Energy Storage Association

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

Subject: Energy Storage Association Response to Notice 2015-70 - Request for Comments on Definitions of Section 48 Property

I. About ESA

Since its inception 26 years ago, the Energy Storage Association ("ESA") has promoted the development and commercialization of safe, competitive, and reliable energy storage delivery systems for use by electricity suppliers and their customers. ESA's over 200 members comprise a diverse group of electric sector stakeholders, including electric utilities, energy service companies, independent power producers, technology developers—of advanced batteries, flywheels, thermal energy storage, compressed air energy storage, supercapacitors, and other technologies—component suppliers, and system integrators.[1] ESA's member companies have expertise in designing, installing, and operating energy storage in a diversity of configurations, as well as firsthand knowledge of the challenges to financing energy projects that utilize energy storage technology.

ESA submits this filing to the IRS to inform the development of official guidance pertaining to the definition of qualified energy property in the Internal Revenue Code ("IRC") and the treatment of Dual Use Equipment for the purposes of the investment tax credit ("ITC") under IRC section 48. Specifically, ESA wishes to offer its reasoning for the eligibility of energy storage equipment as part of qualified energy property and the unique technical characteristics of energy storage equipment as Dual Use Equipment that merit IRS consideration.

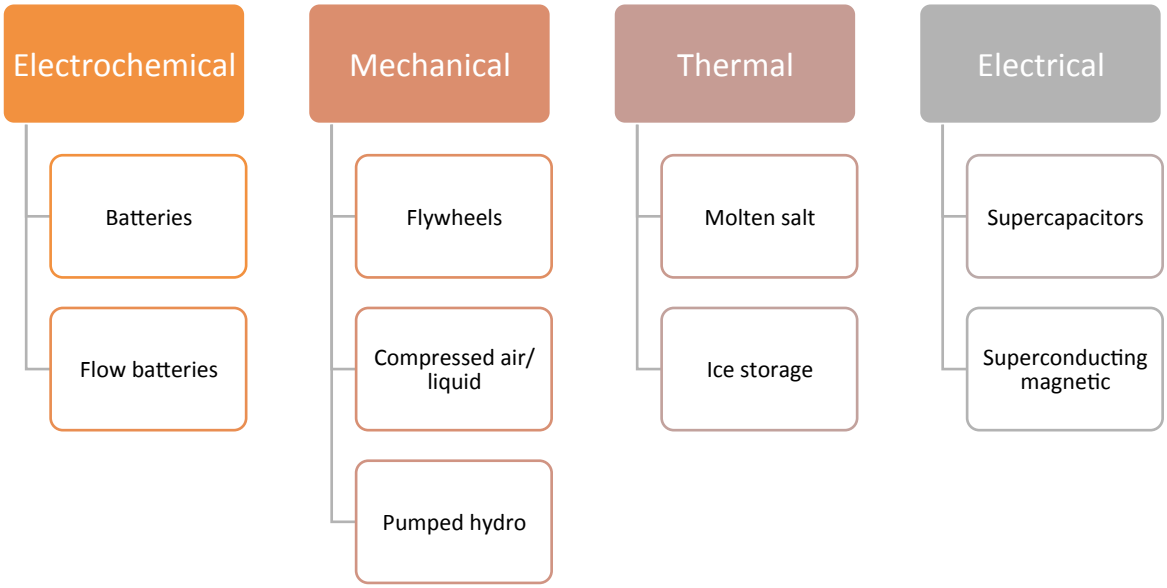
II. About Energy Storage Technologies

"Energy storage" refers to a diverse set of technologies that enable an input of energy to be released at a later time. Electrochemical energy storage (known as a "battery") converts electricity into a reserve of potential energy by creating an electrical gradient between two terminals separated by an electrolyte; electrons can then be discharged as they separate from ions

[1] ESA's membership list is available online at http://energystorage.org/membership/members/all

moving between the two terminals. Mechanical energy storage converts electricity into a reserve of potential energy by pressurizing a substance, accelerating the rotation of a mass, or moving a mass against gravity; the depressurizing of the substance, rotation of the mass, or falling of the mass can be harnessed to turn a generator and produce electricity. Thermal energy storage converts either electricity or heat into a large temperature differential between a mass and its surrounding temperature; that mass can then re-transfer heat to a steam turbine that turns a generator and produces electricity, or the mass can provide direct heating or cooling services. Pure electrical energy storage does not convert electrical input but rather slows the transfer of electrons within an electric field, thereby enabling discharge on demand over short intervals.

