not qualify for the entirety of the section 45 credit over a new ten-year credit period by making modest investments in an existing facility. Commenters explained this issue does not exist in the section 48 credit context, because the section 48 credit is available only for new property and not for any used components of property. A commenter noted that the 80/20 Rule only really matters if one is focused on the totality of the property that is used to produce energy in a manner incentivized by the Code. This is different for section 48, for which the proper focus is on specific items of energy property, not assemblages of energy property under common ownership. Commenters asserted that, by applying the 80/20 Rule to energy property under section 48 and excluding the cost of otherwise eligible

new equipment or property that does not satisfy the 80/20 Rule, the Proposed Regulations fundamentally misconstrue the 80/20 Rule's purpose and are inconsistent with current law.

While commenters correctly noted that the purpose of the 80/20 Rule was to address the ''original use requirement'' or achieve a new ''originally placed in service'' date, the 80/20 Rule remains relevant in the context of the section 48 credit. Section 48 requires the credit to be determined on the basis of energy property placed in service during the taxable year. In situations in which energy property has already been placed in service, existing units of energy property cannot qualify for the credit without the 80/20 Rule (with the exception of the modification of energy storage technology as provided in proposed § 1.48–9(e)(10)(iii)).

Supporters of retaining the 80/20 Rule noted that it should apply for purposes of the section 48 credit only in limited circumstances. First, the 80/20 Rule should apply to the acquisition of retrofitted energy property by a taxpayer for purposes of obtaining an original placed in service date for such retrofitted property (which commenters noted is the traditional application of the 80/20 Rule). Second, the 80/20 Rule should apply if it is necessary for a qualified facility (otherwise eligible for the section 45 credit) to obtain a new original placed in service date, such as a retrofitted qualified facility for which the taxpayer elects to claim the section 48 credit in lieu of the section 45 credit.

While many commenters suggested dropping the 80/20 Rule altogether, other commenters suggested a range of possible alternatives. For example, a commenter suggested excepting from the 80/20 Rule property that is no longer functional for its intended energy purpose such as a property that has fallen into disuse and has been sitting idle for years and that would require extensive renovations to return to use for its intended purpose; property that is no longer in a ''condition or state of readiness and availability for a specifically assigned function''; and property that has been idle for a certain period of time prior to rehabilitation and reuse such as property located in opportunity zones and property for which no tax credit has previously been claimed. This commenter also proposed requiring a reduced percentage threshold to meet the policy objectives of the 80/20 Rule and referred to the Dual Use percentage rules as more favorable than the 80/20 Rule.

Multiple commenters suggested that, if the 80/20 Rule is retained, then the section 48 credit should apply to capital improvements without regard to the 80/20 Rule. However, these commenters noted that the 80/20 Rule could continue to apply to individual components placed in service by the taxpayer. Commenters asserted that the application of the 80/20 Rule to capital improvements would lead to uneconomic decisions or waste, such as favoring demolition and rebuilding instead of investments to modify an existing energy property or encouraging many existing waste processing sites to continue to vent or flare methane. Commenters also expressed concerns regarding the prohibition on claiming the section 48 credit in respect of new property that is installed after other items of energy property have been placed in service in cases in which the 80/20 Rule is not met. A commenter explained that such interpretation would disincentivize asset owners from upgrading their existing solar plants to maximize energy generation. This concern was shared by other commenters in the context of maintenance and upgrades performed on certain types of energy property such as GHP property.

Commenters also stated that networks of GHP properties grow over time by design, adding additional customer buildings and ground loop capacity as needed. Therefore, commenters asserted that application of the 80/20 Rule would hinder the adoption of networked GHP property as additional users may be reluctant to link into an existing shared ground loop due to the unavailability of the section 48 credit. Another commenter requested reconsideration of the 80/20 Rule, comparing the rule for modification of an energy storage technology (which is allowed) with ''equipment that may make trash or biomass energy properties more efficient'' (which is not allowed). This commenter also requested consideration of the 80/20 Rule in light of various factors such as planned versus unplanned improvements.

In the context of a qualified biogas property, a commenter stated that the final regulations should clarify and explicitly state that any new cost paid or incurred by the taxpayer for property that is an integral part of the energy property may be included in the basis of the energy property for purposes of the section 48 credit, without regard to the application of the 80/20 Rule at the integral property level and regardless of whether the new costs paid or incurred would generally be eligible for the section 48 credit. As an example, the commenter noted that this approach would allow the section 48 credit for a landfill gas collection system that primarily serves a purpose unrelated to the qualified biogas property (that is, storage of municipal solid waste).

Commenters also raised concerns regarding the use of the 80/20 Rule in the context of an energy project. Commenters generally asserted that the application of the 80/20 Rule disincentivizes new projects. A commenter requested that the final regulations clarify and explicitly state that the 80/20 Rule is applied separately with respect to each unit of energy property within an energy project and does not take into account any of the used property retained and used as an integral part of an energy project irrespective of whether these energy properties together are determined to satisfy any two or more of the factors described in proposed § 1.48–13(d)(1)(i) through (vii). Another commenter explained the commenter's understanding that if a section 48 credit is claimed on an energy project, then the 80/20 Rule would be applied to the entire project rather than to each component separately. The commenter asserted that this interpretation conflicts with the historical understanding of the 80/20 Rule as it applies to the section 48 credit, which is based on each component of the unit of energy property. Another commenter noted that the final rule should make clear that any application of the 80/20 Rule does not apply to the entire energy project. If deemed applicable, it should be limited to the individual energy properties being put into operation by the claiming taxpayer and should not include new or expanded energy projects that are added to existing operations. The Proposed Regulations already would provide that in the case of an energy project, the 80/20 Rule is applied to each unit of energy property comprising an energy project and a taxpayer that satisfies the 80/20 Rule with respect to an individual unit of energy property that is part of a larger energy project may be eligible for the section 48 credit. Additional clarification to ensure that the 80/20 Rule is not applied at the energy project level is unnecessary.

The Treasury Department and the IRS have considered the comments summarized earlier but decline to modify or abandon the 80/20 Rule as requested. The section 48 credit is available for ''each energy property placed in service'' during a taxable year. See section 48(a)(1). The 80/20 Rule is designed to broaden the availability of the section 48 credit to provide a new original placed in service date for an energy property that includes some components of property that have

already been placed in service, rather than requiring the entire unit of energy property to be composed of only new property. The 80/20 Rule also encourages retrofitting of existing energy property provided there is sufficient new investment.

As discussed, in part III.D. of this Summary of Comments and Explanation of Revisions, the ownership rules would provide that the section 48 credit is available for an entire unit of energy property and not for individual components of property. The 80/20 Rule is consistent with the ownership rules because it ensures that an energy property that is retrofitted to a sufficient extent is considered a new energy property, whereas the addition of mere components is not eligible for the section 48 credit.

The lone express rule for modification of existing energy property in section 48 is found in section 48(c)(6)(B). This special rule is limited to modifications of existing energy storage technology. In the Proposed Regulations, the Treasury Department and the IRS noted the significance of Congress providing specifically for modifications to energy storage technology because the inclusion of this specific provision suggests that, otherwise, modifications of existing energy properties are ineligible for the section 48 credit. In light of this modification rule for energy storage technology, the structure of section 48 indicates that other modifications to existing energy property do not qualify for the credit.

However, providing the 80/20 Rule is appropriate and consistent with its previous adoption for the section 48 credit in Internal Revenue Bulletin guidance. As explained in the preamble to the Proposed Regulations, Notice 2018–59 addresses the application of the 80/20 Rule to retrofitted energy property for purposes of applying the beginning of construction rules for the section 48 credit. Section 7.05(1) of Notice 2018–59 provides that retrofitted energy property may qualify as originally placed in service even though it contains some used components of property, provided it satisfies the 80/20 Rule. Consistent with the 80/20 Rule provided in Notice 2018–59, the 80/20 Rule provided in these final regulations requires a taxpayer to own a unit of energy property to claim the section 48 credit. Additionally, § 1.48–14(a) specifically provides that if a taxpayer satisfies the 80/20 Rule, then the taxpayer may include the new costs paid or incurred for property that is an integral part of the energy property in the basis of the energy property for purposes of the section 48 credit. By allowing an existing energy property to be retrofitted and afterwards to be treated as a new energy property, the 80/20 Rule is consistent with the ownership rules and is supported by the same rationale. Moreover, because modifications other than those described in section 48(c)(6)(B) (for existing energy storage technology) generally do not qualify for the section 48 credit, the provision of the 80/20 Rule is favorable to taxpayers and encourages substantial additional investment in existing energy property.

2. Application to Specific Technologies

Commenters raised concerns regarding the application of the 80/20 Rule to certain types of energy property. Several commenters had concerns about the application of the 80/20 Rule to qualified biogas property, battery energy storage, and qualified hydropower facilities. These issues were largely intertwined with concerns raised regarding the ownership requirement as it applies to these types of energy property.

a. Qualified Biogas Property

Many commenters shared concerns about the application of the 80/20 Rule stating that the rule would prevent the development of most qualified biogas property and other RNG projects. As described in the discussion of qualified biogas property in part I.B.5. of this Summary of Comments and Explanation of Revisions, commenters explained that unlike many other types of energy property incentivized under section 48, components of qualified biogas property (as described in the Proposed Regulations) are likely to have been placed in service prior to the enactment of the IRA. Commenters also expressed concerns regarding the definition of ''qualified biogas property,'' the ownership provisions, and the 80/20 Rule, asserting that the combined impact of these rules provided in the Proposed Regulations would limit eligibility for qualified biogas property.

According to a commenter, the 80/20 Rule should be aligned with the ''original use'' requirement. To illustrate this point, the commenter provided an example, asserting that if a taxpayer is building a new unit of energy property that is functionally interdependent with a pre-existing and previously placed in service unit of energy property (qualified or otherwise) that is owned by a separate taxpayer, the application of the 80/20 Rule is unnecessary. The commenter stated that for qualified biogas property, it is common for the entire system to be comprised of components of property owned by two different taxpayers and for the original use of these various components of property (that is, landfill gas collection components and cleaning and conditioning components, both compromising a qualified biogas property or ''system'') to be with different taxpayers at potentially different points in time.

Several commenters expressed concerns that the 80/20 Rule would not work for the qualified biogas projects that Congress intended to incentivize. Representative of that view, a commenter stated that the 80/20 Rule is potentially problematic for RNG projects located at pre-existing landfills. The commenter proposed that the application of the 80/20 Rule be limited to the individual units put into operation by the claiming taxpayer and should not exclude new or expanded projects that are added to existing operations.

Commenters' concerns stem from the ownership issues described in part III.D. of this Summary of Comments and Explanation of Revisions. As described in part III.D., the final regulations clarify the definition of what is included in qualified biogas property in a manner that is responsive to the ownership structures used by the biogas industry and allow for new property to be added to pre-existing landfills. Therefore, these final regulations do not adopt commenters' specific comments concerning the application of the 80/20 Rule to qualified biogas property.

b. Second Life Batteries

The preamble to the Proposed Regulations explained that ''a commenter requested that re-used or 'second life' batteries should be considered 'new energy property.'" Generally, used property cannot be considered ''new property'' for purposes of the 80/20 Rule, which is described earlier in part III.A. of this Summary of Comments and Explanation of Revisions. The preamble to the Proposed Regulations requested comments on whether ''second life'' batteries should be considered new components for purposes of the 80/20 Rule.

Commenters proposed considering second-life batteries that are disassembled substantially to the electric vehicle module level to be new energy property for purposes of the 80/20 Rule. These commenters reasoned that such batteries go through a substantial transformation process including dissembling and restructuring, which is a manufacturing process that meets the modification rule. A commenter suggested that, for

purposes of the 80/20 Rule, second life batteries be considered new energy property if documentation is provided supporting the fact that the batteries were remanufactured. Another commenter asserted that ''second life'' batteries may be considered within the 80 percent portion (as new property) of the 80/20 Rule if applied to energy storage technology and believed this is especially applicable in contexts in which the batteries were originally used for a fundamentally different purpose, or if in their previous iteration the batteries were ineligible for the section 48 credit.

The 80/20 Rule recognizes that a retrofitted energy property that contains only a relatively minimal amount of used components is essentially a new energy property. While ''second-life'' battery components may be used to modify an energy storage technology as provided in section 48(c)(6)(B) and addressed in part I.B.4.d. of this Summary of Comments and Explanation of Revisions, allowing primarily used components to be considered new property for purposes of applying the 80/20 Rule would be contrary to the basis of the 80/20 Rule. Accordingly, the Treasury Department and the IRS do not adopt these comments.

c. Hydropower Facilities

Section 48(a)(3) provides and proposed § 1.48–9(d)(1) would provide that for purposes of the section 48 credit, an energy property does not include any property that is part of a qualified facility the production from which is allowed a section 45 credit for the taxable year or any prior taxable year. Some commenters requested that the final regulations clarify the interplay of the 80/20 Rule under section 48 in the case of a property that was previously part of a qualified facility under section 45. These commenters requested specific confirmation that the 80/20 Rule may be applied to a retrofitted pumped storage hydropower property for which the section 45 credit had previously been claimed to allow a section 48 credit to be claimed. Although the 80/20 Rule permits a retrofitted energy property to be treated as originally placed in service and qualify for the section 48 credit even though it contains some used components, the 80/20 Rule must be applied by giving effect to the statutory language in section 48(a)(3) that prohibits a section 48 credit on any property that is part of a facility the production from which is allowed as a section 45 credit for the taxable year or any prior taxable year. However, in the case of a retrofitted qualified facility for which a section 45 credit was not allowed, the 80/20 Rule could be used to obtain a new original use and placed in service date in order to claim a section 48 credit if an election under section 48(a)(5) is made. After consideration of the comments, an example of the application of the 80/20 Rule to a qualified hydropower production facility has been added to the final regulations.

B. Dual Use Rule

Former § 1.48–9 includes a Dual Use Rule, which provides that a solar energy property, wind energy property, or geothermal equipment is eligible for the section 48 credit to the extent of the energy property's basis or cost allocable to its annual use of energy from a qualified source if the use of energy from ''non-qualifying'' sources does not exceed 25 percent of the total energy input of the energy property during an annual measuring period. This version of the Dual Use Rule is referred to as the ''75-percent Cliff.''

Proposed § 1.48–14(b)(1) would provide that for purposes of section 48, the term dual use property means property that uses energy derived from both a qualifying source (that is, from an energy property including a qualified facility for which an election has been made) and from a non-qualifying source (that is, sources other than an energy property including a qualified facility for which an election has been made).

Proposed § 1.48–14(b)(2)(i) would provide that, in general, dual use property will qualify as energy property if its use of energy from non-qualifying sources does not exceed 50 percent of its total energy input during an annual measuring period. If the energy used from qualifying sources is between 50 percent and 100 percent, only a proportionate amount of the basis of the energy property will be taken into account in computing the amount of the section 48 credit (for example, if 80 percent of the energy used by a dual use property is from qualifying sources, 80 percent of the basis of the dual use property will be taken into account in computing the amount of the section 48 credit).

1. Dual Use Rule and Energy Storage Technology

The preamble to the Proposed Regulations explained that the Treasury Department and the IRS recognize that the Dual Use Rule is no longer relevant to determining the eligibility of energy storage technology placed in service after December 31, 2022, because the IRA added energy storage technology as an energy property effective for property placed in service after December 31, 2022. However, the Dual Use Rule may still have other applications under section 48. The Proposed Regulations requested comments on the application of the Dual Use Rule to section 48 after its amendment by the IRA.

A commenter suggested that the final regulations should eliminate the application of the Dual Use Rule for all energy storage, including energy storage property placed in service before January 1, 2023. In the alternative, the commenter suggested reducing the requirement for energy storage property placed in service prior to 2023 to 50 percent charging from qualifying energy sources. This commenter also requested that final regulations eliminate any penalties or recapture for energy storage systems that charge less from qualifying energy sources than they did during a previous annual measuring period. Finally, the commenter recommended that the final regulations allow for exceptions to charging restrictions during actual or anticipated emergency days, particularly when there are severe weather conditions, which are periods during which storage resources are badly needed. The commenter explained that the charging limitations disqualify energy storage property placed in service before January 1, 2023, that is charged by grid rather than by solar, wind, or other qualifying property from the section 48 credit eligibility. The commenter noted that it would be difficult to ensure that the charge comes from qualifying sources during severe weather conditions. Because these final regulations apply only to property placed in service after December 31, 2022, these comments are outside the scope of the regulations.

Section 13102(q)(2) of the IRA provides that amendments to section 48 regarding energy storage technology apply to properties placed in service after December 31, 2022. Accordingly, proposed § 1.48–14(i) would limit application of proposed § 1.48–14 ''to property placed in service after December 31, 2022, and during a taxable year beginning after the date of publication of the final rule.'' Therefore, the prior version of the Dual Use Rule referred to as the 75-percent Cliff continues to apply to energy properties placed in service prior to January 1, 2023. These final regulations do not adopt the requested change to the applicability date provided in the Proposed Regulations for these provisions.

2. Aggregation of Energy Inputs

Proposed § 1.48–14(b)(2)(ii) would provide that the measurement of energy

use required for purposes of proposed § 1.48–14(b)(2)(i) is made by comparing, on the basis of Btus, energy input to dual use property from all qualifying sources with energy input from all non-qualifying sources. The Proposed Regulations further would provide that the Commissioner may also accept any other method that accurately establishes the relative annual use of energy derived from all qualifying sources and of energy input from all non-qualifying sources by dual use property.

A commenter requested clarification regarding the appropriate means of demonstrating annual energy consumption for an energy property, especially for solar water heating systems. The commenter noted that solar thermal systems have accepted Federal sizing guidelines for accurately estimating energy consumption by source, whether from solar, electric, gas, or other applicable technologies, and because of this, not all solar thermal systems may include heat meters or other specialized monitoring equipment that may be needed to determine the annual energy consumption by source requirements and, thus, requiring such measurement could add undue and unnecessary costs to comply with this rule. This commenter recommended that the final regulations specify types of monitoring in general, or in lieu of or in addition to monitoring, provide guidance on appropriate or acceptable energy consumption modeling that might otherwise meet this requirement. For example, the commenter noted system performance modeling that may be used to determine annual energy production for a given system that is situated in a specific climate and used in the ENERGY STAR Residential Water Heater Certification Program. This commenter also noted that clarification regarding the costs that can be included in the basis of an energy property would also be useful in other Dual Use contexts, such as for solar carports.

The Treasury Department and the IRS decline to adopt additional measurements to determine energy input from qualifying and nonqualifying sources. The Proposed Regulations state that the Commissioner may accept any other method that accurately establishes the relative annual use of energy derived from all qualifying sources and of energy input from all non-qualifying sources by dual use property. The final regulations will continue to allow the Commissioner to accept any other method that accurately establishes the qualifying sources and energy inputs to an energy property during the annual measuring period. Additionally, the final regulations do not provide clarification regarding what costs may be included in the basis of energy property. See part I.B of this Summary of Comments and Explanation of Revisions for a discussion of the definitions of types of energy property.

3. Dual Use Property and Microgrid Controllers

The preamble to the Proposed Regulations states that certain equipment is necessary for a microgrid controller to perform its functions. However, such equipment may also have been required to be installed without the presence of a microgrid. An example is a communications system (for example, a local ethernet network or a commercial wireless network). Because a microgrid controller must be connected to a communications system to operate properly, such a communications system could be considered part of the microgrid controller itself. The communications system could also be used for other purposes and may not be dedicated to the microgrid system. The Treasury Department and the IRS consider the Dual Use Rule inapplicable to this scenario because it does not involve the use of energy derived from both qualifying and non-qualifying sources.

A commenter asserted that it is necessary to create a Dual Use Rule for microgrid controllers because requiring specific equipment to be dedicated to the microgrid controller that could otherwise be used for multiple purposes is an inefficient use of resources. The commenter also noted that given the complexity and unique nature of microgrids, it is impossible to specify all conditions under which a Dual Use might arise. This commenter suggested that any component of property that is tied into the microgrid system (whether hardware-based or software-based) becomes a necessary component of either the operation of the microgrid or the monitoring/maintenance of the operation of the microgrid. The commenter noted that existing equipment would not be included in the basis of the microgrid controller for purposes of the credit, but if new equipment is needed or if existing equipment needs to be replaced to accommodate the operations of the microgrid, such equipment should be included in the basis of the microgrid controller for purposes of the section 48 credit even if such equipment is partially used for other purposes that are not eligible for the section 48 credit. This comment poses the issue of whether the cost of components of property is included in an energy property's basis even though such components can be used for purposes not intended for energy property. That issue is addressed in the discussion of the functional interdependence and integral property rules described in part I.C.2 and 3 of this Summary of Comments and Explanation of Revisions.

C. Incremental Cost

Former § 1.48–9(k) defines incremental cost as the excess of the total cost of equipment over the amount that would have been expended for the equipment if the equipment were not used for a qualifying purpose related to the section 48 credit. Proposed § 1.48–14(d)(1) would adopt a similar definition and allow only the incremental cost of energy property to be included in basis for purposes of determining the section 48 credit.

Proposed § 1.48–14(d)(2) would provide as an example, a scenario in which the incremental cost of a reflective roof for the purpose of installing a solar energy property is $5,000, the difference between the costs of a reflective roof and a standard roof. A commenter suggested expanding this example to include other roof upgrades that enable the operation of energy property.

The amount of incremental cost is determined on a case-by-case basis and the example is only intended to illustrate the general application of the incremental cost rule. Accordingly, this comment is not adopted.

D. Ownership Rules

Proposed § 1.48–14(e)(1) would provide that for purposes of section 48, a taxpayer that owns an energy property is eligible for the section 48 credit only to the extent of the taxpayer's basis in the energy property. Further, proposed § 1.48–14(e)(1) would provide that in the case of multiple taxpayers holding direct ownership in an energy property, each taxpayer determines its basis based on its fractional ownership interest in the energy property.

Proposed § 1.48–14(e)(2) would provide that a taxpayer must directly own at least a fractional interest in the entire unit of energy property for a section 48 credit to be determined with respect to such taxpayer's interest. Further, proposed § 1.48–14(e)(2) would provide that no section 48 credit may be determined with respect to a taxpayer's ownership of one or more separate components of an energy property if the components do not constitute a unit of energy property. However, proposed § 1.48–14(e)(2) would also provide that the use of property owned by one taxpayer that is an integral part of an

energy property owned by a second taxpayer will not prevent a section 48 credit from being determined with respect to the second taxpayer's energy property.