Figure 1 Types of Energy Storage

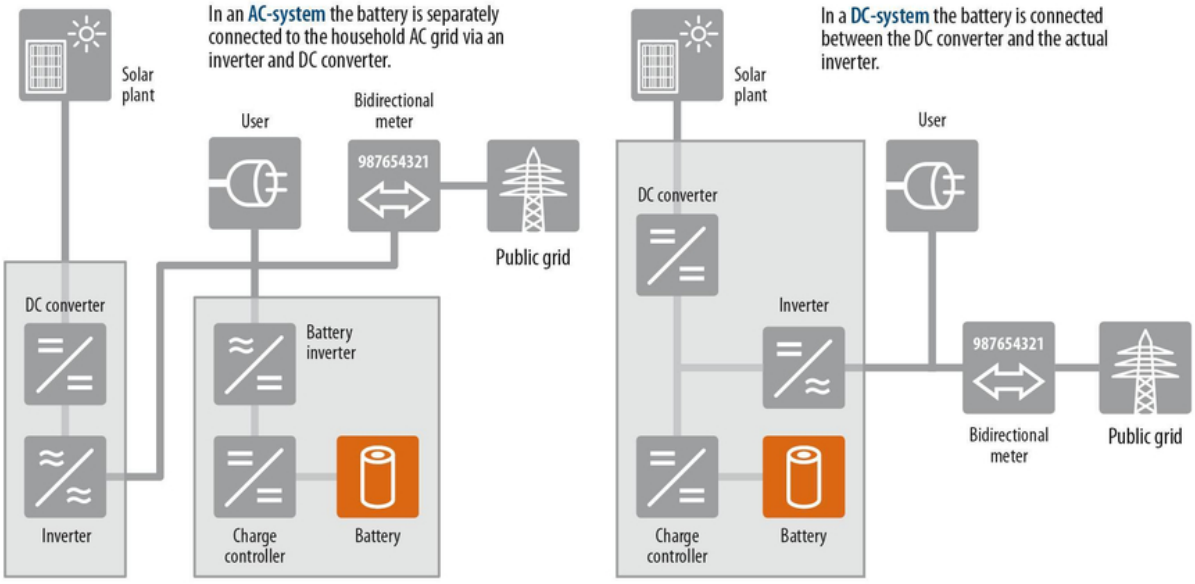


Energy storage equipment comprises two major subcomponents: the storage medium and power conversion electronics. These subcomponents are supplemented by balance-of-system components that include monitoring and control systems that are essential to maintain the health and safety of the entire system. These balance-of-system components may also include but are not limited to physical enclosure and structural components (e.g., racks), thermal management systems, safety equipment (e.g., fire suppression), miscellaneous switchgear, and other hardware to connect to a generating unit, a customer load, or the grid.

Innovation in energy storage is ongoing, with a variety of technologies in use and under development. Among electrochemical technologies alone, numerous chemistries are in commercial deployment, both as conventional batteries (e.g., lithium ion, lead acid, sodium sulfur, nickel metal) and as flow batteries (e.g., vanadium redox, zinc bromine, iron chromium), and numerous emerging chemistries are in early demonstration projects. Additionally, storage and generation are being integrated in different configurations on the AC and DC sides of a system, and these different configurations can require different assortments of system property to

operate efficiently.

Figure 2 Examples of DC and AC Configurations



Given the diversity of energy storage technologies in use, ESA recommends that IRS guidance pertaining to energy storage reflect that diversity. Definition and evaluation of energy storage equipment for eligibility in IRC section 48 should focus on the performance of the equipment in a technology-neutral manner, rather than attempt to specify an exclusive list of technologies or configurations.

III. Energy Storage Applications

Energy storage technologies can offer a range of services. In electric power systems, electricity cannot be stored and must be consumed the moment it is generated, which requires that supply and demand match at all times and moment to moment. To do so, excess capacity and numerous grid stabilizing services are required to ensure reliable, continuous electric service and adequate power quality. By enabling the input of energy for release at a later time, energy storage relaxes the constraint that supply match demand at all times and thereby enables more efficient and reliable operation of an electric power system.