Proposed § 1.48–14(e)(3)(i) would provide that the term ''related taxpayers'' means members of a group of trades or businesses that are under common control (as defined in Treasury Regulations § 1.52–1(b)). Proposed § 1.48–14(e)(3)(ii) would provide that related taxpayers are treated as one taxpayer in determining whether a taxpayer has made an investment in an energy property with respect to which a section 48 credit may be determined.

Many commenters disagreed with the application of the ownership rules. Several commenters raised general arguments focused on prior interpretations of section 48, while others voiced disagreement regarding the application of the ownership rules to qualified biogas property, GHP property, and offshore wind facilities (eligible for the section 48 credit through an election under section 48(a)(5)).

1. Prior Interpretations of the Ownership Rules

Some commenters raised interpretations of the ownership rules and the definition of an ''energy property'' in caselaw and guidance. These commenters assert that these sources demonstrate that ownership of individual components of energy property, and not of an entire unit of energy property, is sufficient to claim the section 48 credit.

Several commenters pointed to *Cooper* v. *Commissioner,* 88 T.C. 84 (1987), which was decided under prior versions of sections 46 and 48 and the regulations thereunder. In *Cooper,* the taxpayer asserted that owning specific components of solar water heating system was sufficient to claim the section 48 credit for solar energy property. While the Tax Court agreed that the taxpayer did not own the entire working solar water heating system, the Court held that the definition of a solar energy property provided in former section 48(l)(4) was sufficiently broad to provide a credit for component parts of a solar water heating system. *Id.* at 116–117.

The Tax Court subsequently clarified the holding in *Cooper,* explaining that ''the property in *Cooper* consisted of integrated water-heating systems that were ready for installation to discharge their designated function''; they just had not been installed yet. *Olsen,* T.C. Memo 2021–41 at *14. Conversely, in the *Olsen* case, the Tax Court found that ''[p]etitioners' lenses were mere components of a system . . . .'' and not a complete system and therefore unable to be placed in service as a system. *Id.* Stated otherwise, while commenters cite to *Cooper* to support the assertion that the section 48 credit is available for separate components of property within an energy property, the Tax Court clarified in *Olsen* that components that ''operate as part of a complicated . . . system and were incapable of performing any useful function in isolation'' were not placed in service. *Id.* at 13. Additionally, *Cooper* was decided under former section 48(l)(4) and not under the current version of section 48, which is substantially different.

Commenters also cited *Samis* v. *Commissioner,* 76 T.C. 609 (1981), for the proposition that ownership of an entire energy property is not required to claim the section 48 credit. However, *Samis* stands only for the proposition that property connected to a building is a part of the building regardless of ownership. In *Samis,* although the taxpayers owned a ''total energy plant'' that provided hot water and heating/cooling for a residential apartment complex not owned by the taxpayers, the total energy plant was held to be a structural component of the apartment complex and therefore not ''tangible personal property'' or ''other tangible property'' qualifying for the investment credit. The Tax Court explained in a footnote that the ownership of the plant was irrelevant because the total energy plant is not eligible for the section 48 credit. Therefore, in *Samis* it was clear only that the taxpayer could not separate ownership of the heating and cooling system from the apartment complex to sidestep rules that the property must not be part of a building.

Commenters also pointed to Revenue Ruling 78–268, 1978–2 C.B. 10, to support the premise that components of an energy property may be owned by different taxpayers. However, in Revenue Ruling 78–268, the taxpayers did not own just a component of one energy property—they owned a fractional interest in the entire facility. In Revenue Ruling 78–268, four parties, two of which were tax-exempt, owned an electric generating facility through a tenancy in common. Revenue Ruling 78–268 held that the presence of the tax-exempt owners did not disqualify the other owners from claiming a credit because the fractional interests in the tenancy in common were treated as separate assets. The Treasury Department and the IRS disagree with commenters that the holding of Revenue Ruling 78–268 conflicts with the ownership rules in the Proposed Regulations. Instead, Revenue Ruling 78–268 illustrates that a fractional interest in the entire energy property is sufficient for a taxpayer to claim a section 48 credit, which is the very rule in proposed § 1.48–14(e)(2).

Commenters also cited PLR 201536017 (PLR) to support the premise that ownership of an entire energy property is not required to claim the section 48 credit. However, private letter rulings are not precedential and cannot be relied upon by a taxpayer other than the taxpayer addressed in the PLR (see section 6110(k)(3) of the Code). Furthermore, the PLR does not involve the section 48 credit but instead section 25D of the Code. Regardless, similar to Revenue Ruling 78–268, the PLR involves credit eligibility through fractional ownership of an entire energy property, not ownership of just certain components. The PLR addresses a factual scenario in which a taxpayer purchased solar PV panels in an offsite array (that also contains other solar PV panels owned by other individuals) as well as a partial ownership in racking equipment, inverter equipment, and wiring and other equipment and installation services required for the integration of the panels in the array and the interconnection of the array to a local utility's electric distribution system. The PLR concludes that as a result, the taxpayer has made a ''qualified solar electric property expenditure'' under section 25D(d)(2) and the taxpayer is eligible to claim a section 25D credit. To the extent this PLR provides any helpful analysis regarding the section 48 credit, it involves partial ownership *in all* the other equipment necessary to integrate the panels into the array and interconnect the array to a local utility's electric distribution system, and not just certain components.

Finally, commenters pointed to FAQs 34 and 35 of guidance from the Treasury Department regarding payments under section 1603 of the American Recovery and Reinvestment Act of 2009 [1] (Section 1603 Grant Program) to support the premise that ownership of an entire energy property is not required to claim the section 48 credit. FAQ 34 addressed grant eligibility for a factual scenario involving an open-loop biomass facility owned by one taxpayer that uses off-site feedstock conversion equipment owned by another taxpayer. The FAQ provided that the conversion equipment may be considered part of the open-loop

[1] Payments for Specified Energy Property in Lieu of Tax Credits Under the American Recovery and Reinvestment Act of 2009, Frequently Asked Questions and Answers.

biomass facility eligible for the grant if the conversion equipment is integrated into the open-loop biomass facility. Evidence that the conversion facility is integrated into the open-loop biomass facility includes factors such as whether they are placed in service simultaneously, the extent to which the conversion facility's output is dedicated to the facility (for example, under an exclusive long-term supply contract), and the dependence of the open-loop biomass facility on the output of the conversion equipment (at least 75 percent).

Additionally, FAQ 35 addressed the procedural requirements of the 1603 Grant Program as applied to the facts presented in FAQ 34, by providing that the taxpayer that owns the conversion equipment and taxpayer that owns the open-loop biomass facility must each submit an application filed jointly in order to receive Section 1603 grant payments. While the 1603 Grant Program did adopt concepts from sections 45 and 48, the Section 1603 Grant Program is not based on any income tax provisions and thus is not a relevant precedent for purposes of the section 48 credit.

The Proposed Regulations' approach to ownership eligibility is further supported by the IRA's amendments to section 48 and administrability considerations. The IRA amended section 48 to provide for an increased credit amount for energy projects satisfying the PWA requirements (section 48(a)(9) through (11)), a bonus credit amount for energy projects satisfying domestic content requirements (section 48(a)(12)), and an increase in credit rate for energy projects in energy communities (section 48(a)(14)). Additionally, the IRA amended section 48(a)(8) to allow the cost of qualified interconnection property to be included in the basis of certain lower-output energy properties. This statutory framework indicates that special rules enacted by the IRA amendments apply to either an energy property or an energy project, which is further defined as a project consisting of one or more energy properties that are part of a single project. This statutory scheme requires that the section 48 credit is available only if an entire energy property (or energy project) is placed in service. Under the alternative ownership rules requested by commenters, a taxpayer's eligibility for the IRA's bonuses could depend, in many cases, on whether unrelated parties met the requirements for the various bonus credits provided by the IRA. This uncertainty would create severe challenges for tax administration.

While the Treasury Department and the IRS understand the concerns raised by commenters, the statutory language and administrability concerns arising from the overall statutory scheme effected by the IRA's recent amendments both support a requirement that the taxpayer own all or a fraction of an entire energy property or energy project. Therefore, the final regulations do not adopt the changes to the ownership rules requested by the commenters. The rule is adopted as proposed.

2. Application to Qualified Biogas Property

Commenters presented practical reasons for disagreeing with the ownership rules, particularly in the context of the section 48 credit for qualified biogas property placed in service at dairy farms and landfills. Commenters provided reasons that the owner of biogas upgrading equipment cannot be the same owner of the functionally interdependent qualified biogas property, which is described in proposed § 1.48–9(e)(11)(i) as including, but not limited to, a waste feedstock collection system, a landfill gas collection system, mixing or pumping equipment, and an anaerobic digester. Commenters also explained that biogas upgrading equipment is often added to dairy farms and landfills, and those that engage in biogas upgrading are not the same owners of the underlying farms and landfills.

A commenter explained that different types of qualified biogas property located at a site are almost always owned by different taxpayers as a result of regulatory constraints, financial capability, or other business considerations. Another commenter explained that because qualified biogas property is prohibitively expensive, farmers and ranchers often work with cooperatives or other organizations to facilitate shared ownership of such equipment, and the ownership rules, as proposed, would have an exclusionary effect on American agriculture and specifically on farmer-owned cooperatives. Emphasizing these same concerns, another commenter stated that often farmers and ranchers are not interested in an outside entity owning the anaerobic digester that, in addition to biogas, produces nutrients and water used within the farming operation and are therefore crucial for the farmers and ranchers to own and control.

Commenters note that similar issues arise in the context of landfills. For example, a commenter (whose comments were endorsed by many others) explained that landfill owners often use collection equipment for compliance with regulatory requirements and view methane gas capture as a core operation. As a result, landfill gas collection systems are almost always owned and operated by the landfill operator, which may be a municipality, while the biogas upgrading equipment is owned by another taxpayer. This makes common ownership of both the functionally interdependent qualified biogas property as described in the proposed § 1.48–9(e)(11) and the biogas upgrading equipment difficult to achieve.

Moreover, those engaged in biogas upgrading at a landfill may not legally be allowed to own the landfill biogas equipment. For example, a commenter stated that the proposed treatment of a landfill gas collection system property as a functionally interdependent part of the qualified biogas property is problematic because it is very common for RNG production systems to be developed by a taxpayer at a landfill owned by a different taxpayer. In this type of arrangement, it is important for the owner of the landfill to retain ownership and control of the landfill gas collection property to comply with existing regulatory and permitting requirements for operation of the landfill. Additionally, this commenter noted that it is common for such landfill gas collection system property to have already been placed in service before biogas collected from the system is captured and integrated into a new RNG production system.

Another commenter emphasized both timing issues and legal restrictions created by the ownership rules, stating that the ownership rules fail to recognize that most landfills have already installed gas capture and control systems (GCCS System). These systems are generally required under existing regulations, and the landfills typically insist on maintaining total control and ownership of the GCCS System to ensure they remain within regulatory requirements. This commenter explained that RNG developers provide additional equipment to further refine captured landfill gases into beneficial end use products, but that additional equipment may not benefit from section 48 credits under proposed § 1.48–9(e)(11), which requires the split ownership of the GCCS System and gas upgrading equipment.

The final regulations address the commenters' concerns through other revisions to the final regulations. The Treasury Department and the IRS expect that these revisions will alleviate the concerns raised by the biogas industry without requiring changes to the

ownership rules. For discussion of these revisions to the definition of qualified biogas property see part I.B.5. of this Summary of Comments and Explanation of Revisions.

3. Application to GHP Property and Geothermal Energy Property

Commenters also provided feedback on the effect of the ownership rules in the context of GHP property and geothermal energy property. Many commenters asserted that the Proposed Regulations could cause significant potential harm to development of geothermal projects. These commenters stated that it is important that the Treasury Department and the IRS provide a method for split ownership of GHP property and geothermal energy property to qualify for the section 48 credit. In support of these requests, commenters pointed to congressional correspondence urging support for the geothermal industry and requesting guidance to allow for viable third-party ownership business models, including clarifying that GHP property and geothermal energy property are exempt from the ''limited use property'' doctrine.

Commenters also explained that there are dozens of networked geothermal projects currently planned or deployed across the country. Commenters stated that networked GHP property and geothermal energy systems almost always involve multiple owners by design, and that GHP property networks can serve a diverse array of customer buildings while those customers own and maintain their own GHP property. Commenters stated that the ground loop and the heating and cooling units are functionally interdependent yet distinct components of the GHP property that are often owned by utilities. The commenters also noted that in many instances, utilities are prohibited by regulators from owning their customers' heating and cooling equipment. These commenters suggest that the delineation between outdoor and indoor equipment is sufficient to allow for clear allocation of the credit between taxpayers.

Several other commenters made similar points about GHP property and the ownership rules. Some commenters emphasized the need for an exception for geothermal property and others focused on the reasoning for separate ownership. For example, a commenter highlighted the commonality of separate ownership arrangements because utilities are often prohibited from owning a customer's heating and cooling equipment. Another commenter provided a detailed discussion on separate ownership of geothermal property and highlighted the business necessity for this structure. This commenter explained that the barrier to geothermal energy use is the high cost and expertise required for the overall underground system. This commenter said it makes perfect sense for the underground system to be owned by a specialized company with both the technical skills and a long-range investment strategy. This commenter explained that in other cases, it will be independent companies that contract to supply geothermal energy to the edge of a facility. The commenter noted that in both cases, the facility or building owner would then connect to the system to make use of the geothermal energy, and that the energy user is required neither to make the investment in the geothermal system, nor to have expertise in developing the system.

This same commenter also explained that the Proposed Regulations ignore historical precedent that virtually all geothermal energy development was split ownership. This commenter asserted that since the 1980s and into the future, split ownership remains an important model for geothermal energy development and use. The commenter gave several examples illustrating the split ownership model across the United States.

Commenters generally recommended that split ownership be allowed for geothermal property, including GHP property. One commenter (whose comments were endorsed by many others) suggested drawing the line at indoor/outdoor ownership. Another commenter asserted that property within a home or building should be considered an entire unit of energy property while another taxpayer owns the equipment underground as a separate unit of energy property. This commenter noted that the final regulations should define the scope of energy property to allow the taxpayer a section 48 credit based on the taxpayer's basis in energy property it owns.

Commenters also noted the use of ''equipment'' in section 48(a)(3)(A)(iii) and (vii) (for example) to refer to geothermal energy property is different from the use of ''system'' used in other places to refer to energy property (for example, section 48(c)(1)(C), which defines a fuel cell power plant). These commenters noted that if the equipment is viewed individually as is suggested by the differing definitions in section 48, then individual owners should be allowed to qualify in contravention of the coils/heat pump example included in the proposed rules. Commenters also made this point regarding use of the term ''equipment'' with reference to solar energy property.

The statutory language does not support providing a special ownership rule for GHP property (or geothermal energy property) as requested by the commenters. In the case of GHP property, both the coils in the ground and the heat pump equipment are necessary for GHP property to satisfy the definition in section 48(a)(3)(A)(vii). Because both the coils and heat pump are necessary to perform the function of the GHP property, ownership of only the coils or only the heat pump is not ownership of the entire unit of energy property and therefore, is not ownership of GHP property, as statutorily defined.

This analysis is consistent with the definition of ''geothermal energy property'' under section 48(a)(3)(A)(iii), which includes as energy property equipment used to produce, distribute, or use energy derived from a geothermal deposit (within the meaning of section 613(e)(2)), but only, in the case of electricity generated by geothermal power, up to (but not including) the electrical transmission stage. That is, this definition encompasses production and disposition or use up to but not including electrical transmission. Because both the equipment that produces electricity from a geothermal deposit and equipment needed to either distribute *or* use such energy are necessary to perform the energy function of the geothermal energy property, ownership of only components of that equipment is not ownership of the entire unit of energy property and therefore, is not ownership of geothermal energy property, as statutorily defined.

In response to these comments, the Treasury Department and the IRS have provided an example of GHP property in the final regulations to clarify that ownership of every heat pump that is connected to coils in the ground owned by the same taxpayer is not required to qualify, but that ownership of both coils and at least one heat pump is required. Additionally, other taxpayers may purchase heat pumps that attach to existing coil systems. While ownership of those heat pumps alone will not satisfy section 48, it is possible that the taxpayer may be eligible for a credit under section 25D.

Commenters also requested an exemption for GHP property from the ''limited use property'' doctrine. Property that is not commercially usable by anyone other than the lessee at the end of the lease term is considered ''limited use.'' Section 5.02 of Revenue Procedure 2001–28, 2001–1 C.B. 1156, provides an example of a leased

smokestack attached to a warehouse owned by the lessee and concludes that the smokestack is limited-use property because it would not be commercially feasible to disassemble the smokestack at the end of the lease term and reconstruct it at a new location. Commenters expressed concern because, in one typical third-party ownership arrangement, a third-party owned ground loop is installed for the benefit of a building and leased to the building owner, with the building owner owning the heat pump.

Under a longstanding body of case law and IRS guidance, if property is leased for substantially its entire useful life, then the transaction is treated more properly as a sale of the property for Federal income tax purposes than a lease, because the party designated as the lessee obtains the benefits and burdens of ownership of the property under the purported lease agreement. *Grodt & McKay Realty, Inc.* v. *Commissioner,* 77 T.C. 1221 (1981) (listing factors for determining whether the benefits and burdens of ownership of property have passed and a sale occurred); Rev. Rul. 55–541, 1955–2 C.B. 19 (property determined to be leased for substantially its entire useful life and therefore results in a transfer of equitable ownership). A purported lease of limited-use property, therefore, may be treated as a sale for Federal income tax purposes because the lessee is considered to have acquired the benefits and burdens of ownership of the property for substantially its entire useful life. *See Estate of Starr* v. *Commissioner,* 274 F.2d 294 (9th Cir. 1959) (purported lease of a fire sprinkler system); *Mt. Mansfield Television* v. *United States,* 239 F.Supp. 539 (D. Vermont 1964) aff'd 342 F.2d 994 (2d Cir. 1965) (purported lease of microwave equipment installed in a television station).

Under this analysis, a third-party ownership arrangement involving a lease of a ground loop that cannot be removed at the end of the lease and used somewhere else may be characterized more properly for Federal income tax purposes as a sale (rather than a lease) of the ground loop to the building owner at the inception of the lease because the lessor must re-lease or sell the property to the lessee at the end of the lease term.

To claim the section 48 credit, the taxpayer must own the energy property when it is placed in service. Consequently, the lessor of the ground loop in the lease financing transaction above may not be eligible for the section 48 credit for the cost of the ground loop insofar as it is treated as having transferred ownership of the ground loop to the purported lessee for Federal income tax purposes at the inception of the lease. This would be the case even if the proposed regulations were modified to permit separate ownership of components of an energy property, or in the absence of such a modification, even if the nominal owner of the ground loop owned a fractional ownership interest in the other components of the GHP property, which taken together constitutes an energy property. Because of the ''limited use property'' doctrine, the lessor of the ground loop may not be regarded as the tax owner of the ground loop when it is placed in service and, therefore, would not be eligible for the section 48 credit for its basis in the ground loop.

Commenters presume that it is within the Treasury Department and the IRS's regulatory authority to revise the ''limited use property'' doctrine provided in Revenue Procedure 2001–28, 2002–1 C.B. 1156, to provide an exception for GHP property. However, Revenue Procedure 2001–28 (and its predecessors, which date back to Revenue Procedure 75–21, 1975–1 C.B. 715) merely provides guidelines for advance rulings on leveraged lease transactions, and notes that these guidelines ''do not define, as a matter of law, whether a transaction is or is not a lease for [F]ederal income tax purposes and are not intended to be used for audit purposes.'' Rather, the ''limited use property'' doctrine reflects the broader Federal income tax principle that the characterization of a leasing transaction for Federal income tax purposes is determined by its substance and not its form. *Helvering* v. *F. & R. Lazarus & Co.,* 308 U.S. 252 (1939); *Frank Lyon Co.* v. *United States,* 435 U.S. 561 (1978). Consequently, explicit statutory authorization would be needed to exempt leases of GHP property from the ''limited use property'' doctrine. The final regulations, therefore, do not exempt GHP property from the ''limited use property'' doctrine.

4. Application to Solar Energy Property and Offshore Wind Facilities

Commenters also provided feedback on the effect of the ownership rules in the context of solar energy properties and offshore wind facilities. A commenter asserted that requiring a taxpayer to own a direct interest in each component of a unit of solar energy property is unreasonable. This commenter provided an example of a taxpayer that constructs and places in service a solar facility that has 1,000 components and qualifies for the section 48 credit. If the taxpayer owns 999 components of the solar facility and another taxpayer owns the remaining one component, then the same solar facility that qualified for the section 48 credit because the taxpayer owned all components will no longer be energy property under the Proposed Regulations. This commenter said there does not seem to be any justification for this rule. This commenter highlighted that the facility is serving the same purpose and would be eligible for the same amount of section 48 credit. The commenter also asserted that introducing and defining the term ''unit of energy property'' in a way that does not allow its components to be owned by more than a single taxpayer leads to an unreasonable result.

This commenter requested that the Treasury Department and the IRS issue a rule enabling taxpayers to claim the section 48 credit for separate components of energy property. Alternatively, the commenter requested that the Treasury Department and the IRS issue a rule to limit the definition of unit of energy property with respect to a particular taxpayer to those components owned by that taxpayer. As has been discussed previously in part III.D.1 of this Summary of Comments and Explanation of Revisions, the statute requires the taxpayer to own an interest in an energy property to claim a section 48 credit.

Some commenters were particularly concerned about the rule in the Proposed Regulations that a taxpayer is eligible to claim the credit for integral property only if that same taxpayer owns the unit of energy property. These commenters were specifically concerned about the ability of owners of power conditioning and transfer equipment to claim the section 48 in both the solar and offshore wind context. In general, the commenters disagreed that an integral property that would otherwise qualify if owned by the same taxpayer that owns the unit of energy property would not qualify if owned by another taxpayer. For example, a commenter asserted in the case of a single energy property in which energy property and integral parts are constructed together but owned by separate taxpayers, both taxpayers should be able to claim separate credits on the bases of their respectively owned portions. Similarly, the commenter noted that if a unit of energy property is constructed and placed in service by a taxpayer, and later another taxpayer constructs and places in service integral property, both taxpayers should be able to claim credits.

A commenter made a similar point specifically about offshore wind facilities. This commenter noted that if the power conditioning equipment is owned by a taxpayer that has no ownership in the offshore wind facility, the power conditioning equipment would not qualify for the section 48 credit without changing its operation, character, or function but would have qualified had that taxpayer had an ownership interest in the offshore wind facility. The commenter stated that the power conditioning equipment continues to serve the same purpose, is used directly in the intended function of the offshore wind facility and is essential to the completeness of its intended function. This commenter pointed out that offshore wind facilities (such as those along the Atlantic coast) will involve multiple States, and it is unlikely that the same entity will own both the offshore wind facility and the integral supporting infrastructure, but both should be eligible for the credit.