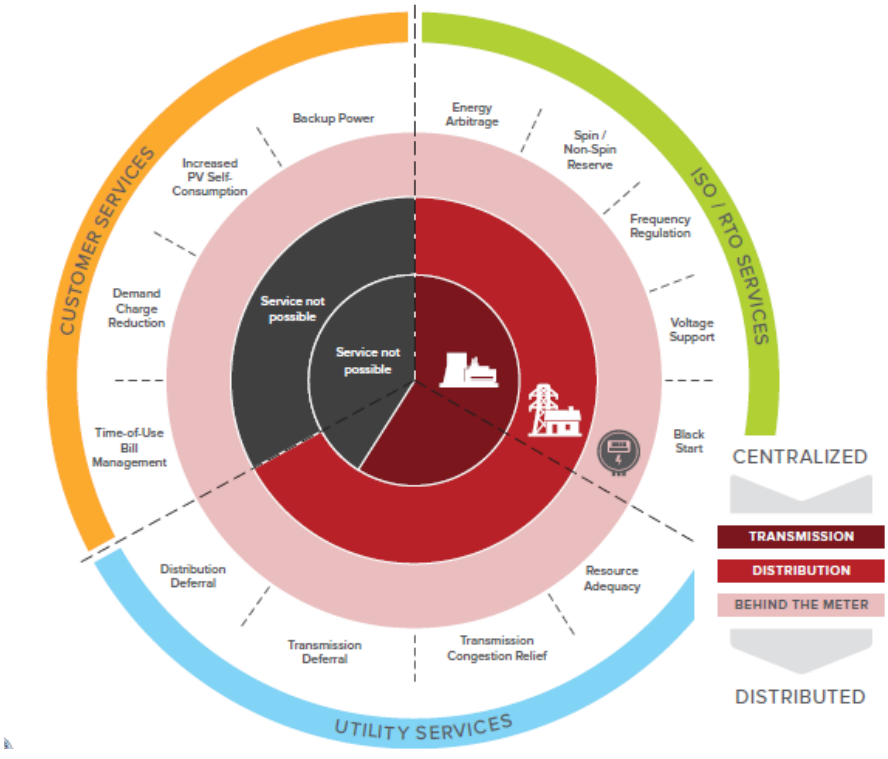
Figure 3 Energy Storage Applications[2]

Bulk Energy Services
Electric Energy Time-Shift (Arbitrage)
Electric Supply Capacity
Ancillary Services
Regulation
Spinning, Non-Spinning and Supplemental Reserves
Voltage Support
Black Start
Other Related Uses

Transmission Infrastructure Services
Transmission Upgrade Deferral
Transmission Congestion Relief
Distribution Infrastructure Services
Distribution Upgrade Deferral
Voltage Support
Customer Energy Management Services
Power Quality
Power Reliability
Retail Electric Energy Time-Shift
Demand Charge Management

Moreover, the possible services provided by energy storage vary with the location of the equipment in the electric power system. Systems directly connected to the transmission and distribution system can provide bulk services, ancillary services, and infrastructure services. Systems located behind a customer meter can enable energy management and onsite reliability and, in some cases, may have the capability to offer the aforementioned services as well.

Figure 4 Energy Storage Services by Grid Location[3]

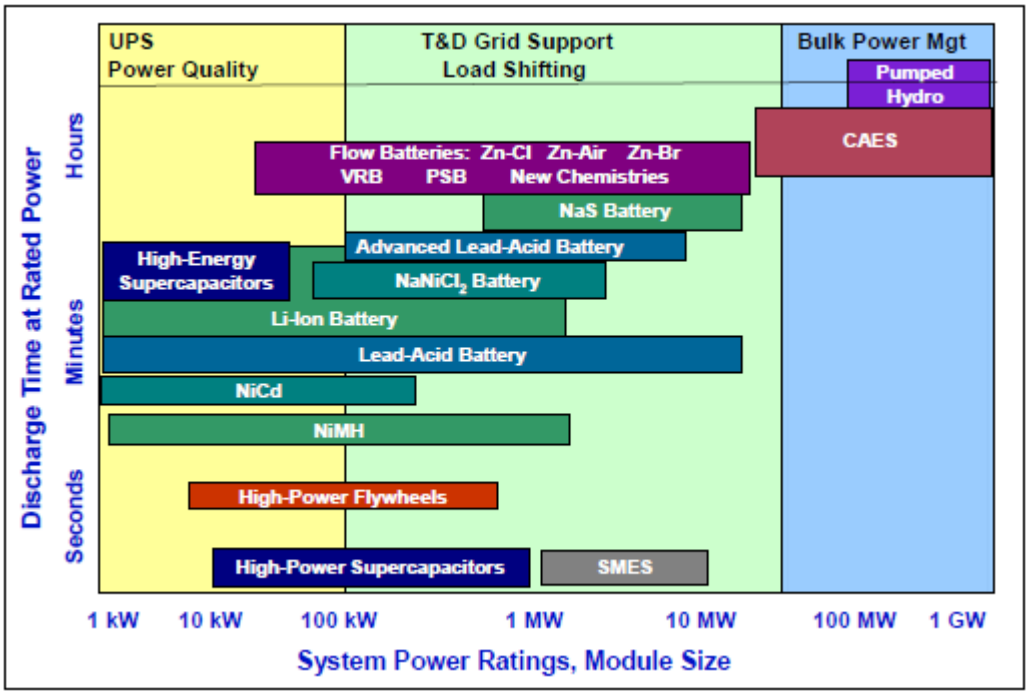


[2] Akhil, Abbas et al. "DOE/EPRI 2013 Electricity Storage Handbook," Sandia National Laboratories, July 2013.
[3] Fitzgerald, Garrett, et al. "The Economics of Battery Energy Storage." Rocky Mountain Institute, October 2015.

Additionally, energy storage is increasingly a critical component in microgrids. A microgrid is a group of interconnect loads and distributed energy resources within defined electrical boundaries that acts as a single controllable entity; such a system may or may not connect with the greater electric grid and is operated autonomously. Microgrids are increasingly used in large campuses, rural areas, and off-grid settings. Energy storage can both substitute for conventional back-up generators and reliably integrate renewable power generation on a microgrid that does not have external electricity inputs. In such an "islanded" system, the energy storage system input can only come from the integrated microgrid generation sources, even if that system is not in direct physical proximity to that generation.

The characteristics of a given energy storage technology make it more optimally suited for some applications than others. High-power, shorter-duration energy storage may be better suited for ancillary services, whereas longer-duration, lower-power energy storage may be better suited for bulk energy services.

Figure 5 Energy Storage Technology Applications by Power and Duration[4]



In light of the multiple capabilities that energy storage can provide, ESA recommends that IRS guidance pertaining to energy storage equipment reflect the diverse market applications of the technology. Definition and evaluation of energy for eligibility in section 48 should seek to allow energy storage equipment to offer a wide range of services, rather than limit the technology from being able to provide its full system benefits relevant to cost and reliability of electricity. The ITC is a public policy mechanism to further incentivize commercial adoption of certain

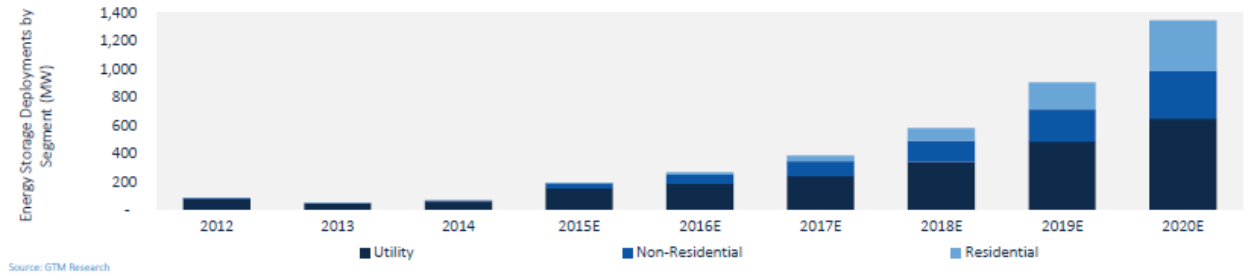
[4] Akhil, Abbas et al. "DOE/EPRI 2013 Electricity Storage Handbook," Sandia National Laboratories, July 2013.

qualifying activities, such as the use of renewable energy, and the underlying policy intent of the ITC is certainly served when an innovative taxpayer is able to efficiently apply the property in a qualifying activity to more than one commercial application.