Another commenter made a similar point stating that power conditioning and transfer equipment has been established by the Proposed Regulations as an integral part of the production of electricity from an offshore wind facility, and that in accordance with precedent, the Treasury Department and the IRS should establish in the final regulations that the separate owner of this integral equipment may qualify for the section 48 credit. This commenter stated that this is essential to enabling the necessary flexibility for offshore wind developers to structure financially viable projects, and ultimately achieve the Administration's goal of deploying 30 gigawatts (GW) of offshore wind capacity by 2030. Another commenter noted that the distinction in the Proposed Regulations between functionally interdependent property (needed for generation of electricity) and other ''integral'' property for purposes of section 48 is arbitrary, illogical, and unnecessary for offshore wind properties involving multiple owners and there is no need for an owner of an offshore wind delivery system to have an artificial requirement to own some portion of the turbines. This commenter noted that permitting multiple owners to share the section 48 credit would not lead to overuse or ''double counting'' of the section 48 credit.

Other commenters noted that allowing third party ownership of power conditioning and transfer equipment would significantly decrease the financial burden on developers and ratepayers, as well as diversify investment in the industry. Commenters also stressed the benefits of separate ownership as a more cost effective model of ownership, including efficiencies that provide lower overall costs to consumers; reduced environmental impacts (for example, fewer cables traversing sensitive marine ecosystems); efficient use of constrained cable corridors; fewer disruptions to communities than if each offshore wind facility develops its own offshore wind power conditioning and transfer equipment; and incentivizing competitive solicitation of such equipment.

Generally, these commenters requested that integral property, specifically power conditioning equipment, be treated as a separate unit of energy property that may claim the section 48 credit. However, section 48 provides a credit only for property that satisfies the definitions of ''energy property'' provided at section 48(a)(3) and (c), and owners of only integral property do not own ''energy property'' as defined in section 48(a)(3) or (c). For example, power conditioning and transfer equipment does not alone generate electricity or satisfy an intended function provided by the statute. As a result, costs associated with integral property owned by a taxpayer that owns the related energy property may be included in basis of the energy property owned by the same taxpayer as provided in these final regulations because integral property is necessary for the intended use for an energy property, but integral property alone cannot qualify for the section 48 credit.

E. Calculation of Basis

Proposed § 1.48–14(e)(1) would provide that for purposes of the section 48 credit, a taxpayer that owns an energy property is eligible for the credit only to the extent of the taxpayer's basis in the energy property. In the case of multiple taxpayers holding direct ownership in an energy property, each taxpayer determines its basis based on its fractional ownership interest in the energy property. A commenter supported the fractional ownership rule for determining a taxpayer's basis and requested the extension of those rules to the credits under sections 30C and 45W of the Code.

Other commenters, while opposing the ownership rules, also requested clarification of how to determine basis if the fractional ownership rule is retained. A commenter requested examples of the application of these ownership rules in the context of an animal waste-to-RNG qualified biogas property in which the property comprising the qualified biogas property is owned by multiple taxpayers.

Another commenter requested clarification regarding the allocation of a section 48 credit if taxpayers own different fractional ownership interests in the unit of energy property and related integral property. A commenter requested that the final regulations apply similar allocation rules provided in proposed § 1.48–9(f)(3)(i) and (ii) to shared integral property in the context of a qualified investment credit facility under section 48(a)(5).

Other commenters, while opposed to the ownership rules, suggested alternative ways to determine basis if there are multiple owners. Two commenters suggested that energy property that is integral to multiple energy projects (for example, as part of a ''shared collector system'' configuration) should be eligible for the section 48 credit based on the energy property's capacity allocable to each taxpayer's energy project. Another commenter supported the creation of a rule that can be used to determine if the primary use of a transmission line is for renewable energy generation and, if so, to allow it to qualify as a split ownership component of the qualifying renewable energy development (whether wind, solar, or geothermal). This commenter pointed to the use of the Open Access Transmission Tariff as a model for such test. This commenter also noted that the initial dedicated renewable connection capacity is likely to be oversized and so the IRS should be able to develop partial section 48 credit qualification over time if deemed necessary.

Proposed § 1.48–14(e)(1) would provide that a taxpayer determines its basis based on the taxpayer's fractional ownership in the energy property. Proposed § 1.48–14(e)(4)(iii), Example 3, would provide an example in which integral property has two owners that each own one-half of the integral property with each owner including one-half of the basis of that property to determine their basis for section 48 credit purposes. The example does not look to whether the use of the integral property for qualifying uses corresponded to the one-half split in ownership.

Proposed § 1.48–9(f)(3) would provide that multiple energy properties (whether owned by one or more taxpayers) may include shared property that may be considered an integral part of each energy property so long as the cost basis for the shared property is properly allocated to each energy property. In that scenario, the total cost basis of such shared property divided among the

energy properties may not exceed 100 percent of the cost of such shared property, but there is no requirement that the proportion of a taxpayer's ownership of the integral property must correspond with the proportion of the taxpayer's fractional ownership of the energy property.

Because the fractional ownership rules applicable to multiple owners of integral property must comport with the general ownership rules, the Treasury Department and the IRS decline to adopt commenters' alternative suggestions on calculating the credit for integral property. Section 48 requires that the taxpayer own property that satisfies the statutory definition of an energy property, and therefore the determination cannot be tied to an alternative measure such as capacity. In response to the comment on transmission lines, proposed § 1.48–9(f)(3)(ii), which is adopted in these final regulations, makes clear that energy property does not include any electrical transmission equipment, such as transmission lines and towers, or any equipment beyond the electrical transmission stage. Finally, in response to comments requesting clarifications with respect to the application of section 30C or 45W, such clarifications are more appropriately addressed in guidance under those provisions.

Commenters also submitted questions concerning the specific costs that are capitalized and included in basis (for example, consultant labor and expenses associated with project/construction management, planning, design, engineering, and environmental services, contractor costs, legal services and permitting services). Issues concerning what costs may be capitalized and included in the basis of an energy property are similarly beyond the scope of these final regulations.

F. Election To Treat Qualified Facilities as Energy Property

Section 48(a)(5) generally provides an election to treat a ''qualified investment credit facility'' as energy property for purposes of the section 48 credit. Section 48(a)(5)(B) provides that no section 45 credit is allowed for any taxable year with respect to any qualified investment credit facility. Section 48(a)(5)(C) provides, in part, that the term ''qualified investment credit facility'' means any qualified facility (within the meaning of section 45(d)(1) through (4), (6), (7), (9), or (11)) with respect to which no section 45 credit has been allowed and for which the taxpayer makes an irrevocable election under section 48(a)(5). Accordingly, proposed § 1.48–9(d) would exclude from energy property any property that is part of a qualified facility with respect to which a section 45 credit is allowed for any taxable year, including any prior taxable year.

Proposed § 1.48–14(f) would provide rules applicable to the election under section 48(a)(5)(C) to treat certain facilities as energy property eligible for a section 48 credit in lieu of a renewable electricity production credit under section 45. Proposed § 1.48–14(f)(1) would provide that if a taxpayer makes an election under section 48(a)(5)(C) to treat qualified property that is part of a qualified investment credit facility as energy property with respect to which a section 48 credit may be determined, such property will be treated as energy property for purposes of section 48. Proposed § 1.48–14(f)(1) would also provide that no section 45 credit may be determined with respect to any such qualified investment credit facility and that the requirements of section 45 are not imposed on a qualified investment credit facility. Additionally, proposed § 1.48–14(f)(1) would provide that no credit under section 45Q or 45V may be determined with respect to either any carbon capture equipment included in a qualified investment credit facility or any specified clean hydrogen production facility.

Proposed § 1.48–14(f)(2) would define the term ''qualified property'' for purposes of proposed § 1.48–14(f). Proposed § 1.48–14(f)(3) would provide definitions related to requirements for qualified property. Proposed § 1.48–14(f)(4) would define the term ''qualified investment credit facility.'' Proposed § 1.48–14(f)(5) would provide that intangible property is excluded from the definition of qualified property for purposes of the election under section 48(a)(5).

Several commenters asked whether a taxpayer may claim a section 48 credit for energy storage technology co-located with a qualified facility for which a taxpayer claims the section 45 credit if the energy storage technology is an integral part of the qualified facility. As described in the preamble to the Proposed Regulations, the Treasury Department and the IRS understand that energy storage technologies eligible for the section 48 credit are often co-located with qualified facilities eligible for the section 45 credit and may share power conditioning and transfer equipment.

In consideration of this practice, proposed § 1.48–9(f)(3)(ii) would provide that power conditioning and transfer equipment that is shared by a qualified facility (as defined in section 45(d)) and an energy property may be treated as an integral part of the section 48 energy property. Proposed § 1.48–9(d) would also clarify that such shared property is not considered part of a qualified facility and, therefore, the sharing of such property will not impact the ability of a taxpayer to claim the section 48 credit for an energy property or the section 45 credit for a qualified facility.

In the preamble to the Proposed Regulations, the Treasury Department and the IRS requested comments regarding whether additional guidance is needed on this issue. After considering the comments received, the Treasury Department and the IRS confirm that even though shared power conditioning and transfer equipment is integral to a qualified facility for which the section 45 credit is claimed, co-located energy storage technology remains a separate energy property under section 48. Therefore, a section 48 credit may be claimed for energy storage technology that is co-located with a qualified facility and shares power conditioning and transfer equipment with the qualified facility for which a section 45 credit is claimed.

In the context of the section 48(a)(5) election, commenters requested that the final regulations confirm that components of property within a qualified hydropower facility (for which a section 48(a)(5) election is made) are eligible for the section 48 credit. A commenter asked that regulations provide guidance regarding the scope of a ''qualified investment credit facility'' and ''qualified property,'' including examples specific to a qualified hydropower facility.

Another commenter requested that the final regulations confirm that the section 48 credit for energy storage technology is available regardless of whether the energy storage technology is part of a qualified hydropower facility for which a section 45 credit is allowed. This commenter requested that final regulations confirm that any new investment in property with respect to pumped storage hydropower qualifies for the section 48 credit (as an energy storage technology) regardless of whether the property is shared with a qualified hydropower facility that claims or has claimed the section 45 credit. A section 48 credit may be claimed for energy storage technology that is co-located with a qualified facility and shares power conditioning and transfer equipment with the qualified facility for which a section 45 credit is claimed. These final regulations provide rules of general applicability that taxpayers can use to determine whether they are eligible for a section 48 credit. The Treasury

Department and the IRS are not in a position to determine credit eligibility in specific fact scenarios in this final regulation. Thus, the final regulations do not provide the requested clarifications.

Commenters also requested clarification concerning property that is included in offshore wind facilities. A commenter requested clarification that qualified property in a marshaling or operation and maintenance port that is an integral part of offshore wind energy facility should qualify as energy property for the purposes of the section 48 credit. The Proposed Regulations would provide a rule for location of energy property that addresses this comment. Under proposed § 1.48–9(f)(4), any property that meets the requirements of proposed § 1.48–9(f)(2) (unit of energy property rules) and proposed § 1.48–9(f)(3) (integral part rules) is a part of an energy property regardless of where such property is located. The final regulations adopt this rule as proposed. However, these final regulations have revised proposed § 1.48–14(f) to address only the election to treat qualified facilities as energy property, and several of the provisions in § 1.48–14(f) have been rearranged under that subsection in the final regulations. Additionally, the coordination rule for the sections 42 and 48 credits has been moved from proposed § 1.48–14(f)(5) to § 1.48–14(g) in the final regulations.

Additionally, the final regulations remove the references to ''software'' from proposed § 1.48–14(f)(3)(iii)(B) because section 48(a)(5) limits ''qualified property'' to tangible property. Software generally is not tangible property.

G. Lower-Output Energy Properties and Qualified Interconnection Costs

1. Qualified Interconnection Property

Section 48(a)(8)(A) provides generally that for purposes of determining the credit under section 48(a), energy property includes amounts paid or incurred by the taxpayer for qualified interconnection property in connection with the installation of energy property that has a maximum net output of not greater than five MW (as measured in alternating current), to provide for the transmission or distribution of the electricity produced or stored by such property, and that are properly chargeable to the capital account of the taxpayer (qualified interconnection costs).

Section 48(a)(8)(B) provides that the term ''qualified interconnection property'' means, with respect to an energy project that is not a microgrid controller, any tangible property (1) 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 energy project interconnects to such transmission or distribution system in order to accommodate such interconnection, (2) that is either (i) constructed, reconstructed, or erected by the taxpayer, or (ii) for which the cost with respect to the construction, reconstruction, or erection of such property is paid or incurred by such taxpayer, and (3) the original use of which, pursuant to an interconnection agreement, commences with a utility.

Section 48(a)(8)(C) and (D) provide additional definitions for purpose of this rule. Section 48(a)(8)(C) provides that the term ''interconnection agreement'' means an agreement with a utility for the purposes of interconnecting the energy property owned by such taxpayer to the transmission or distribution system of such utility. Section 48(a)(8)(D) provides that for purposes of section 48(a)(8), the term ''utility'' means the owner or operator of an electrical transmission or distribution system that is subject to the regulatory authority of a State or political subdivision thereof, any agency or instrumentality of the United States, a public service or public utility commission or other similar body of any State or political subdivision thereof, or the governing or ratemaking body of an electric cooperative. Section 48(a)(8)(E) provides that in the case of costs paid or incurred for interconnection property, amounts otherwise chargeable to capital account with respect to such costs must be reduced under rules similar to the rules of section 50(c).

Proposed § 1.48–14(g)(1) would generally provide that for purposes of determining the section 48 credit, energy property includes amounts paid or incurred by the taxpayer for qualified interconnection property, in connection with the installation of energy property that has a maximum net output of not greater than five MW (as measured in alternating current). The qualified interconnection property must provide for the transmission or distribution of the electricity produced or stored by such energy property and must be properly chargeable to the capital account of the taxpayer as reduced by § 1.48–14(g)(6).

Proposed § 1.48–14(g)(2) would define the term ''qualified interconnection property'' to mean, with respect to an energy project that is not a microgrid controller, 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 energy project interconnects to such transmission or distribution system in order to accommodate such interconnection; is either constructed, reconstructed, or erected by the taxpayer, or for which the cost with respect to the construction, reconstruction, or erection of such property is paid or incurred by such taxpayer; and the original use of which, pursuant to an interconnection agreement, commences with a utility.

Proposed § 1.48–14(g)(2) also would provide that qualified interconnection property is not part of an energy property and that as a result, qualified interconnection property is not taken into account in determining whether an energy property satisfies the requirements for the domestic content bonus credit amount referenced in section 48(a)(12) and the increase in credit rate for energy communities provided in section 48(a)(14).

Some commenters requested that the final regulations confirm that equipment required to modify and upgrade transmission or distribution systems beyond the point of interconnection would be considered qualified interconnection property and eligible for inclusion in basis. As already noted, proposed § 1.48–14(g)(2) would define the term ''qualified interconnection property'' to mean, with respect to an energy project that is not a microgrid controller, 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 energy project interconnects to such transmission or distribution system in order to accommodate such interconnection. These final regulations adopt this definition in renumbered § 1.48–14(h)(2). Therefore, the Treasury Department and the IRS confirm that tangible property required to modify and upgrade transmission or distribution systems beyond the point of interconnection would (provided the property satisfies the other requirements of section 48(a)(8)(B)) be considered qualified interconnection property and eligible for inclusion in basis for purposes of the section 48 credit.

Some commenters requested that certain components or technologies be specifically listed as qualified interconnection property. For example, a commenter asked for clarification that existing technologies that can be used to upgrade grid infrastructure to allow for interconnection of energy projects

would be considered qualified interconnection property. Two commenters recommended including equipment between ''a customer's distribution system and the utility's distribution point of common coupling (POC).'' These commenters listed relays, switchgears (including low-voltage assemblies, medium-voltage assemblies, and circuit breakers), transformers, and voltage regulators.

The Proposed Regulations would adopt the statutory requirements for qualified interconnection property provided in section 48(a)(8)(B). The final regulations adopt these rules as proposed. Because a definitive response to comments requesting greater specificity regarding equipment that is considered qualified interconnection property would require the Treasury Department and the IRS to conduct a complete factual analysis of the property in question, the requested clarifications are not addressed in these final regulations.

One commenter requested that the final regulations include a detailed definition of ''point of interconnection'' to distinguish between energy property and qualified interconnection property for purposes of calculating the basis of the energy property eligible for a section 48 credit. After consultation with the DOE, the Treasury Department and the IRS understand that the ''point of interconnection'' is a term of art well understood by the industry and taxpayers seeking an interconnection agreement. At the transmission level, interconnection procedures are, in most of the United States, governed by the Federal Energy Regulatory Commission (FERC). Providing a further definition of ''point of interconnection'' outside of the FERC context risks creating confusion for generators and taxpayers. Therefore, no additional clarifications to define the ''point of interconnection'' are included in the final regulations.

a. Interaction With PWA Requirements

Section 48(a)(9)(A)(i) (general rules for the increased credit amount for energy projects) provides that in the case of any energy project that satisfies the requirements of section 48(a)(9)(B), the amount of the credit determined under section 48(a) (determined after the application of section 48(a)(1) through (8) and (15), and without regard to this clause) is equal to such amount multiplied by 5.

The Proposed Regulations did not address the interaction between the rules for qualified interconnection costs and the PWA requirements. A commenter requested that the final regulations confirm that the PWA requirements do not apply to the construction, alteration, or repair of interconnection property.

Section 48(a)(9) provides that the increased credit amount (for satisfying the PWA requirements) is determined after the application of section 48(a)(8) (rules for interconnection property) and therefore, amounts paid or incurred by the taxpayer for qualified interconnection property in connection with the installation of energy property are eligible for the increased credit amount. However, the PWA requirements apply only to ''energy projects,'' which is defined in a way that excludes interconnection property. See section 48(a)(9)(A)(ii) (defining ''energy project'' as ''a project consisting of one or more energy properties that are part of a single project''); section 48(a)(8)(B)(i) (defining ''interconnection property'' as required ''at or beyond the point at which the energy project interconnects to'' a transmission or distribution system, implying that interconnection property is distinct from the energy project). Thus, interconnection property is not subject to the PWA requirements.

In addition to not being part of an energy project, interconnection property generally is not within the control of the taxpayer that owns the energy project because it need not be owned by the same taxpayer. Instead, qualified interconnection property may be owned by a utility and 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 energy project interconnects to such transmission or distribution system. It would be difficult or impossible in such a case for the taxpayer to control or monitor whether the construction of the interconnection property complies with PWA requirements. This may explain why the statute permits the increased credit amount for amounts paid or incurred for qualified interconnection property, without subjecting the construction of such property to the PWA requirements.

2. Interaction With Other Bonus Credit Amounts

Section 48(a)(12)(A) provides generally that in the case of any energy project that satisfies the domestic content requirements, for purposes of computing the section 48 credit with respect to such property, the energy percentage is to be increased by the applicable credit rate increase, which is 2 percentage points in the case of an energy project that does not satisfy the requirements of section 48(a)(9)(B), and 10 percentage points in the case of any energy project that satisfies those requirements.

Section 48(a)(14)(A) provides that in the case of any energy project that is placed in service within an energy community (as defined in section 45(b)(11)(B), as applied by substituting ''energy project'' for ''qualified facility'' each place it appears), for purposes of computing the section 48 credit with respect to energy property that is part of such project, the energy percentage is to be increased by the applicable credit rate increase that is 2 percentage points in the case of any energy project that does not satisfy the requirements of section 48(a)(9)(B), and 10 percentage points in the case of any energy project that satisfies those requirements.

A commenter requested clarification regarding the interaction between the rules for qualified interconnection costs and the computation of the domestic content bonus credit amount and the increased credit amount for energy projects located in an energy community. This commenter stated that if a community solar project seeks interconnection to the distribution grid, usually there will be upgrades or other investments necessary to support the connection to the distribution system. The commenter explained that the generator generally has little control or ability to determine the components or design of a distribution utility's interconnection requirements, and as a result, it is entirely appropriate to exclude these investments for the eligibility determination for the domestic content bonus credit amount and the increased credit amount for energy projects located in an energy community. According to the commenter, however, because these qualified interconnection costs are paid by the developer, they would still be part of the basis not only for the section 48 credit, but also for the domestic content bonus credit amount and the increased credit amount for energy projects located in an energy community. This commenter requested that the Treasury Department and the IRS confirm that this is the correct interpretation of the rule.

As highlighted by commenter and as provided in proposed § 1.48–14(g)(2), qualified interconnection property is not part of an energy property and as a result, qualified interconnection property is not taken into account in determining whether an energy property satisfies the requirements for the domestic content bonus credit amount and the increased credit amount for energy projects located in an energy community. However, the commenter requested clarification regarding

whether qualified interconnection costs are eligible for these provisions.

Section 48(a)(8)(A) provides that for purposes of determining the credit under section 48(a), energy property includes amounts paid or incurred by the taxpayer for qualified interconnection property in connection with the installation of certain energy property (subject to certain additional requirements). Because the credit under section 48(a) is calculated by multiplying the energy percentage—which includes any domestic content bonus credit amount and any increased credit amount for energy projects located in an energy community—by the basis of the energy project—which includes amounts paid or incurred by the taxpayer for qualified interconnection property, qualified interconnection costs are taken into account in calculating the domestic content bonus credit amount and the increased credit amount for energy projects located in an energy community to the extent included in the basis of the energy property.

3. Basis Reduction

Section 48(a)(8)(E) provides that in the case of costs paid or incurred for interconnection property, amounts otherwise chargeable to capital account with respect to such costs are to be reduced under rules similar to the rules of section 50(c). Similarly, proposed § 1.48–14(g)(6) would provide that in the case of costs paid or incurred for qualified interconnection property as defined in proposed § 1.48–14(g)(2), amounts otherwise chargeable to capital account with respect to such costs must be reduced under rules similar to the rules of section 50(c). Neither the statute nor the proposed regulations specify whether the provisions of section 50(c)(1) or (3) apply. Section 48(a)(8)(A) provides that energy property includes amounts paid or incurred by the taxpayer for qualified interconnection property in connection with the installation of energy property. Therefore, the special rule in section 50(c)(3)(A), which provides for a basis reduction of 50 percent in the case of any energy credit, applies to qualified interconnection property the costs of which are included for purposes of the section 48 credit.