IV. Market Trends and Near-term Project Outlook

Installation of non-hydro energy storage technology is expected to grow over the next several years. Projections from GTM Research indicate that U.S. installed capacity of non-hydro energy storage in 2020 is expected to be seven times that of 2015.[5] While utility-scale installations make up most of existing capacity to date, customer-sited installations are expected to grow quickly, and annual installed capacity of customer-sited energy storage is expected to match that of utility-scale energy storage in 2020.

Figure 6 Projected Annual U.S. Non-Hydro Energy Storage Installation



Battery energy storage technologies are increasingly included as integral equipment in qualified energy properties defined under IRC section 48. In particular, solar photovoltaic projects are increasingly utilizing energy storage equipment to optimize utilization of generated electricity for onsite consumption and delivery to the grid, with the capacity of integrated solar-storage systems in 2020 projected to be 34 times that of 2015.[6] Additionally, the energy storage microgrid market is expected to grow significantly over the next decade, with capacity of energy storage in microgrids in 2024 projected to be 18 times that of 2014.[7]

V. Legislative Precedent for Eligibility of Storage and Power Conditioning Equipment for the ITC

Current Treasury regulations clearly provide that energy storage devices used to store certain types of renewable energy are considered to be energy property for purposes of the investment tax credit ("ITC") under IRC section 48. In the case of solar energy, for example, "Solar energy property includes equipment that uses solar energy to generate electricity, and includes storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning

[5] "U.S. Energy Storage Monitor: Q3 2015." GTM Research. December 2015. Available online at http://www.greentechmedia.com/research/subscription/u.s.-energy-storage-monitor
[6] "U.S. Solar Market Insight: Q3 2015." GTM Research. December 2015. Available online at http://www.greentechmedia.com/research/subscription/u.s.-solar-market-insight
[7] "Energy Storage for Microgrids." Navigant Research. 4 Feb 2014. Available online at https://www.navigantresearch.com/research/energy-storage-for-microgrids

of those items (emphasis added)."[8]

Although the exact language of the regulations often emphasize thermal storage like storage tanks for solar water heating systems, the legislative history of Section 48 makes it clear that Congress recognized even at the beginning of the energy ITC in 1978 the importance of both electric and thermal storage devices as a critical part of an overall energy system to be able to store energy at the moment it is generated and release it at a subsequent moment in time when the end user needs the energy:

> "In the case of solar and wind energy equipment, the credit applies to such equipment (and parts solely related to the functioning of such equipment) which use solar and wind energy (either separately or to supplement each other) to provide heat, cooling, hot water or electricity. Generally, a solar energy equipment system involves the transformation of sunlight into heat and electricity through the use of such devices as solar cells or other collectors, storage systems for electricity and for hot air or hot water (including rock beds, heat exchangers to utilize captured and stored energy, and related equipment, such as fans and thermostats. The credit for wind equipment similarly applies to the windmill or other devices to harness outdoor moving air to provide electricity and other forms of energy and includes storage and transfer systems to distribute this energy (emphasis added)."[9]

> "Equipment which uses solar or wind energy to provide heat, cooling, electricity or hot water in connection with a building or structure is eligible for the credit. Generally, a solar energy equipment system involves the transformation of sunlight into heat or electricity through the use of such devices as solar cells or other collectors, storage systems for electricity and for hot air or hot water (including rock beds), heat exchangers to utilize captured and stored energy, and related equipment, such as fans and thermostats. The credit for wind equipment similarly applies to the windmill or other devices to harness outdoor moving air to provide electricity and other forms of energy and includes storage and transfer systems to distribute this energy."[10]

The Treasury even noted in original regulations for the energy ITC:

> "In 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."[11]

There is nothing in the legislative history to suggest that Congress intended to provide an energy credit solely for the one component of an overall system that actually produces electricity. Without power conditioning equipment like an inverter to convert DC to AC, for example, it would be impossible to move electrons generated by a solar panel to the end user or the electric grid that rely on AC. Nearly 40 years of tax authorities and precedent provide a strong foundation to affirm in new regulations that qualifying energy property includes other units of

[8] Treas. Reg. § 1.48-9(d)(3).
[9] H.R. Rep. No. 95-496 (Part III), 95th Cong., 1st Sess. (1977), p. 237.
[10] S. Rep. No. 95-529, 95th Cong., 2d Sess. (Vol. 2) (1978).
[11] "Investment Credit for Energy Property," T.D. 7765, 46 FR 7287 (Jan. 1, 1981).

property like storage devices and power conditioning equipment that enable the taxpayer to make the best use of the energy precisely when it is needed and in a manner that preserves the stability of existing energy infrastructure.

ESA proposes that new regulations re-affirm the ITC eligibility of energy storage devices generally for all technologies that qualify for the ITC and ITC in lieu of the production tax credit under IRC section 45 ("PTC"), as well as provide clarifying language that more expressly mentions electric applications, regardless of technology.

New regulations should reference similar electric generation property and, similar to "storage tanks" and "rockbeds," include explicit reference to an electric storage device such as a battery.[12]

VI. Definitions

As a helpful starting point, ESA offers the following definition of energy storage devices as energy property. This language draws on existing statutory language from California state law:[13]

> (1) The term "energy storage property" means energy property capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy. "Energy storage property" may have any of the characteristics in paragraph (2) and shall meet at least one of the characteristics in paragraph (3).
>
> (2) "Energy storage property" may have any of the following characteristics:
> (A) Be either centralized or distributed.
> (B) Be either owned by a load-serving entity or local publicly owned electric utility, a customer of a load-serving entity or local publicly owned electric utility, or a third party, or is jointly owned by two or more of the above.
>
> (3) "Energy storage property" shall do one or more of the following:
> (A) Use mechanical, chemical, or thermal processes to store energy that was generated at one time for use at a later time.
> (B) Use mechanical, chemical, or thermal processes to store energy generated from mechanical processes that would otherwise be wasted for delivery at a later time.
> (C) Store thermal energy for direct use for heating or cooling at a later time in a manner that avoids the need to use electricity at that later time.

ESA proposes this definition not only because of its precedent in existing statutory language, but also because prior regulatory proceedings have discussed the potential interpretations of this

[12] For example, language from Treas. Reg. § 1.48-9(d)(1) focuses on thermal equipment in the context of solar energy: "Generally, those functions are accomplished through the use of equipment such as collectors (to absorb sunlight and create hot liquids or air), storage tanks (to store hot liquids), rockbeds (to store hot air), thermostats (to activate pumps or fans which circulate the hot liquids or air), and heat exchangers (to utilize hot liquids or air to create hot air or water)."
[13] See Cal. Pub. Util. Code § 2835(a).

language with input from multiple stakeholders.[14] The IRS may find this guidance instructive in seeking to ensure that definition and evaluation of energy storage eligibility in IRC section 48 reflects the aforementioned diversity of technologies and applications.[15] Ultimately, ESA recommends that IRS guidance provide flexibility in its definition of energy storage equipment, both to reflect the diversity of technologies and applications and to fully realize the compounding policy value of integrating energy storage equipment with generation.

Additionally, ESA recommends that the IRS definition of eligible energy property take into account the balance-of-system components that are critical to effective function of energy storage, such as power conditioning and transfer equipment, monitors and controls, physical enclosure, and other necessary hardware to connect to a generating unit, a customer load, or the grid. ESA notes that energy storage equipment will often have shared use of many balance-of-system components when utilized as an integral part of generation.

VII. Tax Technical Issues to be Addressed in New Regulations

A. Implications for Section 45 PTC technologies that can elect to claim an ITC

The American Recovery and Reinvestment Act of 2009 amended tax rules to permit qualified facilities eligible for the PTC under IRC section 45 to elect to claim an ITC under IRC section 48 in lieu of the PTC (the "ITC in lieu of PTC"). A taxpayer may thus claim an ITC by making an irrevocable election to claim the ITC in lieu of PTC.

For purposes of the ITC in lieu of PTC, the credit may be claimed on "qualified property" that is part of a "qualified investment credit facility" that the taxpayer elects to treat as energy property.[16] Under IRC section 48(a)(5)(C), a qualified investment credit facility is defined as any facility "which is a qualified facility…under 45(d)…which is placed in service after 2008" and the construction of which begins before the statutory deadline for the respective technology.[17]

In other words, the taxpayer must first assess what is the facility and whether it is a qualified facility under IRC section 45. If the taxpayer elects to claim the ITC, the taxpayer must then disaggregate the facility into separate units of property for application of the general requirements of the ITC. For example, recapture rules under IRC section 50 apply to individual units of property that are sold or otherwise disposed of by the taxpayer within the five-year ITC vestment period.