Proposed § 1.48–14(g)(6) would also provide that the taxpayer must pay or incur qualified interconnection property costs; therefore, any reimbursement, including by a utility, must be accounted for by reducing taxpayers' expenditure to determine eligible costs. As acknowledged in the preamble to the Proposed Regulations, and as raised by some commenters, uncertainty exists regarding the inclusion of qualified interconnection costs in situations in which the taxpayer that owns the energy property does not fully bear the qualified interconnection costs (for example, cases in which the taxpayer is reimbursed). In the preamble to the Proposed Regulations, the Treasury Department and the IRS requested comments on whether a payment, credit, or service received by the owner of the energy property (first taxpayer), as the result of subsequent payments made to a utility by other parties, should be treated as a reimbursement to the first taxpayer and impact the amount of the qualified interconnection costs that the first taxpayer may include in its basis for purposes of the section 48 credit.

The Treasury Department and the IRS also requested comments on whether the costs paid by a second taxpayer should be treated as amounts paid or incurred for qualified interconnection property in connection with the installation of the second taxpayer's energy property. Further, the Treasury Department and the IRS requested comments on industry practices relevant to the determination of costs paid or incurred for qualified interconnection property, including the accounting treatment of costs paid or incurred for qualified interconnection property. Lastly, the Treasury Department and the IRS requested comments on whether any clarifications are needed regarding the tax treatment of amounts paid or incurred for qualified interconnection property, including reimbursement of costs paid or incurred by a taxpayer for qualified interconnection property.

In response to these requests, commenters confirmed that future unforeseeable reimbursements of qualified interconnection costs may occur. Commenters also requested further guidance on these issues and provided recommendations for addressing these situations.

A commenter recommended that the section 48 credit avoid accounting for any reimbursements paid to the taxpayer for qualified interconnection costs in a later taxable year. This commenter also suggested that the Treasury Department and the IRS incorporate a mechanism, similar to a recapture mechanism, in the final regulations to avoid a taxpayer receiving a greater amount in reimbursements than it paid for the qualified interconnection costs net of the section 48 credit. This commenter raised concerns with situations in which the owner of an energy property receives reimbursement or revenue for qualified interconnection property, despite the energy project being situated in a region of the country with a ''participant funding'' mechanism (for example, generators must fully fund network upgrades without reimbursement). Additionally, this commenter cited the possibility that a utility may reimburse the taxpayer for all or a portion of the qualified interconnection costs, usually over a 20-year period. Additionally, this commenter noted that there are circumstances in which a future interconnection customer pays for the use of interconnection property by reimbursing the taxpayer, who is the initial interconnecting customer. This commenter noted that the first taxpayer would have no ability to foresee future payments from the second taxpayer at the time the first taxpayer interconnects to the utility's transmission system.

Another commenter recommended that the final regulations disregard utility reimbursements, to the extent includible in taxpayers' gross income, to determine taxpayers' eligible qualified interconnection costs. This commenter also stated that the final regulations should clarify that unforeseeable payments for the use of interconnection property that a taxpayer has funded with no expectation of future compensation should not be treated as a reimbursement or as amounts paid toward qualified interconnection costs but should instead be treated as revenue.

The Treasury Department and the IRS recognize that situations may arise in which the cost of qualified interconnection property is reduced after the taxable year in which the taxpayer claims the section 48 credit. The Treasury Department and the IRS also recognize that other complicated situations may arise in determining whether a taxpayer has paid or incurred qualified interconnection costs. The comments received confirmed that these questions are not unique to the reimbursement of qualified interconnection costs and may also arise in the context of other tax credits. Therefore, the determination of whether qualified interconnection costs have been paid or incurred by the taxpayer and whether cost is reduced by virtue of transactions with the utility or with a third party should be based on generally applicable Federal tax principles.

In consideration of the comments, the final regulations revise the rule regarding reduction to amounts chargeable to capital account to reflect the application of Federal tax principles to such transactions in determining the amount a taxpayer paid or incurred for qualified interconnection costs. The

final regulations, which are now at § 1.48–14(h)(1) (previously proposed § 1.48–14(g)(6)), 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 a section 48 credit. The final regulations also include two examples.

4. Leases

A commenter requested clarification regarding the treatment of qualified interconnection costs if an energy property is subject to a lease. This commenter questioned the availability of the section 48 credit for qualified interconnection costs incurred by small projects in a sale-leaseback or any transaction in which the taxpayer that initially incurred the qualified interconnection costs is different than the taxpayer that claims the section 48 credit. The commenter noted that the Proposed Regulations do not address this question and made the issue worse in cases in which the ''three-month sale-leaseback'' rule or the ''lease pass-through'' rule is combined with the section 48 credit rules regarding qualified interconnection costs.

The commenter also requested that the final regulations address how the rule that the ''energy property shall include amounts paid or incurred by the taxpayer for qualified interconnection property'' operates if one taxpayer pays the interconnection costs, then sells the project to another taxpayer, and the second taxpayer claims the section 48 credit. The commenter stated that the language in the Proposed Regulations seems to effectively deny companies using the three-month sale-leaseback and the lease-passthrough rules from claiming a section 48 credit for qualified interconnection costs. The commenter suggested that the final regulations should add language that expands the original use rule to take into account the principles of section 50(d)(4), with original use determined on the date of the sale-leaseback or lease. The commenter also recommended that the definition of ''interconnection agreement'' in the final regulations be revised to include an acknowledgement that energy property can be leased if there is an election under section 50(d)(5). Finally, the commenter proposed designating and identifying specifically a portion of the purchase price for the sale of an energy project as a reimbursement for qualified interconnection costs.

The Treasury Department and the IRS acknowledge that developers and operators of energy properties may utilize the existing sale-leaseback or lease-passthrough structures in cases in which they are seeking the section 48 credit. Nothing in these final regulations prohibits the application of general principles, including those in section 50(d). The specific applications of the sale-lease back or lease-passthrough rules, however, are beyond the scope of these regulations.

The Treasury Department and the IRS recognize that the section 48 credit attributable to interconnection costs for qualified interconnection property is allowed to a purchaser of energy property that bears those costs in connection with the purchase (for example, by adjusting the purchase price or making a separate payment to account for them). Thus, in the case of a purchase of energy property (or a deemed purchase of energy property in the case a pass-through lease transaction), any amount paid or incurred by the buyer attributable to the value of interconnection costs associated with that energy property is an amount paid or incurred with respect to the construction, reconstruction, or erection of that qualified interconnection property.

Further, in the case of a sale-leaseback transaction subject to the ''three-month rule'' provided in section 50(d)(4), the original use of the energy property is deemed to commence with the buyer-lessor not earlier than the date on which the property is used under the sale-leaseback transaction, and in the case of a pass-through lease transaction, with the lessee as if the lessee actually purchased the property in accordance with § 1.48–4.

Accordingly, these final regulations revise § 1.48–14(h)(2) (previously proposed § 1.48–14(g)(2)) to provide ''[f]or purposes of determining the original use of interconnection property in the context of a sale-leaseback or lease transaction, the principles of section 50(d)(4) must be taken into account, as applicable, with such original use determined on the date of the sale-leaseback or lease.'' Likewise, these final regulations revise § 1.48–14(h)(4) (previously proposed § 1.48–14(g)(4)) to provide ''[i]n the case of the election provided under section 50(d)(5) (relating to certain leased property), the term includes an agreement regarding energy property leased by such taxpayer.''

5. Five-Megawatt Limitation

Proposed § 1.48–14(g)(3)(i) would provide that the Five-Megawatt Limitation is measured at the level of the energy property in accordance with section 48(a)(8)(A). Further, proposed § 1.48–14(g)(3)(i) would provide that the maximum net output of an energy property is measured by the nameplate generating capacity of the unit of energy property at the time the energy property is placed in service.

Proposed § 1.48–14(g)(3)(ii) would describe nameplate capacity for purposes of the Five-Megawatt Limitation. The Proposed Regulations would provide that the determination of whether an energy property has a maximum net output of not greater than five MW (as measured in alternating current) is based on the nameplate capacity for purposes of proposed § 1.48–14(g)(1). If applicable, taxpayers should use the ISO conditions to measure the maximum electrical generating output or usable energy capacity of an energy property. Proposed § 1.48–14(g)(3)(ii)(A) and (B) would provide rules for applying the Five-Megawatt Limitation (as provided in proposed § 1.48–14(g)(1)) to electrical generating energy property and electrical energy storage property, respectively.

Proposed § 1.48–14(g)(3)(ii)(A) would provide that in the case of an electrical generating energy property, the Five-Megawatt Limitation is based on the maximum electrical generating output in MW that the unit of energy property 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.

Proposed § 1.48–14(g)(3)(ii)(B) would provide that in the case of electrical energy storage property, the Five-Megawatt Limitation is determined by the storage device's maximum net output, which is its nameplate capacity.

Generally, commenters agreed that the Five-Megawatt measurement should be done at the level of underlying energy property, not the energy project. The final regulations (now found in § 1.48–14(h)(3)) retain the proposed rule that the Five-Megawatt Limitation is measured at the level of the energy property in accordance with section 48(a)(8)(A).

Other commenters expressed concerns with applying the Five-Megawatt Limitation based on nameplate capacity and by the reference to alternating current output. A commenter stated that the interchangeable use of two distinct electrical concepts, maximum net output in alternating current and nameplate generating capacity, in the Proposed Regulations could lead to misinterpretation and unintentionally

exclude otherwise qualifying interconnection property. A commenter stated that proposed § 1.48–14(g)(3) must be modified to clarify that interconnection property eligible for the credit is measured at the point of output, that is, five MW (measured in alternating current) at the inverter, and not determined by the nameplate generation capacity. This commenter stated that section 48(a)(8) does not contain the words ''nameplate'' or ''capacity'' and instead, it refers to ''output . . . measured in alternating current,'' which, for solar systems, can only be measured after the inverter. This commenter also stated that the definition of ''qualified interconnection property'' at proposed § 1.48–14(g)(3)(ii)(A), as applied to property that generates electricity in direct current, such as solar panels, would result in a nullity, with only energy property that generates electricity in alternating current able to qualify for the credit.

Similarly, a commenter stated that for purposes of claiming the section 48 credit for qualified interconnection property, the final regulations should refer only to energy property output in alternating current, without presuming that nameplate capacity perfectly corresponds to alternating current output. This commenter asserted that the final regulations should clarify that energy property is defined at the inverter level (that is, the source of alternating current output) for the purposes of determining eligibility of upstream network upgrades as qualified interconnection property.

The Treasury Department and the IRS understand commenters' concerns and agree that the rule provided in the Proposed Regulations should be revised. Section 48(a)(8) refers to a maximum net output of not greater than five MW (as measured in alternating current). The Proposed Regulations provide for nameplate capacity in alternating current, without addressing types of energy property, such as solar energy property, that generate electricity in direct current. Nameplate capacity for these types of energy property is measured before the property's output is converted to alternating current by an inverter. Because an inverter would be considered property that is an integral part of the energy property and not part of the unit of property itself, measuring the nameplate capacity of an energy property that generates electricity in direct current would be difficult under the Proposed Regulations.

In consultation with the DOE, the Treasury Department and the IRS conclude that nameplate generating capacity is the best and most practical measure of the maximum net output of an energy property. Therefore, the Treasury Department and the IRS do not adopt comments suggesting changes to the use of nameplate capacity. The final regulations at § 1.48–14(h)(3)(ii) (previously proposed § 1.48–14(g)(3)(ii)) retain the rule that the determination of whether an energy property has a maximum net output of not greater than five MW (as measured in alternating current) is based on the nameplate capacity of the energy property.

However, in response to comments, the Treasury Department and the IRS coordinated with the DOE to provide a method of measuring nameplate capacity for an energy property that generates electricity in direct current. The final regulations at § 1.48–14(h)(3)(iii) (previously proposed § 1.48–14(g)(3)(iii)) provide that, for energy properties that generate electricity in direct current, the taxpayer may choose to determine whether an energy property has a maximum net output of not greater than five MW (in alternating current) by using the lesser of: (i) the sum of the nameplate generating capacities within the unit of energy property in direct current, which is deemed the nameplate generating capacity of the unit of energy property in alternating current; or (ii) 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 an energy property can be determined in an administrable and reasonably accurate manner for energy properties that generate electricity in direct current.

A commenter recommended that the Treasury Department and the IRS clarify the size limitation for eligible properties with a nameplate capacity exceeding five MW. This commenter asserted that further clarification is needed to ensure that there is no gaming by projects that attempt to get around the Five-Megawatt Limitation, and to safeguard against the possibility of multiple energy properties being improperly treated as a single energy property. The commenter noted that this has been done effectively in many States by limiting the amount of capacity that can be installed on a parcel of land and precluding subdivisions that are performed for the purpose of circumventing a rule. The commenter also referenced guidelines developed by the Massachusetts Department of Energy Resources, which outline particular scenarios that would qualify for an exception allowing flexibility in the event that (i) there are multiple energy properties that are owned by separate regarded taxpayers; (ii) the energy properties are placed in service in a different tax year from other portions of the project; or (iii) there is a gap in time (for example, 6 to 12 months) between different properties being placed in service. As described in the preamble to the Proposed Regulations, the addition of amounts paid or incurred by the taxpayer for qualified interconnection property in section 48(a)(8)(A) is tied to the installation of ''energy property.'' Since the statute clearly ties the Five-Megawatt Limitation to the energy property, as long as an energy property is five MW or less, the statute is satisfied.

A few commenters requested greater clarity or examples regarding the application of the Five-Megawatt Limitation. For example, a commenter requested that the final regulations confirm that multiple energy properties each with a nameplate capacity of less than five MW could utilize common interconnection agreements (versus separate agreements). Other commenters requested clarification for cases in which multiple properties share interconnection property. Another commenter requested clarification or an example of multiple energy properties sharing interconnection property and the application of the Five-Megawatt Limitation with respect to various technologies and specifically solar energy property.

In response to commenters that requested additional clarification of the Five-Megawatt Limitation, the final regulations add an additional example as well as provide clarifications to the existing examples. These clarifications illustrate the revised method of measuring nameplate capacity for an energy property that generates electricity in direct current. The clarifications also demonstrate the application of the Five-Megawatt Limitation in cases in which the nameplate capacity differs from the maximum output provided in the interconnection agreement. Specifically, the newly added example describes the application of the Five-Megawatt Limitation to an interconnection agreement for multiple energy properties owned by a single taxpayer. In that example, although the taxpayer has an interconnection agreement with the utility that allows for a maximum output of 10 MW (as measured in alternating current), the taxpayer may include the costs taxpayer paid or incurred for qualified interconnection property, subject to the terms of the

interconnection agreement, to calculate the taxpayer's section 48 credits for each of the energy properties because each has a maximum net output of not greater than five MW (alternating current).

A commenter proposed that the final regulations treat interconnection property as integral property by stating that in circumstances in which multiple energy properties (each with alternating current output at or below five MW) utilize higher-capacity interconnection property, such interconnection property should be deemed integral to multiple energy properties. Section 48(a)(8)(A) provides that energy property includes amounts paid for qualified interconnection property; it does not provide that energy property includes qualified interconnection property. Because the statute makes clear that interconnection property is distinct from energy property, it also cannot be property that is integral to an energy property. The preamble to the Proposed Regulations explains that qualified interconnection property, which is most similar in function to transmission and distribution property, is neither property that is a functionally interdependent component of an energy property nor an integral part of an energy property.

6. Non-Application to Certain Types of Energy Properties

The preamble to the Proposed Regulations clarified that the definition of qualified interconnection property specifically would exclude interconnection property installed with respect to an energy project that is a microgrid controller. Additionally, taxpayers may not include the costs of qualified interconnection property in the basis of electrochromic glass property and fiber optic solar energy property because these types of energy property do not require additions, modifications, or upgrades to a transmission or distribution system. Similarly, in the case of energy properties that generate thermal energy, such as certain geothermal property and qualified biogas property, this provision is inapplicable. Excluding certain properties from including interconnection costs is required by the statute and the fact that interconnection property is irrelevant to these technologies. The rule, therefore, is adopted as proposed.

However, the Treasury Department and the IRS did receive a comment regarding qualified interconnection property and the application of the proposed rules to microgrid controllers. Section 48(a)(8)(B)(i) defines ''qualified interconnection property'', with respect to an energy project that is not a microgrid controller. The commenter noted that section 48(a)(8)(B)(i) is not intended to disqualify an energy project from including interconnection property costs solely because such project includes a microgrid controller. The Treasury Department and the IRS agree with this commenter's view that if an energy project includes both a microgrid controller and another type of energy property, then interconnection property costs for the energy project may be included in calculating the section 48 credit for the other energy property.

IV. Severability

If any provision in this rulemaking is held to be invalid or unenforceable facially, or as applied to any person or circumstance, it shall be severable from the remainder of this rulemaking, and shall not affect the remainder thereof, or the application of the provision to other persons not similarly situated or to other dissimilar circumstances.

Effect on Other Documents

Notice 2009–52, 2009–25 I.R.B. 1094, will be obsoleted for tax years beginning after the date of publication of the final regulations in the **Federal Register**. Notice 2009–52, in relevant part, provides procedures for taxpayers to make an irrevocable election under section 48(a)(5) to treat qualified property that is part of a qualified investment credit facility as energy property eligible for a section 48 credit in lieu of a section 45 credit.

Applicability Dates

The provisions of §§ 1.48–9 and 1.48–14 apply with respect to property that is placed in service during a taxable year beginning after December 12, 2024. Section 1.6418–5(f) applies to taxable years ending on or after December 12, 2024. Taxpayers may choose to apply §§ 1.48–9, 1.48–14, and 1.6418–5(f) with respect to property that is placed in service after December 31, 2022, and during a taxable year beginning on or before December 12, 2024, provided taxpayers follow §§ 1.48–9, 1.48–14, and 1.6418–5(f) in their entirety and in a consistent manner.

Section 1.48–13 applies to energy projects placed in service in taxable years ending after December 12, 2024, and the construction of which begins after December 12, 2024. Taxpayers may choose to apply § 1.48–13 to energy projects placed in service in taxable years ending on or before December 12, 2024, and energy projects placed in service in taxable years ending after December 12, 2024, the construction of which begins before December 12, 2024, provided that taxpayers apply § 1.48–13 in its entirety and in a consistent manner.

Special Analyses

I. Regulatory Planning and Review—Economic Analysis

Pursuant to the Memorandum of Agreement, Review of Treasury Regulations under Executive Order 12866 (June 9, 2023), tax regulatory actions issued by the IRS are not subject to the requirements of section 6 of Executive Order 12866, as amended. Therefore, a regulatory impact assessment is not required.

II. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520) (PRA) requires that a Federal agency obtain the approval of Office of Management and Budget (OMB) before collecting information from the public, whether such collection of information is mandatory, voluntary, or required to obtain or retain a benefit. A Federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the collection of information displays a valid control number.

The collections of information in these final regulations contain reporting and recordkeeping requirements that are required to verify the eligibility of the property for the credit. These collections of information generally are used by the IRS for tax compliance purposes and by taxpayers to facilitate proper reporting and compliance.

The reporting requirement mentioned within these final regulations with respect to section 48 are in § 1.48–14(f)(5), which provides the time and manner for a taxpayer to make a section 48(a)(5)(C) election to have qualified investment credit facility property that was placed in service after December 31, 2008, treated as a qualified investment credit facility for purposes of claiming the section 48 credit. These requirements are considered general tax records under § 1.6001–1.

A taxpayer must make a section 48(a)(5)(C) election on a completed Form 3468, *Investment Credit,* (or successor forms, or pursuant to instructions and other guidance) with the taxpayer's timely filed return (including extensions) for the taxable year in which the energy property is placed in service. The taxpayer must make a separate section 48(a)(5)(C) election for each qualified facility that is to be treated as a qualified investment credit facility. These collections are included on Form 3468, which is

already approved in OMB Control Numbers 1545–0155 for trust and estate filers, 1545–0074 for individual filers, and 1545–0123 for business filers. These final regulations do not change the collection requirements already approved by OMB.

These final regulations also include reporting requirements, in addition to the general reporting requirements set forth in § 1.45–12, for taxpayers that claim an increased credit amount under section 48(a)(9)(B)(iii). These final regulations require taxpayers to verify compliance with the Prevailing Wage Requirements by providing information that includes the aggregate information detailed in § 1.45–12 during the five-year recapture period after an energy project is placed in service. The Secretary may issue forms and instructions in future guidance for the purpose of meeting these reporting requirements. As set forth in the preamble to § 1.45–12, these reporting requirements are covered under OMB control numbers 1545–0074 for individuals/sole proprietors, 1545–0123 for business entities, and 1545–2315 for trust and estate filers. These final regulations are not changing or creating new collection requirements not already approved by OMB for § 1.45–12.

These final regulations also describe recapture procedures as detailed in § 1.6418–5. The reporting of a section 48(a)(10)(C) recapture event will still be required to be reported using Form 4255, *Recapture of Investment Credit.* This form is approved under OMB control numbers 1545–0074 for individuals, 1545–0123 for business entities, and 1545–0166 for trust and estate filers. These final regulations are not changing or creating new collection requirements not already approved by OMB.

III. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) (RFA) imposes certain requirements with respect to Federal rules that are subject to the notice and comment requirements of section 553(b) of the Administrative Procedure Act (5 U.S.C. 551 *et seq.*) and that are likely to have a significant economic impact on a substantial number of small entities. Unless an agency determines that a proposal is not likely to have a significant economic impact on a substantial number of small entities, section 604 of the RFA requires the agency to present a final regulatory flexibility analysis (FRFA) of the final regulations.

These final regulations affect taxpayers, including small entities, that claim section 48 credits. Although data is not readily available about the number of small entities that are potentially affected by these rules, it is possible that a substantial number of small entities may be affected.

In connection with the Proposed Regulations, the Treasury Department and the IRS presented an IRFA to invite comments on both the number of entities affected and the economic impact on small entities. No comments were received specific to these areas of inquiry. In the absence of comments in response to the Proposed Regulations, this FRFA is presented with the final regulations.

In addition, pursuant to section 7805(f), the Proposed Regulations preceding these final regulations were submitted to the Chief Counsel for the Office of Advocacy of the Small Business Administration for comment on its impact on small business, and no comments were received from the Chief Counsel for the Office of Advocacy of the Small Business Administration.

A. Need for and Objectives of the Rule

The final regulations will provide greater clarity to taxpayers for purposes of claiming the section 48 credit for energy property. These final regulations are expected to encourage taxpayers to invest in developing new energy properties, including qualified facilities otherwise eligible for the section 45 credit for which a taxpayer makes a section 48(a)(5)(C) election. Thus, the Treasury Department and the IRS intend and expect that the final regulations will deliver benefits across the economy that will beneficially impact various industries.