The statute and regulations are silent with respect to whether and to what extent rules concerning the definition of energy property under Treas. Reg. 1.48-9, including the Dual Use Equipment rule, are applicable to qualified property that is part of a qualified facility under IRC section 45 when the ITC is elected in lieu of the PTC. Notice 2015-70 concerns the definition of energy

[14] See California Public Utilities Commission D. 14-10-045.
[15] See also Gupta, Aloke. "Staff Discussion Paper for Storage Workshop on June 2, 2014." California Public Utilities Commission A. 14-02-006. 28 May 2014. CPUC staff offer guidance to interpretation and recommendations for additional regulatory language should narrower interpretation be desired.
[16] IRC § 48(a)(5)(A).
[17] IRC § 48(a)(5)(D).

property under IRC section 48, but there is no mention of IRC section 45. Given the overlap in rules, ESA recommends that future regulations address the extent to which new regulations will apply to energy property eligible for an ITC by virtue of the ITC in lieu of PTC election under IRC section 48(a)(5).

B. The Dual Use Equipment Rule: Modernizing regulations for current technologies and business models

The legislative and regulatory history of prior investment tax credits provide that property may be eligible for the ITC even when such property uses other sources of energy, whether other credit-eligible resources or non-qualifying sources like fossil fuels ("Dual Use Equipment").

The Energy Tax Act of 1978 created a separate ITC for certain alternative energy technologies including solar, wind, and geothermal energy.[18] Report language on the Energy Tax Act from the House Ways and Means Committee described the credit applying to "such equipment (and parts solely related to the functioning of such equipment) which use solar and wind energy (either separately or to supplement each other) to provide heat, cooling, hot water or electricity."[19] The Senate Finance Committee report merely provides for "…[e]quipment which uses solar or wind energy to provide heat, cooling, electricity, or hot water in connection with a building or structure."[20] Neither report places restriction on geothermal energy property. The Final Conference Report generally follows the House report language, but with no additional commentary on equipment which uses both the qualifying energy source and non-qualifying energy source.[21]

Regulations originally promulgated at the time under former Treas. Reg. section 1.48-9(d), however, precluded the ITC for any solar, wind, and geothermal energy property that also used any other source of energy. For example, in the case of solar:

> "Solar energy property also does not include equipment, such as ducts and hot water tanks, whether utilized solely by auxiliary equipment or by both auxiliary equipment and solar energy equipment."

In 1986, Treasury re-evaluated its restriction on Dual Use Equipment's ITC eligibility. In proposed regulations that formed the basis for the current Dual Use Equipment rule in the regulations today, Treasury concluded:

> "Upon reconsideration of the legislative history, it has been determined that, while Congress did not intend that property that does not use qualified energy be eligible for the business energy credit as solar, wind, or geothermal property, Congress also did not intend to adopt an all or nothing rule for dual use solar, wind, or geothermal energy property. Neither the statute nor the legislative history of section 48(l) include this restriction. Where such a restriction was intended (as in the case of the residential energy

[18] Energy Tax Act of 1978, Pub. L. No. 95–618, § 101, 92 Stat. 3174 (1978).
[19] H.R. Rep. No. 95-496, supra note 8.
[20] S. Rep. No. 95-529, supra note 9.
[21] Rep. No. 95-1324, 95th Cong., 2d Sess. (1978).

> credit for solar, wind, and geothermal property) the committee reports explicitly said so."[22]

Later, Treasury wrote that, "…the legislative history evidences a Congressional intent not to limit the business energy credit to property which uses only solar, wind, or geothermal energy."[23]

ESA agrees that ITC eligibility should continue to extend to Dual Use Equipment. This year marks the 30-year anniversary of the Dual Use Equipment rule's introduction and provides a timely opportunity to consider a new, modernized approach to ITC eligibility that can accommodate evolving technologies and business models. ESA proposes the following improvements and considerations for future updates to ITC regulations concerning Dual Use Equipment.

1) Updated Regulations Should Eliminate 75% Cliff as a Threshold Eligibility Requirement

As the statutory history generally conditions the eligibility of equipment on use of a qualifying energy source like solar, the current restriction that renders solar, wind, or geothermal energy property completely ineligible for the ITC (if use of energy from other sources is more than 25% of energy inputs (the "75% Cliff")) has little foundation, either in other areas of the Tax Code or in the rationale put forward when the Dual Use Equipment rule was promulgated in 1987. We therefore respectfully suggest elimination of the 75% Cliff as a threshold enforced by the IRS.