B. Affected Small Entities

The Small Business Administration estimated in its 2018 Small Business Profile that 99.9 percent of United States businesses meet its definition of a small business. The applicability of these final regulations does not depend on the size of the business, as defined by the Small Business Administration. As described more fully in the preamble to the Proposed Regulations and in this FRFA, these rules may affect a variety of different businesses across several different industries.

The section 48 credit incentivizes the development of energy property. Because the potential credit claimants can vary widely, it is difficult to estimate at this time the impact of these final regulations, if any, on small businesses.

The Treasury Department and the IRS expect to receive more information on the impact on small businesses once taxpayers start to claim the section 48 credit using the guidance and procedures provided in these final regulations.

1. Impact of the Rules

The final regulations will allow taxpayers to plan investments and transactions based on the ability to claim the section 48 credit. The increased use of the section 48 credit will incentivize the development of technologies for energy generation and storage. The use of the section 48 credit may also lead to additional investment in electrical grid infrastructure to transport electricity.

Because the statutory changes that are reflected in the final regulations have already been accounted for by Form 3468, the recordkeeping and reporting requirements should not increase for taxpayers that already claim the section 48 credit. The Form 3468 already provides the procedures for taxpayers to make a section 48(a)(5)(C) election. To make the election, a taxpayer must claim the section 48 credit with respect to a qualified investment credit facility property on a completed Form 3468, *Investment Credit* (or successor forms, or pursuant to instructions and other guidance) and file such form with the taxpayer's timely filed return (including extensions) for the taxable year in which the property is placed in service. Although the Treasury Department and the IRS do not have sufficient data to precisely determine the likely extent of the increased costs of compliance, the estimated burden of complying with the recordkeeping and reporting requirements are described in the Paperwork Reduction Act section of this Special Analyses.

2. Alternatives Considered

The Treasury Department and the IRS considered alternatives to these final regulations. Significant alternatives considered include the definition of energy project in § 1.48–13(d). As described in more detail in part II.C of the Summary of Comments and Explanation of Revisions section of this preamble, the Treasury Department and the IRS considered comments explaining that the energy project definition was too broad with only two factors required to cause energy properties to be considered an energy project. Commenters suggested instead providing that three or four factors should be met. Revising the definition of energy project to require three factors would resolve challenges for most commenters on this issue, which were represented by solar developers. However, section 48 encompasses many different technologies in addition to

solar photovoltaic energy property. Accordingly, to provide taxpayers flexibility across the various technologies eligible for the tax credit, § 1.48–13(d) requires that four factors be met for energy properties to be considered an energy project.

3. Duplicative, Overlapping, or Conflicting Federal Rules

The final regulations would not duplicate, overlap, or conflict with any relevant Federal rules. As discussed above, these final regulations would merely provide procedures and definitions to allow taxpayers to claim the section 48 credit.

IV. Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA) requires that agencies assess anticipated costs and benefits and take certain other actions before issuing a final rule that includes any Federal mandate that may result in expenditures in any one year by a State, local, or Tribal government, in the aggregate, or by the private sector, of $100 million (updated annually for inflation). These final regulations do not include any Federal mandate that may result in expenditures by State, local, or Tribal governments or by the private sector in excess of that threshold.

V. Executive Order 13132: Federalism

Executive Order 13132 (Federalism) prohibits an agency from publishing any rule that has federalism implications if the rule either imposes substantial, direct compliance costs on State and local governments, and is not required by statute, or preempts State law, unless the agency meets the consultation and funding requirements of section 6 of the Executive order. These final regulations do not have federalism implications and do not impose substantial, direct compliance costs on State and local governments or preempt State law within the meaning of the Executive order.

VI. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments) prohibits an agency from publishing any rule that has Tribal implications if the rule either imposes substantial, direct compliance costs on Indian Tribal governments, and is not required by statute, or preempts Tribal law, unless the agency meets the consultation and funding requirements of section 5 of the Executive order. These final regulations do not have substantial direct effects on one or more Federally recognized Indian Tribes and does not impose substantial direct compliance costs on Indian Tribal governments within the meaning of the Executive order.

VII. Congressional Review Act

Pursuant to the Congressional Review Act (5 U.S.C. 801 *et seq.*), the Office of Information and Regulatory Affairs designated this rule as a major rule as defined by 5 U.S.C. 804(2). Under section 801(3) of the CRA, a major rule takes effect 60 days after the rule is published in the **Federal Register**.

Notwithstanding this requirement, section 808(2) of the CRA allows agencies to specify a different effective date when the agency for good cause finds that such procedure would be impracticable, unnecessary, or contrary to the public interest and the rule shall take effect at such time as the agency promulgating the rule determines. Pursuant to section 808(2) of the CRA, the Treasury Department and the IRS find, for good cause, that a 60-day delay in the effective date is unnecessary and contrary to the public interest.

The IRA amended section 48 in several ways, including by making additional types of energy property eligible for the section 48 credit and provided, for many such technologies, that construction must begin before January 1, 2025. Further, the IRA amendments included a special rule to allow certain lower-output energy properties to include amounts paid for qualified interconnection property in connection with the installation of energy property, and provided an increased credit amount for energy projects that satisfy prevailing wage and apprenticeship requirements, a domestic content bonus credit amount, and an increase in credit rate for energy communities.

Following the IRA's amendments to section 48, the Treasury Department and the IRS published the Proposed Regulations. In response to the Proposed Regulations, commenters continued to express uncertainty regarding the proper application of the statutory rules under section 48 and the need for timely final regulations because in many cases taxpayers must begin construction before January 1, 2025, in order to be eligible to claim the section 48 credit.

Consistent with Executive Order 14008 (January 27, 2021), letters from Members of Congress urging expeditious publication of final regulations, and commenters' request for finalized rules, the Treasury Department and the IRS have determined that an expedited effective date of the final regulations is appropriate here to provide certainty to taxpayers placing in service energy property before provisions expire and taxpayers seeking to begin construction before January 1, 2025 to maintain eligibility for the section 48 credit. The final regulations provide needed rules on what the law requires for taxpayers to begin job-generating construction of capital-intensive projects qualifying for section 48 credits. Accordingly, the Treasury Department and the IRS have determined that the rules in this Treasury decision will take effect on the date of publication in the **Federal Register**.

Statement of Availability of IRS Documents

IRS notices and other guidance cited in this preamble are published in the Internal Revenue Bulletin (or Cumulative Bulletin) and are available from the Superintendent of Documents, U.S. Government Publishing Office, Washington, DC 20402, or by visiting the IRS website at *https://www.irs.gov.*

List of Subjects in 26 CFR Part 1

Income taxes, Reporting and recordkeeping requirements.

Amendments to the Regulations

Accordingly, the Treasury Department and the IRS amend 26 CFR part 1 as follows:

PART 1—INCOME TAXES

■ **Paragraph 1.** The authority citation for part 1 is amended by:
■ a. Revising the entry for § 1.48–9;
■ b. Removing the entry for §§ 1.6418–0–1.6418–5; and
■ c. Adding entries in numerical order for §§ 1.48–13, 1.48–14, and 1.6418–1 through 1.6418–5.

The revision and additions read in part as follows:

Authority: 26 U.S.C. 7805 * * *

* * * * *

Section 1.48–9 also issued under 26 U.S.C. 48(a)(3)(D)(i) and (16).

Section 1.48–13 also issued under 26 U.S.C. 48(a)(10)(C) and (16).

Section 1.48–14 also issued under 26 U.S.C. 48(a)(16).

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Section 1.6418–1 also issued under 26 U.S.C. 6418(g) and (h).

Section 1.6418–2 also issued under 26 U.S.C. 6418(g) and (h).

Section 1.6418–3 also issued under 26 U.S.C. 6418(g) and (h).

Section 1.6418–4 also issued under 26 U.S.C. 6418(g) and (h).

Section 1.6418–5 also issued under 26 U.S.C. 48(a)(10)(C) and 6418(g) and (h).

* * * * *

■ **Par. 2.** Section 1.48–9 is revised to read as follows:

§ 1.48–9 Definition of energy property.

(a) *In general.* For purposes of the credit determined under section 48 of the Internal Revenue Code (Code), the term *energy property* means property that, taking into account the definition of the term *unit of energy property* (defined in paragraph (f)(2)(i) of this section) and of other terms defined in paragraph (b) and other provisions of this section, meets the requirements of paragraph (c) of this section and is of a type of energy property set forth in paragraph (e) of this section. If a property is described more than once in the types of energy property set forth in paragraph (e), only a single section 48 credit is allowed. Paragraph (d) of this section provides rules for property excluded from energy property. Paragraph (f) of this section provides rules for components included in an energy property. Paragraph (g) of this section provides the applicability date for this section.

(b) *Definitions related to requirements for energy property.* For purposes of section 48, this section, §§ 1.48–13 and 1.48–14, and any provision of the Code or this chapter that expressly refers to any of the foregoing, the definitions in this paragraph (b) apply:

(1) *Construction, reconstruction, or erection of energy property.* The term *construction, reconstruction, or erection of energy property* means work performed to construct, reconstruct, or erect energy property either by the taxpayer or for the taxpayer in accordance with the taxpayer's specifications.

(2) *Acquisition of energy property.* The term *acquisition of energy property* means a transaction by which a taxpayer acquires the rights and obligations to establish tax ownership of an energy property for Federal income tax purposes.

(3) *Original use of energy property*—(i) *In general.* The term *original use of energy property* means the first use to which a unit of energy property is put, whether or not such use is by the taxpayer.

(ii) *Retrofitted units of energy property.* A retrofitted unit of energy property acquired by the taxpayer will be treated as not being put to original use by the taxpayer unless the rules in § 1.48–14(a) regarding retrofitted energy property (80/20 Rule) or paragraph (e)(10)(v) of this section regarding modifications of certain energy storage technology apply. The question of whether a unit of energy property meets the 80/20 Rule or is modified (as described in paragraph (e)(10)(v) of this section) is a facts and circumstances determination.

(4) *Allowable*—(i) *In general.* For purposes of applying paragraph (c)(1)(ii) of this section, depreciation or amortization in lieu of depreciation (collectively, *depreciation*) is *allowable* with respect to energy property if such property is of a character subject to the allowance for depreciation under section 167 of the Code and the basis or cost of such property is recovered using a method of depreciation (for example, the straight line method), which includes any additional first year depreciation deduction method of depreciation (for example, under section 168(k) of the Code). Further, if an Internal Revenue Service adjustment with respect to the Federal income tax or information return for such taxable year requires the basis or cost of such energy property to be recovered using a method of depreciation, depreciation is allowable to the taxpayer with respect to energy property.

(ii) *Exclusions from allowable.* For purposes of paragraph (b)(4)(i) of this section, depreciation is not allowable with respect to energy property if the basis or cost of such property is not recovered through a method of depreciation but, instead, such basis or cost is recovered through a deduction of the full basis or cost of the energy property in one taxable year (for example, under section 179 of the Code).

(5) *Placed in service*—(i) *In general.* Energy property is considered placed in service in the earlier of:

(A) The taxable year in which, under the taxpayer's depreciation practice, the period for depreciation with respect to such energy property begins; or

(B) The taxable year in which the energy property is placed in a condition or state of readiness and availability for a specifically assigned function, whether in a trade or business or in the production of income. Energy property in a condition or state of readiness and availability for a specifically assigned function includes, but is not limited to, components that are acquired and set aside during the taxable year for use as replacements for a particular energy property (or energy properties) to avoid operational time loss and equipment that is acquired for a specifically assigned function and is operational but is undergoing testing to eliminate any defects. However, components acquired to be used in the construction of an energy property will not be considered in a condition or state of readiness and availability for a specifically assigned function.

(ii) *Energy property subject to § 1.48–4 election to treat lessee as purchaser.* Notwithstanding paragraph (b)(5)(i) of this section, energy property with respect to which an election is made under § 1.48–4 to treat the lessee as having purchased such energy property is considered placed in service by the lessor in the taxable year in which possession is transferred to such lessee.

(6) *Unit of energy property.* The term *unit of energy property* is defined in paragraph (f)(2)(i) of this section. No provision of this section or § 1.48–13 or § 1.48–14 uses the term *unit* in respect of energy property with any meaning other than that provided in paragraph (f)(2)(i) of this section.

(7) *Claim.* With respect to a section 48 credit determined with respect to energy property of a taxpayer, the term *claim* means filing a completing Form 3468, *Investment Credit,* or any successor form(s) with the taxpayer's timely filed (including extensions) Federal income tax return for the taxable year in which the energy property is placed in service, and includes the making of an election under section 6417 or 6418 of the Code and corresponding regulations with respect to such section 48 credit and made on the taxpayer's Federal income tax return or annual information return.

(c) *Requirements for energy property*—(1) *In general.* Energy property must satisfy each of the requirements of paragraphs (c)(1)(i) through (v) of this section:

(i) The taxpayer constructs, reconstructs, or erects the property, or, if the original use of the property commences with the taxpayer, acquires the property;

(ii) Depreciation (or amortization in lieu of depreciation) is allowable with respect to the property;

(iii) The property meets the performance and quality standards as provided in paragraph (c)(2) of this section;

(iv) The construction of the property begins before the date provided in section 48 (if any such date is provided); and

(v) The property is placed in service by the taxpayer by the date provided in section 48 (if any such date is provided).

(2) *Performance and quality standards*—(i) *In general.* Energy property must meet performance and quality standards, if any, that have been prescribed by the Secretary of the Treasury or her delegate (after consultation with the Secretary of Energy) and are in effect at the time of acquisition of the energy property.

(ii) *Special rules for performance and quality standards*—(A) *Small wind energy property*—(*1*) Small wind energy property must meet one of the following performance and quality standards in

effect at the time of acquisition of the small wind turbine:

(*i*) American Wind Energy Association Small Wind Turbine Performance and Safety Standard 9.1 (AWEA standards);

(*ii*) International Electrotechnical Commission standards 61400–1, 61400–2, 61400–11, 61400–12 (IEC standards); or

(*iii*) ANSI/ACP Small Wind Turbine Standard 101–1 (ACP standards).

(*2*) Taxpayers may rely on a certification that the performance and quality standards set forth in this paragraph (c)(2)(ii)(A)(*1*) are met. Guidance published in the Internal Revenue Bulletin sets forth the requirements to certify that the performance and quality standards provided in this paragraph (c)(2)(ii)(A)(*1*) are met. *See* § 601.601 of this chapter.

(B) *Electrochromic glass property.* To be eligible for the section 48 credit, electrochromic windows must be rated in accordance with the National Fenestration Rating Council (NFRC) and secondary glazing systems must be rated in accordance with the Attachments Energy Rating Council (AERC) Rating and Certification Process, or subsequent revisions. *See* paragraph (e)(2)(ii) of this section for the definition of electrochromic glass property.

(iii) *Time of acquisition.* For purposes of applying performance and quality standards, the time of acquisition is the date the taxpayer enters into a binding contract (defined in paragraph (c)(2)(iv) of this section) to acquire the property, or, in the case of property constructed, reconstructed, or erected by the taxpayer, the earlier of the date that—

(A) The taxpayer begins construction, reconstruction, or erection of the property, or

(B) The taxpayer and another person enter into a binding contract (as defined in paragraph (c)(2)(iv) of this section) requiring the other person to construct, reconstruct, or erect property and to place the property in service for an agreed upon use.

(iv) *Binding contract.* For purposes of this paragraph (c)(2), whether a contract is binding is determined based on the rules described in § 1.168(k)–2(b)(5)(iii)(A).

(d) *Property that is not energy property*—(1) *Interaction with section 45.* Energy property does not include any property that is part of a qualified facility the production from which is allowed as a credit determined under section 45 of the Code (section 45 credit) for the taxable year or any prior taxable year. However, see paragraph (f)(3) of this section for rules regarding property that is an integral part of an energy property that is also used by a qualified facility. See § 1.48–14(f)(1) for rules regarding making an election under section 48(a)(5) to treat a qualified facility as an energy property.

(2) *Other property.* Energy property also does not include power purchase agreements, goodwill, going concern value, or renewable energy certificates.

(e) *Types of energy property.* The types of energy property eligible for a section 48 credit are:

(1) *Solar energy property*—(i) *In general. Solar energy property* is equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat, excepting property used to generate energy for the purposes of heating a swimming pool. Solar energy property includes solar electric generation equipment (as defined in paragraph (e)(1)(ii) of this section), solar process heat equipment (as defined in paragraph (e)(1)(iii) of this section), and equipment that uses solar energy to heat or cool a structure or provide hot water for use in a structure, and parts related to the functioning of all such equipment.

(ii) *Solar electric generation equipment. Solar electric generation equipment* is equipment that converts sunlight into electricity through the use of devices such as solar cells or other collectors.

(iii) *Solar process heat equipment. Solar process heat equipment* is equipment that uses solar energy to generate steam at high temperatures for use in industrial or commercial processes.

(2) *Fiber-optic solar energy property and electrochromic glass property*—(i) *Fiber-optic solar energy property. Fiber-optic solar energy property* is equipment that uses solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight.

(ii) *Electrochromic glass property. Electrochromic glass energy property* uses electricity to change its light transmittance properties (both visible and near infrared light) in order to heat or cool a structure. For purposes of section 48, windows, including secondary windows (also referred to as secondary glazings), that incorporate electrochromic glass are treated as electrochromic glass property.

(3) *Geothermal energy property*—(i) *In general. Geothermal energy property* is equipment used to produce, distribute, or use energy derived from a geothermal deposit (within the meaning of section 613(e)(2) of the Code), but only, in the case of electricity generated by geothermal power, up to (but not including) the electrical transmission stage. Geothermal equipment includes production equipment (as defined in paragraph (e)(3)(ii) of this section) and distribution equipment (as defined in paragraph (e)(3)(iii) of this section).

(ii) *Production equipment.* For purposes of paragraph (e)(3)(i) of this section, *production equipment* is equipment necessary to bring geothermal energy from the subterranean deposit to the surface, including well-head and downhole equipment (such as screening or slotting liners, tubing, downhole pumps, and associated equipment). Production, injection, and monitoring wells required for production of the geothermal deposit qualify as production equipment. If geothermal energy is used to generate electricity, production equipment also includes the property necessary to produce electricity. Production equipment does not include equipment used for exploration and development of geothermal deposits, such as drilling wells.

(iii) *Distribution equipment.* For purposes of paragraph (e)(3)(i) of this section, *distribution equipment* is equipment that transports geothermal energy from a geothermal deposit to the site of ultimate use. If geothermal energy is used to generate electricity, distribution equipment includes equipment that transports geothermal fluids between the geothermal deposit and the power plant. Distribution equipment also includes components of a building's heating and/or cooling system, such as pipes and ductwork that distribute within a building the energy derived from the geothermal deposit.

(4) *Qualified fuel cell property. Qualified fuel cell property* is a fuel cell power plant that has a nameplate capacity of at least 0.5 kilowatts (kW) (1 kW in the case of a fuel cell power plant with a linear generator assembly) of electricity using an electrochemical or electromechanical process, and an electricity-only generation efficiency greater than 30 percent. For this purpose, electricity-only generation efficiency may be calculated by dividing the heat rate of the fuel cell (for example, kilowatt-hours (kWh) electricity produced per kilogram (kg) of fuel consumed) by the higher heating value of the fuel (for example, kWh per kg). A fuel cell power plant is an integrated system comprised of a fuel cell stack assembly, or linear generator assembly, and associated balance of plant components that converts a fuel into electricity using electrochemical or electromechanical means. A linear generator assembly does not include any assembly that contains rotating parts.

(5) *Qualified microturbine property. Qualified microturbine property* is a stationary microturbine power plant that has a nameplate capacity of less than 2,000 kW and an electricity-only generation efficiency of not less than 26 percent at International Standard Organization conditions. A stationary microturbine power plant is an integrated system comprised of a gas turbine engine, a combustor, a recuperator or regenerator, a generator or alternator, and associated balance of plant components that converts a fuel into electricity and thermal energy. A stationary microturbine power plant also includes all secondary components located between the existing infrastructure for fuel delivery and the existing infrastructure for power distribution, including equipment and controls for meeting relevant power standards, such as voltage, frequency, and power factors.

(6) *Combined heat and power system (CHP) property*—(i) *In general. CHP property* is property comprising a system that uses the same energy source for the simultaneous or sequential generation of electrical power, mechanical shaft power, or both, in combination with the generation of steam or other forms of useful thermal energy (including heating and cooling applications). CHP property must produce at least 20 percent of its total useful energy in the form of thermal energy that is not used to produce electrical or mechanical power (or combination thereof), and at least 20 percent of its total useful energy in the form of electrical or mechanical power (or combination thereof). The energy efficiency percentage of CHP property must exceed 60 percent (except in the case of CHP systems that use biomass within the meaning of section 45). CHP property does not include any property comprising a system if such system has a capacity in excess of 50 MW or a mechanical energy capacity in excess of 67,000 horsepower or an equivalent combination of electrical and mechanical energy capacities.

(ii) *Components excluded.* CHP property does not include property used to transport the energy source to the generating facility or to distribute energy produced by the facility.

(7) *Qualified small wind energy property. Qualified small wind energy property* is property that uses a qualifying small wind turbine to generate electricity. A qualifying small wind turbine means a wind turbine that has a nameplate capacity of not more than 100 kW.

(8) *Geothermal heat pump (GHP) property. GHP property* is equipment that uses the ground, ground water, or other underground fluids as a thermal energy source to heat a structure or as a thermal energy sink to cool a structure.

(9) *Waste energy recovery property (WERP)*—(i) *In general. WERP* is property that generates electricity solely from heat from buildings or equipment if the primary purpose of such building or equipment is not the generation of electricity. Examples of buildings or equipment the primary purpose of which is not the generation of electricity include, but are not limited to, manufacturing plants, medical care facilities, facilities on college campuses, pipeline compressor stations, and associated equipment. WERP does not include any property that has a capacity in excess of 50 MW.

(ii) *Coordination with CHP property.* Any WERP that is part of a system that is a CHP property is not treated as WERP for purposes of section 48 unless the taxpayer elects to not treat such system as a CHP property for purposes of section 48.

(10) *Energy storage technology*—(i) *In general. Energy storage technology* includes electrical energy storage property described in paragraph (e)(10)(ii) of this section, thermal energy storage property described in paragraph (e)(10)(iii) of this section, and hydrogen energy storage property described in paragraph (e)(10)(iv) of this section.

(ii) *Electrical energy storage property. Electrical energy storage property* is property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) that receives, stores, and delivers energy for conversion to electricity, and has a nameplate capacity of not less than 5 kWh. For example, subject to the exclusion for property primarily used in the transportation of goods or individuals, electrical energy storage property includes, but is not limited to, rechargeable electrochemical batteries of all types (such as lithium ion, vanadium flow, sodium sulfur, and lead-acid), ultracapacitors, physical storage such as pumped storage hydropower, compressed air storage, flywheels, and reversible fuel cells.

(iii) *Thermal energy storage property*—(A) *In general. Thermal energy storage property* is property comprising a system that is directly connected to a heating, ventilation, or air conditioning (HVAC) system; removes heat from, or adds heat to, a storage medium for subsequent use; and provides energy for the heating or cooling of the interior of a residential or commercial building. Thermal energy storage property includes equipment and materials, and parts related to the functioning of such equipment, to store thermal energy for later use to heat or cool, or to provide hot water for use in heating, a residential or commercial building. It does not include property that transforms other forms of energy into heat in the first instance. 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 for heating or cooling of the interior of a residential or commercial building. Paragraph (e)(10)(iii)(B) of this section provides a safe harbor for determining whether a thermal energy storage property has such a purpose. Thermal energy storage property does not include a swimming pool, CHP property, or a building or its structural components. For example, thermal energy storage property includes, but is not limited to, a system that adds heat to bricks heated to high temperatures that later use this stored energy to heat a building through the HVAC system; thermal ice storage systems that use electricity to run a refrigeration cycle to produce ice that is later connected to the HVAC system as an exchange medium for air conditioning the building; heat pump systems that store thermal energy in an underground tank, an artificial pit, an aqueous solution, a borehole field, or a solid-liquid phase change material to be extracted for later use for heating and/or cooling; and air-to-water heat pump systems with a water storage tank. However, consistent with § 1.48–14(d), if thermal energy storage property, such as a heat pump system, includes equipment, such as a heat pump, that also serves a purpose in an HVAC system that is installed in connection with the thermal energy storage property, the taxpayer's basis in the thermal energy storage property includes the total cost of the thermal energy storage property and HVAC system less the cost of an HVAC system without thermal storage capacity that would meet the same functional heating or cooling needs as the heat pump system with a storage medium, other than time shifting of heating or cooling.

(B) *Safe harbor.* A thermal energy storage property will be deemed to have the 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 if that thermal energy storage property is capable of storing energy

that is sufficient to provide heating or cooling of the interior of a residential or commercial building for a minimum of one hour.

(iv) *Hydrogen energy storage property. Hydrogen energy storage property* is property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) that 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 (scf) of hydrogen. Hydrogen energy storage property includes, but is not limited to, above ground storage tanks, underground storage facilities, and associated compressors. Property that is an integral part of hydrogen energy storage property includes, but is not limited to, hydrogen liquefaction equipment and gathering and distribution lines within a hydrogen energy storage property.

(v) *Modifications of energy storage energy property.* With respect to electrical energy storage property and hydrogen energy storage property placed in service after December 31, 2022, energy storage technology that is modified as set forth in this paragraph (e)(10)(v) is treated as electrical energy storage property described in paragraph (e)(10)(ii) of this section or hydrogen energy storage property described in paragraph (e)(10)(iv) of this section, except that the basis of any existing property prior to such modification is not taken into account for purposes of this section and section 48. This paragraph (e)(10)(v) applies to any electrical energy storage property and hydrogen energy storage property that either:

(A) Was placed in service before August 16, 2022, and would be described in section 48(c)(6)(A)(i), except that such property had a nameplate capacity of less than 5 kWh and is modified in a manner that such property (after such modification) has a nameplate capacity (after such modification) of not less than 5 kWh; or

(B) Is described in section 48(c)(6)(A)(i) and is modified in a manner that such property (after such modification) has an increase in nameplate capacity of not less than 5 kWh.

(11) *Qualified biogas property*—(i) *In general. Qualified biogas property* is property comprising a system that converts biomass (as defined in section 45K(c)(3), as in effect on August 16, 2022) into a gas that consists of not less than 52 percent methane by volume (tested at the point described in paragraph (e)(11)(ii) of this section), or is concentrated by such system into a gas that consists of not less than 52 percent methane (tested at the point described in paragraph (e)(11)(ii) of this section), and captures such gas for sale or productive use and not for disposal via combustion. Qualified biogas property also includes any property that is part of such system that cleans or conditions such gas, including gas upgrading equipment, to make the gas suitable for sale or productive use. For example, qualified biogas property includes, but is not limited to, an anaerobic digester. Property that is an integral part of qualified biogas property includes, but is not limited to, a waste feedstock collection system, a landfill gas collection system and mixing or pumping equipment.

(ii) *Methane content requirement.* The methane content requirement described in section 48(c)(7)(A)(i) and paragraph (e)(11)(i) of this section is measured at the point at which the biogas exits the qualified biogas property.

(iii) *Flaring Allowance.* While a qualified biogas property generally may not capture biogas for disposal via combustion, combustion in the form of flaring will not disqualify a qualified biogas property provided the primary purpose of the qualified biogas property is sale or productive use of biogas and any flaring is in compliance with all relevant Federal, State, regional, Tribal, and local laws and regulations.

(12) *Microgrid controllers*—(i) *In general.* A microgrid controller is equipment that is part of a qualified microgrid and is designed and used to monitor and control the energy resources and loads on such microgrid. A qualified microgrid is an electrical system that includes equipment that is capable of generating not less than 4 kW and not greater than 20 MW of electricity; is capable of operating in connection with the electrical grid and as a single controllable entity with respect to such electrical grid, and independently (and disconnected) from such electrical grid; and is not part of a bulk-power system (as defined in section 215 of the Federal Power Act (16 U.S.C. 824o)).

(ii) *Capable of operating in connection with the electrical grid.* For purposes of this paragraph, a qualified microgrid includes an electrical system that is capable of operating in connection with the larger electrical grid, regardless of whether a connection to the larger electrical grid exists.

(13) *Other property included in section 48.* Any other property specified by section 48 as energy property is energy property for purposes of this section and §§ 1.48–13 and 1.48–14.

(f) *Property included in energy property*—(1) *In general.* An energy property includes a unit of energy property (defined in paragraph (f)(2)(i) of this section) that meets the requirements of paragraph (c) of this section, that is not excluded from energy property as provided in paragraph (d) of this section, and that is of a type of energy property included in paragraph (e) of this section. Property owned by the taxpayer that is an integral part of an energy property (as defined in paragraph (f)(3) of this section) is treated as part of that energy property. Energy property does not include any electrical transmission equipment, such as transmission lines and towers, or any equipment beyond the electrical transmission stage. Energy property also generally does not include equipment that is an addition or modification to an existing energy property. However, see § 1.48–14(a) for rules regarding retrofitted energy property (80/20 Rule) and paragraph (e)(10)(v) of this section for rules regarding modifications of certain types of energy storage technology.

(2) *Unit of energy property*—(i) *Definition.* The term *unit of energy property* means all functionally interdependent components of property (as defined in paragraph (f)(2)(ii) of this section) owned by the taxpayer that are operated together and that can operate apart from other energy properties within a larger energy project (as defined in § 1.48–13(d)). For rooftop solar energy property, all components of energy property that are installed on a single rooftop are treated as a single unit of energy property. *See* § 1.48–13(d) for rules regarding the treatment of multiple energy properties as an energy project for certain purposes.

(ii) *Functionally interdependent*—(A) *In general.* Except as provided in paragraph (f)(3)(ii)(B) of this section, with respect to components of a unit of energy property, the term *functionally interdependent* means that the placing in service of each component is dependent upon the placing in service of each of the other components in order to generate or store electricity, thermal energy, or hydrogen as provided by section 48(a)(3) and (c) and as described in paragraph (e) of this section.

(B) *Components of certain energy property.* In the case of solar process heat equipment, fiber-optic solar energy property, electrochromic glass property, GHP property, qualified biogas property, and microgrid controllers, with respect to components of such property, the term *functionally interdependent* means that the placing in service of each component is dependent upon the

placing in service of each of the other components in order to perform the intended function of the energy property as provided by section 48(a)(3) and (c) and as described in paragraph (e) of this section.

(3) *Integral part*—(i) *In general.* For purposes of the section 48 credit, property owned by a taxpayer is an integral part of an energy property owned by the same taxpayer if it is used directly in the intended function of the energy property as provided by section 48(a)(3) and (c) and as described in paragraph (e) of this section and is essential to the completeness of the intended function. Property that is an integral part of an energy property is treated as part of that energy property. A taxpayer may not claim the section 48 credit for any property not owned by the taxpayer that is an integral part of energy property owned by the taxpayer. Multiple energy properties (whether owned by one or more taxpayers) may include shared property that may be considered an integral part of each energy property so long as the cost basis for the shared property is properly allocated to each energy property. The total cost basis of such shared property divided among the energy properties may not exceed 100 percent of the cost of such shared property. In addition, the exclusion in paragraph (d)(1) of this section does not apply to property that is shared by a qualified facility (as defined in section 45(d)) and an energy property if it is an integral part of that energy property. The basis of any such property must be properly allocated across the energy property and qualified facility that share such property.

(ii) *Power conditioning and transfer equipment.* Property that is an integral part of energy property includes power conditioning equipment and transfer equipment used to perform the intended function of the energy property as provided by section 48(a)(3) and (c) and as described in paragraph (e) of this section. Power conditioning equipment includes, but is not limited to, transformers, inverters, and converters, which modify the characteristics of electricity or thermal energy into a form suitable for use or transmission or distribution. Parts related to the functioning or protection of power conditioning equipment are also treated as power conditioning equipment and include, but are not limited to, switches, circuit breakers, arrestors, and hardware and software used to monitor, operate, and protect power conditioning equipment. Transfer equipment includes equipment that permits the aggregation of energy generated by components of energy properties and equipment that alters voltage to permit transfer to a transmission or distribution line. Transfer equipment does not include transmission or distribution lines. Examples of transfer equipment include, but are not limited to, wires, cables, and combiner boxes that conduct electricity. Parts related to the functioning or protection of transfer equipment are also treated as transfer equipment and may include items such as current transformers used for metering, electrical interrupters (such as circuit breakers, fuses, and other switches), and hardware and software used to monitor, operate, and protect transfer equipment. Power conditioning equipment and transfer equipment that are integral to an energy property may be integral to another energy property or used by a qualified facility (as defined in section 45(d)), so long as the total cost basis of the integral property is properly allocated across the energy property and qualified facility that share such property.

(iii) *Roads.* Roads that are an integral part of an energy property are integral to the activity performed by the energy property such as onsite roads that are used for equipment to operate and maintain the energy property. Roads primarily for access to the site, or roads used primarily for employee or visitor vehicles, are not integral to the activity performed by an energy property.

(iv) *Fences.* Fencing is not an integral part of an energy property because it is not integral to the activity performed by the energy property.

(v) *Buildings.* Generally, buildings are not integral parts of an energy property because they are not integral to the activity of the energy property. However, the structures described in paragraphs (f)(3)(vi) and (vii) of this section are not treated as buildings for this purpose.

(vi) *Structures essentially items of machinery or equipment.* A structure that is essentially an item of machinery or equipment is not treated as a building for purposes of paragraph (f)(3)(v) of this section.

(vii) *Structures that house certain property.* A structure that houses property that is integral to the activity of an energy property is not treated as a building for purposes of paragraph (f)(3)(v) of this section if the use of the structure is so closely related to the use of the housed energy property that the structure clearly can be expected to be replaced if the energy property it initially houses is replaced.

(4) *Location of energy property.* Any property that meets the requirements of paragraphs (f)(2) and (3) of this section is part of an energy property regardless of where such property is located.

(5) *Examples.* This paragraph provides examples illustrating property included in energy property.

(i) *Example 1. Solar energy property.* X constructs a solar energy property (Solar Property) comprised of 500 separate solar panels. The solar panels are connected by wires, cables, and combiner boxes. Generated electricity is conditioned for subsequent use through one inverter and eventually carried to a substation that houses a transformer where the electricity is stepped up to electrical grid voltage before being transmitted to the electrical grid through an intertie. All components of the Solar Property up to the inverter are functionally interdependent components of the Solar Property. The inverter and up to and including the transformer are integral parts of the Solar Property. Therefore, the Solar Property is an energy property for purposes of the section 48 credit. When X places the Solar Property in service, the cost of the components up to and including the transformer is included in the basis of the Solar Property for purposes of computing the section 48 credit.

(ii) *Example 2. Co-located energy properties.* Assume the same facts as in paragraph (f)(5)(i) of this section (*Example 1*), except that Y constructs a wind energy property (Wind Property) near X's solar energy property (Solar Property). X's Solar Property and Y's Wind Property each connect to a substation that houses a transformer where the electricity is stepped up to electrical grid voltage before being transmitted to the electrical grid through an intertie. X and Y each pay 50% of the cost of, and own a 50% undivided interest in, the transformer and related power conditioning equipment housed in the substation. X's Solar Property and Y's Wind Property are separate energy properties. When X and Y place their respective energy properties in service, the cost of the components up to and including 50% of the cost of the transformer and related power conditioning equipment is included in X's and Y's basis in their respective energy properties for purposes of computing the section 48 credit.

(iii) *Example 3. Qualified offshore wind energy project.* Z constructs an offshore wind farm (Offshore Wind Energy Project) comprised of 150 turbines (energy properties) for which Z makes a valid election under section 48(a)(5) to claim the section 48 credit in lieu of the section 45 credit. The alternating current electricity generated by the individual wind turbines will be

carried by inter-array cables to an offshore substation where a transformer will step up the voltage of the electricity and a converter will convert it to direct current so it may be transported by subsea export cables to an onshore substation adjacent to the point of interconnection with the electrical grid. When the electricity reaches the onshore substation, it will flow into another converter where it will be converted back to alternating current, and then through a transformer and associated switchgear where it will be converted to electrical grid voltage and where the Offshore Wind Energy Project can be electrically isolated from the grid. The electricity will then pass through an intertie that will take the electricity from the substation to the point of interconnection with the electrical grid. All components of the Offshore Wind Energy Project, up to and including the transformer and switchgear housed in the onshore substation, are either functionally interdependent components or integral parts of the energy properties that comprise the Offshore Wind Energy Project. Therefore, when Z places the Offshore Wind Energy Project in service, the cost of the components up to and including the transformer and switchgear housed in the onshore substation are included in the aggregate basis of the energy properties that comprise the Offshore Wind Energy Project for purposes of computing the section 48 credit.

(iv) *Example 4. Co-located energy property and qualified facility.* X constructs a wind facility (Wind Facility) that is co-located with an energy storage technology (Energy Storage). The Wind Facility and Energy Storage share power conditioning and transfer equipment. The power conditioning and transfer equipment are integral parts of the Energy Storage, and are therefore considered energy property. Therefore, X will include a properly allocated share of the shared power conditioning and transfer equipment costs to determine the section 48 credit for the Energy Storage. If the Wind Facility otherwise satisfies the requirements of the section 45 credit, X may claim the section 45 credit with respect to the Wind Facility.

(g) *Applicability date.* This section applies with respect to property placed in service after December 31, 2022, and during a taxable year beginning after December 12, 2024.

■ **Par. 3.** Sections 1.48–13 and 1.48–14 are added to read as follows:

§ 1.48–13 Rules relating to the increased credit amount for prevailing wage and apprenticeship.

(a) *In general.* If a qualified energy project satisfies the requirements in paragraph (b) of this section, the amount of the credit determined under section 48(a) of the Internal Revenue Code (Code), after the application of section 48(a)(1) through (8), and (15), is equal to the credit determined under section 48(a) (section 48 credit) multiplied by five.

(b) *Requirements.* A qualified energy project satisfies the requirements of this paragraph (b) if it is one of the following—

(1) A project with a maximum net output of less than one megawatt (MW) of electrical (as measured in alternating current) or thermal energy determined based on the nameplate capacity as provided in paragraph (e) of this section (One Megawatt Exception);

(2) A project the construction of which began prior to January 29, 2023; or

(3) A project that meets the prevailing wage requirements of section 48(a)(10)(A), § 1.45–7(a)(2) and (3) and (b) through (d), and paragraph (c) of this section, the apprenticeship requirements of section 45(b)(8) and § 1.45–8, and the recordkeeping and reporting requirements of § 1.45–12.

(c) *Special rule applicable to general prevailing wage requirements*—(1) *In general.* In addition to satisfying the prevailing wage requirements under § 1.45–7(a)(2) and (3) and (b) through (d), a taxpayer must ensure that any laborers and mechanics employed (within the meaning of § 1.45–7) by the taxpayer or any contractor or subcontractor in the construction of such energy project, and for the five-year period beginning on the date such project is placed in service, the alteration or repair of such project, are paid wages at rates not less than the prevailing rates for construction, alteration, or repair of a similar character in the locality in which such project is located as most recently determined by the Secretary of Labor, in accordance with 40 U.S.C. chapter 31, subchapter IV. Subject to section 48(a)(10)(C) and this paragraph (c), for purposes of determining the increased credit amount under section 48(a)(9)(B)(iii), the taxpayer is deemed to satisfy the prevailing wage requirements of section 48(a)(10)(A)(ii) at the time such project is placed in service.

(2) *Transition waiver of penalty for prevailing wage requirements.* For purposes of the transition waiver described in § 1.45–7(c)(6)(iii), the penalty payment required by § 1.45–7(c)(1)(ii) to cure a failure to satisfy the Prevailing Wage Requirements in paragraph (b)(3) of this section is waived with respect to a laborer or mechanic who performed work in the construction, alteration, or repair of an energy project on or after January 29, 2023, and prior to December 12, 2024, if the taxpayer relied upon Notice 2022–61, 2022–52 I.R.B. 560, or the Proposed Regulations (REG–132569–17) (88 FR 82188), corrected in 89 FR 13293 (Feb. 22, 2024), to determine when the activities of any laborer or mechanic became subject to the prevailing wage requirements, and the taxpayer makes the correction payments required by § 1.45–7(c)(1)(i) with respect to such laborer and mechanics within 180 days of December 12, 2024.

(3) *Exception.* For purposes of satisfying the prevailing wage requirements of paragraph (b)(3) of this section, § 1.45–7(a)(1) does not apply.

(4) *Recapture*—(i) *In general.* In the case of an energy project that receives the increased credit amount under paragraph (a) of this section by reason of satisfying the requirements of paragraph (b)(3) of this section, the increased credit amount is subject to recapture for any project that does not satisfy the prevailing wage requirements in § 1.45–7(b) through (d) and paragraph (c)(1) of this section for any period with respect to an alteration or repair of such project during the five-year period beginning on the date such project is originally placed in service (five-year recapture period) (but that does not cease to be investment credit property within the meaning of section 50(a) of the Code).

(ii) *Recapture event*—(A) *In general.* Any failure to satisfy the prevailing wage requirements in § 1.45–7(b) through (d) and paragraph (c)(1) of this section for any period with respect to the alteration or repair of any project during the five-year recapture period is a recapture event. Any failure to satisfy the prevailing wage requirements in § 1.45–7(b) through (d) and paragraph (c)(1) of this section with respect to the alteration or repair of any project during the five-year recapture period described in paragraph (c)(6) of this section remains subject to the correction and penalty provisions in § 1.45–7(c), including the waiver provisions in § 1.45–7(c)(6). Subject to § 1.45–7(c)(5) and (6), if the correction and penalty payments described in § 1.45–7(c) are not made by the taxpayer on or before the date that is 180 days after the date of a final determination by the IRS (as defined in § 1.45–7(c)(4)(ii)), the cure provision described in § 1.45–7(c) does

not apply and the increased credit amount is subject to recapture.

(B) *Yearly determination.* A determination of whether a recapture event has occurred under paragraph (c)(3)(ii) of this section must be made for each taxable year (or portion thereof) occurring within the five-year recapture period, beginning with the taxable year ending after the date the energy project is placed in service. Thus, for each taxable year beginning or ending within the five-year recapture period, the taxpayer must determine whether the prevailing wage requirements of section 48(a)(10)(A), § 1.45–7(b) through (d), and paragraph (c)(1) of this section are satisfied for the recapture year(s) occurring during each taxable year. If no alteration or repair work occurs during the five-year recapture period, the taxpayer is deemed to satisfy the Prevailing Wage Requirements described in paragraph (b)(3) of this section with respect to such taxable year.

(C) *Carrybacks and carryforward adjusted.* In the case of any recapture event described in paragraph (c)(3)(ii)(A) of this section, the carrybacks and carryforwards under section 39 of the Code must be adjusted by reason of such recapture event.

(iii) *Correction and penalty payments not required if taxpayer is subject to recapture under section 48(a)(10)(C).* If the IRS determines that a taxpayer that claimed the increased credit amount under section 48(a)(9)(B)(iii) or transferred a specified credit portion under section 6418 of the Code that includes the increased credit amount under section 48(a)(9)(B)(iii) failed to satisfy the prevailing wage requirements in § 1.45–7(b) through (d) and paragraph (c)(1) of this section for any period with respect to the alteration or repair of any project during the five-year recapture period and the taxpayer does not make the correction and penalty payments provided in § 1.45–7(c), then no penalty is assessed under § 1.45–7, and the increased credit amount is subject to recapture. Taxpayers whose increased credit amount is subject to recapture under this section may retain the amount of the section 48(a) credit (base credit) determined under section 48(a) of this section provided all requirements were met in the year of determination.

(5) *Recapture amount*—(i) *In general.* If a recapture event has occurred as described in paragraph (c)(3)(ii) of this section, the tax under chapter 1 of the Code for the taxable year in which the recapture event occurs is increased by the applicable recapture percentage multiplied by the increased credit amount allowed to the taxpayer pursuant to paragraphs (a) and (b)(3) of this section.

(ii) *Applicable recapture percentage.* If the recapture event occurs:

(A) Within one full year after the property is placed in service, the recapture percentage is 100;

(B) Within one full year after the close of the period described in paragraph (c)(4)(ii)(A) of this section, the recapture percentage is 80;

(C) Within one full year after the close of the period described in paragraph (c)(4)(ii)(B) of this section, the recapture percentage is 60;

(D) Within one full year after the close of the period described in paragraph (c)(4)(ii)(C) of this section, the recapture percentage is 40; or

(E) Within one full year after the close of the period described in paragraph (c)(4)(ii)(D) of this section, the recapture percentage is 20.

(6) *Recapture period.* The five-year recapture period begins on the date the project is placed in service and ends on the date that is five full years after the placed-in-service date. Each 365-day period (366-day period in case of a leap year) within the five-year recapture period is a separate recapture year for recapture purposes.

(7) *Increase in tax for recapture.* The increase in tax under chapter 1 of the Code for the recapture of an increased credit amount claimed under paragraph (a) of this section occurs in the year of the recapture event.

(8) *Annual prevailing wage compliance report.* In addition to the general reporting requirements in § 1.45–12, a taxpayer that has claimed an increased credit amount under paragraph (a) of this section or transferred a specified credit portion under section 6418 that includes an increased credit amount under paragraph (a) of this section is required to provide to the IRS, information on the payment of prevailing wages with respect to any alteration or repair of the project during the recapture period at the time and in the form and manner prescribed in IRS forms or instructions or in publications or guidance published in the Internal Revenue Bulletin. *See* § 601.601 of this chapter.

(9) *Transferred specified credit portions.* In the case of a transferred specified credit portion under section 6418, to which recapture of an increased credit amount under this paragraph (c) applies, the eligible taxpayer is required to notify the transferee taxpayer of the recapture event in accordance with the provisions of § 1.6418–5(f)(2) and the transferee taxpayer is responsible for any amount of increase in tax under section 48(a)(10)(C) and this paragraph (c) in accordance with the provisions of § 1.6418–5(f)(3).

(d) *Energy project defined*—(1) *In general.* For purposes of the increased credit amount provided by section 48(a)(9) and paragraphs (b) and (c) of this section, the domestic content bonus credit amount provided by section 48(a)(12), and the increase in credit rate for energy communities provided in section 48(a)(14), the term *energy project* means one or more energy properties (multiple energy properties) that are operated as part of a single energy project. Multiple energy properties will be treated as one energy project if they are owned by a taxpayer (subject to the related taxpayer rule provided in paragraph (d)(2) of this section) and any four or more of the following factors are present:

(i) The energy properties are constructed on contiguous pieces of land;

(ii) The energy properties are described in a common power purchase, thermal energy, or other off-take agreement or agreements;

(iii) The energy properties have a common intertie;

(iv) The energy properties share a common substation, or thermal energy off-take point;

(v) The energy properties are described in one or more common environmental or other regulatory permits;

(vi) The energy properties are constructed pursuant to a single master construction contract; or

(vii) The construction of the energy properties is financed pursuant to the same loan agreement.

(2) *Time of determination*—(i) *Energy project.* A taxpayer may make the determination that multiple energy properties are an energy project either—

(A) At any point during the construction of the multiple energy properties, or

(B) During the taxable year in which the last such energy property is placed in service.

(ii) *Placed in Service.* An energy project (as defined in § 1.48–13(d)) is considered placed in service *on the date* the last of the energy properties within the energy project is placed in service.

(3) *Related taxpayers*—(i) *Definition.* For purposes of this section, the term *related taxpayers* means members of a group of trades or businesses that are under common control (as defined in § 1.52–1(b)).

(ii) *Related taxpayer rule.* For purposes of this section, related taxpayers are treated as one taxpayer in determining whether multiple energy properties are treated as an energy

project with respect to which a section 48 credit may be determined.

(4) *Separate reporting for energy properties within an energy project*—(i) *In general.* While multiple energy properties may be treated as a single energy project for specified purposes, this information must be separately reported for each energy property within an energy project on Form 3468, *Investment Credit,* or any successor form(s), and such form must be filed with the taxpayer's timely filed (including extensions) Federal income tax return for the taxable year in which the energy property is placed in service.

(e) *Nameplate capacity for purposes of the One Megawatt Exception*—(1) *In general.* For purposes of paragraph (b)(1) of this section, whether an energy project has a maximum net output of less than 1 megawatt (MW) of electrical (as measured in alternating current) or thermal energy is determined based on the nameplate capacity. If an energy project is comprised of more than one energy property, the energy project's maximum net output is calculated as the sum of the nameplate capacity of each energy property. If applicable, taxpayers should use the International Standard Organization (ISO) conditions to measure the maximum electrical generating output or usable energy capacity of an energy project. Paragraphs (e)(2) through (7) of this section provide rules for measuring output for different types of energy properties to determine whether the One Megawatt Exception (as provided in paragraph (b)(1) of this section) applies. Because electrochromic glass property (as defined in § 1.48–9(e)(2)(ii)), fiber-optic solar energy property (as defined in § 1.48–9(e)(2)(i)), and microgrid controllers (as defined in § 1.48–9(e)(12)) do not generate electricity or thermal energy, these energy properties are not eligible for the One Megawatt Exception.

(2) *Nameplate capacity for energy properties that generate in direct current for purposes of the One Megawatt Exception.* Only for energy properties that generate electricity in direct current, the taxpayer may choose to determine the maximum net output (in alternating current) of each energy property that is part of the energy project by using the lesser of:

(i) The sum of the nameplate generating capacities within the unit of energy property in direct current, which is deemed the nameplate generating capacity of the unit of energy property in alternating current; or

(ii) The nameplate capacity of the first component of property that inverts the direct current electricity into alternating current.

(3) *Electrical generating energy property.* In the case of an electrical generating energy property, the One Megawatt Exception is determined by using maximum electrical generating output in megawatts that the unit of energy property 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.

(4) *Electrical energy storage property.* In the case of electrical energy storage property (as defined in § 1.48–9(e)(10)(ii)), the One Megawatt Exception is determined by using the storage device's maximum net output. If the output of electrical energy storage property is in direct current, apply the rules of paragraph (2) of this section.

(5) *Thermal energy storage property and other property generating or distributing thermal energy.* In the case of thermal energy storage property (as defined in § 1.48–9(e)(10)(iii)) and other energy property that generates or distributes thermal energy for productive use (for example, geothermal energy property, GHP property, solar process heat property), the One Megawatt Exception is determined by using the property's maximum net output. The maximum net output in MW is calculated by using a conversion whereby one MW is equal to 3.4 million British Thermal Units per hour (mmBtu/hour) for heating and 284 tons for cooling (Btu per hour/3,412,140 = MW). The maximum net output is the maximum instantaneous rate of discharge and is determined based on the nameplate capacity of the equipment that generates or distributes thermal energy for productive use (including distributing the thermal energy from the storage medium). For purposes of determining the maximum net output of thermal energy storage property, if the nameplate capacity of the thermal energy storage is not available, the nameplate capacity of the equipment delivering thermal energy to the thermal energy storage may be used. For thermal energy storage property and other energy property distributing thermal energy to a building or buildings, the nameplate capacity can be assessed as either the aggregate maximum thermal output of all individual heating or cooling elements within the building or buildings, or as the maximum thermal output that the entire project is capable of delivering to a building or buildings at any given moment. The maximum thermal output an entire project is capable of delivering at any given moment does not take into account the capacity of redundant equipment if such equipment is not operated when the system is at maximum output during normal operation. For thermal energy storage property and other energy property that generates or distributes thermal energy for a productive use, the maximum thermal output that the entire system is capable of delivering is considered to be the greater of the rate of cooling or the rate of heating of the aggregate of the nameplate capacity of the equipment distributing energy for productive use, including distributing the thermal energy from the thermal energy storage medium to the building or buildings. If such nameplate capacity is unavailable, in the case of thermal energy storage property only, the maximum thermal output may instead be considered to be the greater of the rate of cooling or the rate of heating of the aggregate of the nameplate capacity of all the equipment delivering energy to the thermal energy storage property in the project.

(6) *Hydrogen energy storage property and specified clean hydrogen production facilities.* In the case of a hydrogen energy storage property (as defined in § 1.48–9(e)(10)(iv)) or a specified clean hydrogen production facility (as defined in section 48(a)(15)(C)), the One Megawatt Exception is determined by using the property's or facility's maximum net output. The maximum net output in MW is calculated by using a conversion whereby one MW is equal to 3.4 mmBtu/hour of hydrogen or equivalently 10,500 standard cubic feet (scf) per hour of hydrogen.

(7) *Qualified biogas property.* In the case of qualified biogas property, the One Megawatt Exception is determined by the property's maximum net output. The maximum net output in MW is calculated by using a conversion whereby one MW is equal to 3.4 mmBtu/hour. Taxpayers may convert the maximum net output of 3.4 mmBtu/hour into an equivalent maximum net volume flow in scf per hour using the appropriate high heat value conversion factors found in the Environmental Protection Agency (EPA) Greenhouse Gas Reporting Rule (GHGRR) at table C–1 to subpart C of part 98 (40 CFR part 98). Otherwise, taxpayers may calculate their own equivalent volumetric flow if the heat content of the gas is known.

(f) *Applicability date.* This section applies to energy projects placed in service in taxable years ending on or after December 12, 2024, and the construction of which begins after December 12, 2024.

§ 1.48–14 Rules applicable to energy property.

(a) *Retrofitted energy property*—(1) *In general.* For purposes of section 48(a)(3)(B)(ii), (5)(D)(iv), and (8)(B)(iii) of the Internal Revenue Code (Code), a retrofitted energy property may be originally placed in service even though it contains some used components of the unit of energy property only if the fair market value of the used components of the unit of energy property is not more than 20 percent of the total value of the unit of energy property taking into account the cost of the new components of property plus the value of the used components of the unit of energy property (80/20 Rule). Only the cost of new components of the unit of energy property is taken into account for purposes of computing the credit determined under section 48 (section 48 credit) with respect to the unit of energy property. The cost of new components of the unit of energy property includes all costs properly included in the depreciable basis of the new components. If the taxpayer satisfies the 80/20 Rule with regard to the unit of energy property and the taxpayer pays or incurs new costs for property that is an integral part of the energy property (as defined in § 1.48–9(f)(3)(i)), then the taxpayer may include the new costs paid or incurred for property that is an integral part of the energy property (as defined in § 1.48–9(f)(3)(i)) in the basis of the energy property for purpose of the section 48 credit. In the case of an energy project (as defined in § 1.48–13(d)), the 80/20 Rule is applied to each unit of energy property comprising an energy project.

(2) *Excluded costs.* Costs incurred for new components of property added to used components of a unit of energy property may not be taken into account for purposes of the section 48 credit unless the taxpayer satisfies the 80/20 Rule (as provided in paragraph (a)(1) of this section) by placing into service a unit of energy property for which the fair market value of the used components of property is not more than 20 percent of the total value of the unit of energy property taking into account the cost of the new components of property plus the value of the used components of property.

(3) *Examples.* This paragraph (a)(3) provides examples illustrating the provisions of this paragraph (a):

(i) *Example 1. Retrofitted solar energy property that satisfies the 80/20 Rule.* Z owns an existing solar energy property for which the section 48 credit has been claimed and the recapture period for the section 48 credit has elapsed. Z replaces used components of the solar energy property with new components of property at a cost of $1.4 million. The retrofitted solar energy property constitutes a unit of energy property. The fair market value of the remaining original components of the retrofitted solar energy property is $100,000, which is not more than 20 percent of the retrofitted solar energy property's total value of $1.5 million (that is, the cost of the new components ($1.4 million) + the value of the remaining original components ($100,000)). The value of the old components of the retrofitted solar energy property is 7 percent of the value of total value of the retrofitted solar energy property ($100,000/$1.5 million), thus the retrofitted solar energy property will be considered newly placed in service for purposes of section 48, and Z will be able to claim a section 48 credit based on the cost of the new components ($1.4 million).

(ii) *Example 2. Capital improvements to an existing energy property that do not satisfy the 80/20 Rule.* X owns an existing unit of energy property for which the section 48 credit has been claimed and the recapture period for the section 48 credit has elapsed. The fair market value of the unit of energy property is $1 million. During the tax year, X makes capital improvements to the unit of energy property. The expenditures for such capital improvements total $300,000. X may not claim a section 48 credit for the $300,000 spent on capital improvements during the tax year because the capital improvements did not satisfy the 80/20 Rule.

(iii) Example 3. *Upgrades to a qualified hydropower production facility that satisfies the 80/20 Rule:* Y owns a qualified hydropower production facility (hydropower facility) as defined under section 45 and no taxpayer, including Y, has ever claimed a section 45 credit for the hydropower facility. The hydropower facility consists of a unit of energy property including water intake, water isolation mechanisms, turbine, pump, motor, and generator. The associated impoundment (dam) and power conditioning equipment are integral parts of the unit of energy property. Y makes upgrades to the unit of energy property by replacing the turbine, pump, motor, and generator with new components at a cost of $1.5 million. Y does not make any upgrades to the property that is an integral part of the unit of energy property. The remaining original components of the unit of energy property have a fair market value of $100,000, which is not more than 20 percent of the retrofitted hydropower facility's total value of $1.6 million (that is, the cost of the new components ($1.5 million) + the value of the remaining original components ($100,000)). Thus, the retrofitted hydropower facility will be considered newly placed in service for purposes of section 48, and Y will be able to make a valid section 48(a)(5) election and claim a section 48 credit based on the cost of the new components ($1.5 million).

(b) *Dual use property*—(1) *Definition.* For purposes of section 48, the term *dual use property* means property that uses energy derived from both a qualifying source (that is, from an energy property defined in § 1.48–9(a) (including a qualified facility for which an election has been made as provided by paragraph (f)(2) of this section)) and from a non-qualifying source (that is, sources other than an energy property defined in § 1.48–9(a) (including a qualified facility for which an election has been made as provided by paragraph (f)(2) of this section)).

(2) *Qualification as energy property*—(i) *In general.* Dual use property qualifies as energy property if its use of energy from non-qualifying sources does not exceed 50 percent of its total energy input (as determined under the rules of paragraph (b)(2)(ii) of this section) during an annual measuring period (as defined in paragraph (b)(2)(iii) of this section). If the energy used from qualifying sources is between 50 percent and 100 percent, only a proportionate amount of the basis of the energy property will be taken into account in computing the amount of the section 48 credit (for example, if 80 percent of the energy used by a dual use property is from qualifying sources, 80 percent of the basis of the dual use property will be taken into account in computing the amount of the section 48 credit).

(ii) *Aggregation of energy inputs.* The measurement of energy use required for purposes of paragraph (b)(2)(i) of this section may be made by comparing, on the basis of British thermal units (Btus), energy input to dual use property from all qualifying sources with energy input from all non-qualifying sources. To convert the energy inputs for CHP into Btus, the lower heating value of the fuel is used for CHP property and the higher heating value of the hydrogen is used for fuel cells. The Commissioner may also accept any other method that accurately establishes the relative annual use of energy derived from all qualifying sources and of energy input from all non-qualifying sources by dual use property.

(iii) *Annual measuring period.* For purposes of paragraph (b)(2)(i) of this section, the term *annual measuring period* means with respect to an item of

dual use property the 365-day period (366-day period in case of a leap year) beginning with the day the dual use property is placed in service (initial annual measuring period) or a 365-day period (366-day period in case of a leap year) beginning the day after the last day of the immediately preceding annual measuring period (subsequent annual measuring period).

(iv) *Recapture.* If, for any subsequent annual measuring period (within the recapture period specified in section 50(a) of the Code, the equipment's use of energy from all qualifying sources is reduced below 50 percent of its total energy input (as determined under the rules of paragraph (b)(2)(i) of this section), then recapture of the section 48 credit is required under section 50(a).

(v) *Example.* On October 1, 2021, X, a calendar year taxpayer, places in service a unit of energy property that includes a system that heats its office building by circulating hot water heated by energy derived from a geothermal deposit through the building. The water heated by energy derived from a geothermal deposit is not hot enough to provide sufficient heat for the building. The circulation system includes an electric boiler in which the water is further heated before being circulated in the heating system. Energy from the electric boiler is not from a qualifying source and therefore the system is dual use property. On a Btu basis, sixty percent of the total energy input to the circulating system during the initial annual measuring period (the 365-day period beginning on October 1, 2021) is energy derived from a geothermal deposit. Accordingly, the circulation system, including the pumps and pipes that circulate the hot water through the building, are part of the unit of energy property and eligible for a section 48 credit. Sixty percent of the basis of the circulation system is taken into account in determining the section 48 credit for X's unit of energy property. During the 365-day period beginning on October 1, 2023, forty-five percent of the total energy input to the circulating system (on a Btu basis) is energy derived from a geothermal deposit. X's section 48 credit is therefore subject to recapture under section 50.

(c) *Energy property eligible for multiple Federal income tax credits*—(1) *In general.* The basis of energy property may be eligible for calculating both the section 48 credit and another Federal income tax credit, subject to the limitation provided in paragraph (c)(2) of this section.

(2) *Limitation.* Except as provided in paragraph (g) of this section, a taxpayer may not claim both a section 48 credit and another Federal income tax credit with respect to the same basis in an energy property. See paragraph (e) of this section for special rules regarding ownership of energy property.

(d) *Incremental cost*—(1) *In general.* For purposes of section 48, if a component of energy property is also used for a purpose other than the intended function of the energy property, only the incremental cost of a component of energy property is included in the basis of the energy property. The term *incremental cost* means the excess of the total cost of a component over the amount that would have been expended for the component if that component were used for a non-qualifying purpose.

(2) *Example.* A installs solar energy property above the surface of an existing roof of a building that A owns. The solar energy property uses bifacial panels that convert to energy the light that strikes both the front and back of the panels. Therefore, along with installing the bifacial panels, A is reroofing their building with a reflective roof that has a highly reflective surface. Because the reflective roof enables the panels' generation of significant amounts of electricity from reflected sunlight, when installed in connection with the solar energy property, it constitutes part of that energy property to the extent that the cost of the reflective roof exceeds the cost of reroofing A's building with a non-reflective roof. The cost of reroofing with the reflective roof is $15,000 whereas the cost of a reroofing with a standard roof for the building would be $10,000. The incremental cost of the reflective roof is $5,000, and that amount is included in A's basis in the solar energy property for purposes of the section 48 credit.

(e) *Special rules concerning ownership*—(1) *Basis.* For purposes of section 48, a taxpayer that owns an energy property is eligible for the section 48 credit only to the extent of the taxpayer's basis in the energy property. In the case of multiple taxpayers holding direct ownership in an energy property, each taxpayer determines its basis based on its fractional ownership interest in the energy property.

(2) *Multiple owners.* A taxpayer must directly own at least a fractional interest in the entire unit of energy property for a section 48 credit to be determined with respect to such taxpayer's interest. No section 48 credit may be determined with respect to a taxpayer's ownership of one or more separate components of an energy property if the components do not constitute a unit of energy property. However, the use of property owned by one taxpayer that is an integral part of an energy property owned by a second taxpayer will not prevent a section 48 credit from being determined with respect to the second taxpayer's energy property (though neither taxpayer would be eligible for a section 48 credit with respect to the first taxpayer's property).

(3) *Related taxpayers*—(i) *Definition.* For purposes of this section, the term *related taxpayers* means members of a group of trades or businesses that are under common control (as defined in § 1.52–1(b)).

(ii) *Related taxpayer rule.* For purposes of this section, related taxpayers are treated as one taxpayer in determining whether a taxpayer has made an investment in an energy property with respect to which a section 48 credit may be determined.

(4) *Examples.* The following examples illustrate the rules in this paragraph (e). In each example, X and Y are unrelated taxpayers.

(i) *Example 1. Fractional ownership required to satisfy section 48.* X and Y own fractional ownership interests in a GHP property that is a unit of energy property. Because X and Y each own a fractional ownership interest in a unit of energy property, a section 48 credit may be determined with respect to X's and Y's fractional ownership interests in the unit of energy property.

(ii) *Example 2. Separate ownership of GHP property.* A GHP property is comprised of coils in the ground and several individual heat pumps used in conjunction with those coils. X owns both the coils in the ground and one of the individual heat pumps used in conjunction with the coils. Y owns one or more of the individual heat pump(s) used in conjunction with the coils. No section 48 credit may be determined with respect to Y because Y owns merely a component of energy property rather than a unit of energy property as defined in § 1.48–9(f)(2). However, while X does not own all of the individual heat pumps used in conjunction with the coils, X does own both the coils in the ground and one heat pump used in conjunction with the coils and thus owns an entire unit of energy property. Accordingly, X may compute a section 48 credit with respect to this unit of energy property.

(iii) *Example 3. Shared ownership of property that is an integral part of separate energy properties.* X owns a wind energy property that is a unit of energy property and Y owns a solar energy property that is a unit of energy property that are co-located. Both X's wind energy property and Y's solar energy property connect to a substation

that houses a step-up transformer where the electricity is stepped up to electrical grid voltage before being transmitted to the electrical grid through an intertie. X and Y each own a 50 percent fractional ownership interest in the step-up transformer. The step-up transformer is an integral part of both the wind energy property and the solar energy property (as defined in § 1.48–9(f)(3)(i)). As a result, X and Y may both compute a section 48 credit for their respective energy properties by including their respective bases in the step-up transformer.

(iv) *Example 4. Separate ownership of property that is an integral part of separate energy property.* X owns a wind energy property that is a unit of energy property and property that is an integral part of the wind energy property, specifically a transformer where the electricity is stepped up to electrical grid voltage before being transmitted to the electrical grid through an intertie. Y owns a solar energy property that is a unit of energy property that connects to X's transformer. X and Y are not related persons within the meaning of paragraph (e)(3)(i) of this section. Because Y does not hold an ownership interest in the transformer, Y may compute its section 48 credit for its solar energy property, but it cannot include any basis relating to the transformer.

(v) *Example 5.* X owns a wind energy property that is a unit of energy property and a solar energy property that is a unit of energy property. Both the wind energy property and the solar energy property are connected to a transformer where the electricity is stepped up to electrical grid voltage before being transmitted to the electrical grid through an intertie. The transformer is an integral part of both the wind energy property and the solar energy property (within the meaning of § 1.48–9(f)(3)(i)) and is owned by Y. X and Y are related persons within the meaning of paragraph (e)(3)(i) of this section. X and Y are treated as one taxpayer under paragraph (e)(3)(ii) of this section. X may include the basis of the transformer in computing its section 48 credit with respect to the wind energy and the solar energy property (but may not include more than 100% of that basis in the aggregate).

(f) *Election to treat qualified facilities as energy property*—(1) *In general.* If a taxpayer makes an election under section 48(a)(5)(C) (pursuant to paragraph (f)(5) of this section) to treat qualified property that is part of a qualified investment credit facility as energy property with respect to which a section 48 credit may be determined, such property will be treated as energy property for purposes of section 48. No section 45 credit may be determined with respect to any qualified investment credit facility and the requirements of section 45 are not imposed on a qualified investment credit facility.

(2) *Qualified investment credit facility.* The term qualified investment credit facility means any facility—

(i) That is a qualified facility (within the meaning of section 45) described in section 45(d)(1) through (4), (6), (7), (9) or (11);

(ii) That meets the placed in service and beginning of construction requirements (if any) provided in section 48;

(iii) With respect to which no credit has been allowed under section 45; and

(iv) For which the taxpayer makes an irrevocable election under section 48(a)(5) and paragraph (f)(5) of this section.

(3) *Qualified property.* The term *qualified property* means property that meets each of the requirements of paragraphs (f)(3)(i) through (iv) of this section. Regardless of where qualified property is located, any qualified property that meets the requirements of this paragraph (f)(3) is part of a qualified investment credit facility with respect to which a section 48 credit may be determined.

(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 an integral part of the qualified investment credit facility.

(ii) Depreciation (or amortization in lieu of depreciation) is allowable (as defined in § 1.48–9(b)(4)) with respect to the property.

(iii) The taxpayer constructs, reconstructs, or erects the property (as defined in § 1.48–9(b)(1)) or acquires the property (as defined in § 1.48–9(b)(2)) if the original use of the property (as defined in § 1.48–9(b)(3)) commences with the taxpayer.

(iv) The property is not intangible property.

(4) *Definitions related to requirements for qualified property.*

(i) *Tangible personal property.* The term *tangible personal property* means any tangible property except land and improvements thereto, such as buildings or other inherently permanent structures (including items that are structural components of such buildings or structures). Tangible personal property includes all property (other than structural components) that is contained in or attached to a building. Further, all property that is in the nature of machinery (other than structural components of a building or other inherently permanent structure) is considered tangible personal property even though located outside a building. Local law is not controlling for purposes of determining whether property is or is not tangible property or tangible personal property. Thus, tangible property may be personal property for purposes of the section 48 credit even though under local law the property is considered to be a fixture and therefore real property.

(ii) *Other tangible property.* The term *other tangible property* means tangible property other than tangible personal property (not including a building and its structural components), that is used as an integral part of furnishing electrical energy by a person engaged in a trade or business of furnishing any such service.

(iii) *Integral part*—(A) *In general.* Property owned by a taxpayer is an integral part of a qualified investment credit facility owned by the same taxpayer if it is used directly in the intended function of the qualified investment credit facility and is essential to the completeness of the intended function of the qualified investment credit facility. A taxpayer may not claim the section 48 credit for any property that is not owned by the taxpayer, regardless of whether that property is otherwise an integral part of the taxpayer's qualified investment credit facility.

(B) *Power conditioning and transfer equipment.* Property that is an integral part of a qualified investment credit facility includes power conditioning equipment and transfer equipment used to perform the intended function of the qualified investment credit facility. Power conditioning equipment includes, but is not limited to, transformers, inverters, and converters, which modify the characteristics of electricity or thermal energy into a form suitable for use or transmission or distribution. Parts related to the functioning or protection of power conditioning equipment are also treated as power conditioning equipment and include, but are not limited to, switches, circuit breakers, arrestors, and hardware used to monitor, operate, and protect power conditioning equipment. Transfer equipment includes equipment that permits the aggregation of energy generated by components of energy properties and equipment that alters voltage in order to permit transfer to a transmission or distribution line. Transfer equipment does not include transmission or distribution lines. Examples of transfer equipment include,

but are not limited to, wires, cables, and combiner boxes that conduct electricity. Parts related to the functioning or protection of transfer equipment are also treated as transfer equipment and may include items such as current transformers used for metering, electrical interrupters (such as circuit breakers, fuses, and other switches), and hardware used to monitor, operate, and protect transfer equipment.

(C) *Roads.* Roads that are an integral part of a qualified investment credit facility are integral to the activity performed by the qualified investment credit facility; these include onsite roads that are used for equipment to operate and maintain the qualified investment credit facility. Roads primarily for access to the site, or roads used primarily for employee or visitor vehicles, are not integral to the activity performed by a qualified investment credit facility.

(D) *Fences.* Fencing is not an integral part of a qualified investment credit facility because it is not integral to the activity performed by the energy property.

(E) *Buildings.* Generally, buildings are not integral parts of a qualified investment credit facility because they are not integral to the activity of the qualified investment credit facility. However, the structures described in paragraphs (f)(4)(iii)(F) and (G) of this section are not treated as buildings for this purpose.

(F) *Structures essentially items of machinery or equipment.* A structure that is essentially an item of machinery or equipment is not treated as a building for purposes of paragraph (f)(4)(iii)(E) of this section.

(G) *Structures that house certain property.* A structure that houses property that is integral to the activity of a qualified investment credit facility is not treated as a building for purposes of paragraph (f)(4)(iii)(E) of this section if the use of the structure is so closely related to the use of the housed qualified investment credit facility that the structure clearly can be expected to be replaced if the qualified investment credit facility it initially houses is replaced.

(5) *Time and manner of making election*—(i) *In general.* To make an election under section 48(a)(5) and paragraph (f) of this section to treat a qualified facility as a qualified investment credit facility, a taxpayer must claim the section 48 credit with respect to such qualified investment credit facility on a completed Form 3468, *Investment Credit,* or any successor form(s), and file such form with the taxpayer's timely filed (including extensions) Federal income tax return for the taxable year in which the qualified investment credit facility is placed in service. The taxpayer must also attach a statement to its Form 3468, or any successor form(s), filed with its timely filed Federal income tax return (including extensions) that includes all of the information required by the instructions to Form 3468, or any successor form(s) for each qualified investment credit facility subject to an election under section 48(a)(5) and paragraph (f) of this section. A separate election must be made for each qualified facility that meets the requirements provided in paragraph (f)(5)(v) of this section to be treated as a qualified investment credit facility. If any taxpayer owning an interest in a qualified facility makes an election with respect to such qualified facility, that election is binding on all taxpayers that directly or indirectly own an interest in the qualified facility.

(ii) *Special rule for partnerships and S corporations.* In the case of a qualified facility owned by a partnership or an S corporation, the election under paragraph (f) of this section is made by the partnership or S corporation and is binding on all ultimate credit claimants (as defined in § 1.50–1(b)(3)(ii)) of a section 48 credit. The partnership or S corporation must file a Form 3468, *Investment Credit,* or any successor form(s), with its timely filed partnership or S corporation return (including extensions) with respect to Federal income tax for the taxable year in which the qualified investment credit facility is placed in service to indicate that it is making the election and attach a statement that includes all of the information required by the instructions to Form 3468, or any successor form(s) for each qualified facility subject to the election. The ultimate credit claimants must claim the section 48 credit on a completed Form 3468, or any successor form(s), and file such form with a timely filed (including extensions) Federal income tax return for the taxable year in which the ultimate credit claimant's distributive share or pro rata share of the section 48 credit is taken into account under section 706(a) of the Code or section 1366(a) of the Code, respectively. The partnership or S corporation making the election must provide the ultimate credit claimants with the necessary information to complete Form 3468, or any successor form(s), to claim the section 48 credit.

(6) *Election irrevocable.* The election under section 48(a)(5) and paragraph (f) of this section to treat a qualified facility as an energy property is irrevocable.

(g) *Coordination rule for sections 42 and 48 credits.* As provided under section 50(c)(3)(C), in determining eligible basis for purposes of calculating a section 42 credit, a taxpayer is not required to reduce its basis in an energy property by the amount of the section 48 credit determined with respect to the property. The basis of an energy property may be used to determine a section 48 credit and may also be included in eligible basis to determine a section 42 credit. See paragraph (e) of this section for special rules regarding ownership of energy property.

(h) *Qualified interconnection costs included in certain lower-output energy properties*—(1) *In general.* For purposes of determining the section 48 credit, energy property includes amounts paid or incurred by the taxpayer for qualified interconnection property (as defined in paragraph (h)(2) of this section), in connection with the installation of energy property (as defined in § 1.48–9(a)) that has a maximum net output of not greater than five megawatts (MW) (as measured in alternating current) (as described in paragraph (h)(3) of this section). The qualified interconnection property must provide for the transmission or distribution of the electricity produced or stored by such energy property and must be properly chargeable to the capital account of the taxpayer as reduced by paragraph (h)(6) of this section. If the costs borne by the taxpayer are reduced by utility or non-utility payments, Federal income tax principles may require the taxpayer to reduce the amounts of costs treated as paid or incurred for qualified interconnection property to determine a section 48 credit.

(2) *Qualified interconnection property.* The term *qualified interconnection property* means, with respect to an energy project that is not a microgrid controller, 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 energy project interconnects to such transmission or distribution system in order to accommodate such interconnection; is either constructed, reconstructed, or erected by the taxpayer, (as defined in § 1.48–9(b)(1)), or for which the cost with respect to the construction, reconstruction, or erection of such property is paid or incurred by such taxpayer; and the original use (as defined in § 1.48–9(b)(3)), of which, pursuant to an interconnection agreement (as defined in paragraph (h)(4) of this section), commences with a utility (as defined in paragraph (h)(5) of this section). For purposes of

determining the original use of interconnection property in the context of a sale-leaseback or lease transaction, the principles of section 50(d)(4) must be taken into account, as applicable, with such original use determined on the date of the sale-leaseback or lease. Qualified interconnection property is not part of an energy property. As a result, qualified interconnection property is not taken into account in determining whether an energy project satisfies the prevailing wage and apprenticeship requirements in section 48(a)(10)(A) and (11), the requirements for the domestic content bonus credit amount referenced in section 48(a)(12), or the increase in credit rate for energy communities provided in section 48(a)(14).

(3) *Five-Megawatt Limitation*—(i) *In general.* The Five-Megawatt Limitation is measured at the level of the energy property in accordance with section 48(a)(8)(A). The maximum net output of an energy property is measured only by nameplate generating capacity (in alternating current) of the unit of energy property, which does not include the nameplate capacity of any integral property, at the time the energy property is placed in service. The nameplate generating capacity of the unit of energy property is measured independently from any other energy properties that share the same integral property.

(ii) *Nameplate capacity for purposes of the Five-Megawatt Limitation.* For purposes of paragraph (h)(1) of this section, the determination of whether an energy property has a maximum net output of not greater than five MW (as measured in alternating current) is based on the nameplate capacity for purposes of paragraph (h)(1) of this section. If applicable, taxpayers should use the International Standard Organization (ISO) conditions to measure the maximum electrical generating output or usable energy capacity of an energy property. Paragraphs (h)(3)(iv) and (v) of this section provide rules for applying the Five-Megawatt Limitation (as provided in paragraph (h)(1) of this section) to electrical generating energy property and electrical energy storage property, respectively.

(iii) *Nameplate capacity for energy properties that generate in direct current for purposes of the Five-Megawatt Limitation.* For energy properties that generate electricity in direct current, the taxpayer may choose to determine whether an energy property has a maximum net output of not greater than five MW (in alternating current) by using the lesser of:

(A) The sum of the nameplate generating capacities within the unit of energy property in direct current, which is deemed the nameplate generating capacity of the unit of energy property in alternating current; or

(B) The nameplate capacity of the first component of property that inverts the direct current electricity into alternating current.

(iv) *Electrical generating energy property.* In the case of an electrical generating energy property, the Five-Megawatt Limitation is determined by using the maximum electrical generating output in megawatts that the unit of energy property 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 should use the International Standard Organization (ISO) conditions to measure the maximum electrical generating output of a unit of energy property.

(v) *Electrical energy storage property.* In the case of electrical energy storage property (as defined in § 1.48–9(e)(10)(ii)), the Five-Megawatt Limitation is determined by using the energy storage property's maximum net output as its nameplate capacity.

(4) *Interconnection agreement.* The term *interconnection agreement* means an agreement with a utility for the purposes of interconnecting the energy property owned by such taxpayer to the transmission or distribution system of the utility. In the case of the election provided under section 50(d)(5) (relating to certain leased property), the term includes an agreement regarding energy property leased by such taxpayer.

(5) *Utility.* For purposes of section 48(a)(8) and this paragraph (h), the term *utility* means the owner or operator of an electrical transmission or distribution system that is subject to the regulatory authority of a State or political subdivision thereof, any agency or instrumentality of the United States, a public service or public utility commission or other similar body of any State or political subdivision thereof, or the governing or ratemaking body of an electric cooperative.

(6) *Reduction to amounts chargeable to capital account*—(i) *In general.* In the case of costs paid or incurred for qualified interconnection property as defined in paragraph (h)(2) of this section, amounts otherwise chargeable to capital account with respect to such costs must be reduced under rules similar to the rules of section 50(c) (including section 50(c)(3)).

(7) *Examples.* This subparagraph provides examples illustrating the application of the general rules provided in paragraph (h)(1) of this section and Five-Megawatt Limitation provided in this paragraph (h).

(i) *Example 1. Application of Five-Megawatt Limitation to an interconnection agreement for energy properties owned by taxpayer.* X places in service two solar energy properties (Solar Properties) each with a maximum net output of 4 MW (as measured in alternating current by using the nameplate capacity of an inverter, which is the first component of property attached to each of the Solar Properties that inverts the direct current electricity into alternating current). Each inverter is integral property to each Solar Property but is not shared by the Solar Properties. The Solar Properties share a step-up transformer, which is integral property to both Solar Properties. As part of the development of the Solar Properties, payment of qualified interconnection costs is required by the utility to modify and upgrade the utility's transmission system at or beyond the point of interconnection to accommodate such interconnection. X has an interconnection agreement with the utility that allows for a maximum output of 10 MW (as measured in alternating current). The interconnection agreement provides the total cost to X of the qualified interconnection property. X may include the costs X paid or incurred for qualified interconnection property subject to the terms of the interconnection agreement, to calculate X's section 48 credits for each of the Solar Properties because each has a maximum net output of not greater than five MW (alternating current). X cannot include more than the total costs X paid or incurred for the qualified interconnection property in calculating the aggregate section 48 credit amount for both Solar Properties.

(ii) *Example 2. Application of Five-Megawatt Limitation to an interconnection agreement for energy properties owned by separate taxpayers.* X places in service a solar energy property (Solar Property) with a maximum net output of 3 MW (as measured in alternating current by using the nameplate capacity of the first component of property attached to the Solar Property that inverts the direct current electricity into alternating current). Y places in service a wind facility (Wind Facility), for which Y has made a valid election under section 48(a)(5), with a maximum net output of

4 MW (as measured in alternating current). The Solar Property and the Wind Facility share a step-up transformer, which is integral to both facilities. As part of the development of the Solar Property and the Wind Facility, payment of qualified interconnection costs is required by the utility to modify and upgrade the transmission system at or beyond the point of interconnection to accommodate that interconnection. X and Y are party to the same interconnection agreement with the utility that allows for a maximum output of 10 MW (as measured in alternating current). The interconnection agreement provides the total cost of the qualified interconnection property to X and Y. X and Y may include the costs paid or incurred by X and Y, respectively, for qualified interconnection property subject to the terms of the interconnection agreement, to calculate their respective section 48 credits for the Solar Property and the Wind Facility because each has a maximum net output of not greater than five MW (in alternating current).

(iii) *Example 3. Application of Five-Megawatt Limitation to an interconnection agreement for a single energy property.* X develops three solar properties (Solar Properties) located in close proximity. The Solar Properties are not considered an energy project pursuant to the definition in § 1.48–13(d). Each of the Solar Properties is a unit of energy property that has a maximum net output of 4 MW. The nameplate capacity of each Solar Property is determined by using the sum of the nameplate generating capacities within the unit of each Solar Property in direct current, which is deemed the nameplate generating capacity of each Solar Property in alternating current. Electricity from the three Solar Properties feeds into a single gen-tie line and a common point of interconnection with the transmission system. X is party to a separate interconnection agreement with the utility for each of the Solar Properties and each interconnection agreement allows for a maximum output of 10 MW (as measured in alternating current). X may include the costs it paid or incurred for qualified interconnection property for each of the Solar Properties to calculate its section 48 credit for each of the Solar Properties, subject to the terms of each interconnection agreement, because each of the Solar Properties has a maximum net output of not greater than five MW (in alternating current). X cannot include more than the total costs X paid or incurred for the qualified interconnection property in calculating the aggregate section 48 credit amount for both Solar Properties.

(iv) *Example 4. Application of Five-Megawatt Limitation to a single interconnection agreement for multiple energy properties.* The facts are the same as in paragraph (h)(7)(iii) of this section (*Example 3*), except that X is party to one interconnection agreement with the utility with respect to the three solar energy properties (Solar Properties) and the interconnection agreement allows for a maximum output of 12 MW (as measured in alternating current). With respect to each of the three Solar Properties, X may include the costs it paid or incurred for qualified interconnection property for each Solar Property to calculate its section 48 credit for each Solar Property, subject to the terms of the interconnection agreement, because each Solar Property has a maximum net output of not greater than five MW (in alternating current).

(v) *Example 5. Application of Five-Megawatt Limitation to an Energy Project.* The facts are the same as in paragraph (h)(7)(iv) of this section (*Example 4*), except that the three solar energy properties (Solar Properties) are also subject to a common power purchase agreement and as a result, are considered an energy project (as defined in § 1.48–13(d)). With respect to each of the three Solar Properties, X may include the costs it paid or incurred for qualified interconnection property to calculate its section 48 credit for each of the three Solar Properties, subject to the terms of the interconnection agreement, because each of the Solar Properties has a maximum net output of not greater than five MW (in alternating current).

(vi) *Example 6. Utility payment reducing costs borne by taxpayer.* In year 1, X places in service a solar energy property (Solar Property) with a maximum net output of 3 MW (as measured in alternating current by using the nameplate capacity of the inverter attached to the solar energy property, which is the first component of property attached to each of the Solar Properties that inverts the direct current electricity into alternating current). X is party to an interconnection agreement with a utility for the purpose of connecting the Solar Property to the transmission or distribution system of the utility. Pursuant to the interconnection agreement, X pays $1 million to the utility, and the utility places in service qualified interconnection property. In year 1, X had no reasonable expectation of any payment from the utility or other parties with respect to the qualified interconnection property. The $1 million is properly chargeable to the capital account of X, subject to paragraph (h)(6) of this section. X properly includes the $1 million paid to the utility in determining its credit under section 48 for Year 1. In Year 4, taxpayer Y enters into an agreement with the utility under which Y pays the utility $100,000 for the use of qualified interconnection property placed in service by the utility pursuant to the interconnection agreement between X and the utility. The utility pays $100,000 to X. Under these circumstances, the payment from the utility in year 4 would not require X to reduce the amount treated as paid or incurred for the qualified interconnection property for the purpose of determining the section 48 credit in year 1.

(vii) *Example 7. Non-utility payment reducing costs borne by taxpayer.* The facts in year 1 are the same as in paragraph (h)(7)(vi) of this section (*Example 6*). In Year 4, taxpayer Y enters into an agreement with the utility under which Y pays X $100,000 for the use of qualified interconnection property placed in service by the utility pursuant to the interconnection agreement between X and the utility. Y pays $100,000 to X. In year 1, X had no reasonable expectation of any payment from Y for subsequent agreements with Y or other parties with respect to the qualified interconnection property. Under these circumstances, the payment from Y in year 4 would not require X to reduce the amount treated as paid or incurred for the qualified interconnection property for the purpose of determining the section 48 credit in year 1.

(i) *Cross references.* (1) For rules regarding the coordination of the section 42 credit and section 48 credit, see section 50(c)(3).

(2) For rules regarding the denial of double benefit for qualified biogas property, see section 45(e).

(3) For applicable recapture rules, see section 50(a).

(4) For rules regarding the credit eligibility of property used outside the United States, see section 50(b)(1).

(5) For rules regarding the credit eligibility of property used by certain tax-exempt organizations, see section 50(b)(3). See section 6417(d)(2) of the Code for an exception to this rule in the case of an applicable entity making an elective payment election.

(6) For application of the normalization rules to determine the section 48 credit taken by certain regulated companies, including rules regarding the election not to apply the normalization rules to energy storage

technology (as defined in section 48(c)(6)), see section 50(d)(2).

(j) *Applicability date.* This section applies with respect to property placed in service after December 31, 2022, and during a taxable year beginning after December 12, 2024.

■ **Par. 4.** Section 1.6418–5 is amended by adding paragraph (f) and revising paragraph (j) to read as follows:

§ 1.6418–5 Special rules.

* * * * *

(f) *Notification and impact of recapture under section 48(a)(10)(C)*—(1) *In general.* In the case of any election under § 1.6418–2 or § 1.6418–3 with respect to any specified credit portion described in § 1.6418–1(c)(2)(ix), if, during any taxable year, there is recapture under section 48(a)(10)(C) of the Code and § 1.48–13(c)(4) of any increased credit amount under section 48(a)(9)(B)(iii) before the close of the recapture period (as described in § 1.48–13(c)(6)), such eligible taxpayer and the transferee taxpayer must follow the notification process in paragraph (f)(2) of this section with the Federal income tax consequences of recapture impacting the transferee taxpayer as described in paragraph (f)(3) of this section.

(2) *Notification requirements.* The notification requirements for the eligible taxpayer are the same as for an eligible taxpayer that must report a recapture event as described in paragraph (d)(2)(i) of this section, except that the recapture amount that must be computed is defined in § 1.48–13(c)(5).

(3) *Impact of recapture*—(i) *Section 48(a)(10)(C) recapture event.* The transferee taxpayer is responsible for any amount of tax increase under section 48(a)(10)(C) and § 1.48–13(c)(5) upon the occurrence of a recapture event under § 1.48–13(c)(4), provided that if an eligible taxpayer retains any amount of an eligible credit determined with respect to an energy property directly held by the eligible taxpayer, the amount of the tax increase under section 48(a)(10)(C) and § 1.48–13(c)(5) that the eligible taxpayer is responsible for is equal to the recapture amount multiplied by a fraction, the numerator of which is the total credit amount that the eligible taxpayer retained, and the denominator of which is the total credit amount determined for the energy property. The amount of the tax increase under section 48(a)(10)(C) that the transferee taxpayer is responsible for is equal to the recapture amount multiplied by a fraction, the numerator of which is the specified credit portion transferred to the transferee taxpayer, and the denominator of which is the total credit amount determined for the energy property.

(ii) *Impact of section 48(a)(10)(C) recapture event on basis of energy property held by eligible taxpayer.* The eligible taxpayer must increase the basis of the energy property (as of the first day of the taxable year in which the recapture event occurs) by an amount equal to the recapture amount provided to the eligible taxpayer by the transferee taxpayer pursuant to the notification required under paragraph (f)(2) of this section and the recapture amount on any credit amounts retained by the eligible taxpayer in accordance with section 48(a)(10)(C) and § 1.48–13(c)(4).

* * * * *

(j) *Applicability dates*—(1) *In general.* Except as provided in paragraph (j)(2) of this section, this section applies to taxable years ending on or after April 30, 2024. For taxable years ending before April 30, 2024, taxpayers, however, may choose to apply the rules of this section and §§ 1.6418–1 through 1.6418–3 provided the taxpayers apply the rules in their entirety and in a consistent manner.

(2) *Paragraph (f) of this section.* Paragraph (f) of this section applies to taxable years ending on or after December 12, 2024.

Douglas W. O'Donnell,

Deputy Commissioner.

Approved: November 25, 2024.

Aviva R. Aron-Dine,

Deputy Assistant Secretary of the Treasury (Tax Policy).

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