For example, consider at the outset that the general business credit under IRC section 38 historically provides for an allocation between qualifying and non-qualifying property without a similar "cliff" for eligibility when only a portion of property is subject to depreciation:

> "If…a deduction for depreciation is allowable to the taxpayer only with respect to a part of such property, then only the proportionate part of the property with respect to which such deduction is allowable qualifies as section 38 property for the purpose of determining the amount of credit allowable under section 38."[24]

Other technologies originally qualified under the Energy Tax Act of 1978 also required similar basis allocation requirements and yet imposed no "cliff" on which eligibility was entirely lost. For example, Treasury regulations under section 1.48 provide that synthetic fuel production equipment is alternative energy property and, "[E]quipment is eligible only to the extent of the equipment's cost or basis allocable to the annual production of substances used as a fuel or used in the production of a fuel."[25] In the example demonstrating the rule's application, only 50% of the output of the equipment is used to produce alcohol for use in a fuel mixture, and the other 50% is used to produce whiskey. The regulations conclude a credit may be claimed on the corresponding 50% of the equipment's basis attributable to the synthetic fuel production. In the example, the property only becomes ineligible for the ITC if the equipment is subsequently used

[22] "Proposed Business Energy Investment Credit for Solar, Wind, and Geothermal Energy Property," December 9, 1986, 51 FR 44315-01.
[23] Id.
[24] Treas. Reg. § 1.48-1(b)(2).
[25] Treas. Reg. § 1.48-9(c)(5).

"exclusively" to produce whiskey.

The parallel residential homeowner's credit under the current IRC section 25D implicitly includes a dual use equipment rule with respect to certain expenditures for solar energy property. The language in IRC section 25D(d) was added to the IRC by the Energy Policy Act of 2005, which also created the 30% solar ITC under IRC section 48.[26] IRC section 25D(d)(1) defines "qualified solar water heating property expenditure" and the associated property as fully eligible for the ITC "if at least half of the energy used by such property for such purpose is derived from the sun." It should be noted that the original homeowner's solar ITC enacted in 1978 definitively restricted ITC eligibility to property that *solely* used solar, wind, or geothermal energy. In construing the intent of Congress in 1986, Treasury emphasized, "Where such a restriction [on dual use equipment] was intended (as in the case of the residential energy credit for solar, wind, and geothermal property) the committee reports explicitly said so."[27] Congress, therefore, clearly demonstrated intent when it revised the homeowner's solar ITC in 2005 to eliminate the standard that precluded eligibility entirely for Dual Use Equipment to the current standard that allows for 100% of the expenditure to qualify for the ITC even if only 50% of the energy used by the equipment is solar energy.

Therefore, under current IRC section 25D rules, a homeowner's solar energy property may use up to 50% non-solar energy and still remain eligible to claim 100% of the ITC on the qualifying expenditure. The rules for solar electric and wind expenditures do not feature identical language, but they are arguably just as flexible, merely requiring that the expenditure be for property "which uses solar energy to generate electricity"[28] or "uses a wind turbine to generate electricity"[29] with no requirements that property use *solely* solar or wind energy or some threshold amount.

By contrast, the Dual Use Equipment rule introduced in 1986 created the 75% Cliff with no explanation of the threshold requirement. Neither the proposed rule nor the Treasury Decision for the final regulations in effect today established through reference to statutory or legislative history why property that uses solar energy will not even be partially eligible for the ITC unless 75% of energy usage is allocable to the qualifying energy source.[30]

The concept may trace its roots to the definition of "qualifying small power production facility" under separate regulations promulgated by the Federal Energy Regulatory Commission ("FERC") at 18 CFR Part 292, whose classification encapsulated power plants for which 75% or more of a facility's total energy input is derived from "biomass, waste, renewable resources, geothermal resources, or any combination thereof" and the facility's use of oil, natural gas, and coal does not exceed, in the aggregate, 25 percent.[31] But this classification was only mentioned

[26] Pub L. No. 109–58, August 8, 2005, 119 Stat 594, at Sec. 1335.
[27] 51 FR 44315-01, supra note 21.
[28] IRC § 25D(d)(2).
[29] IRC § 25D(d)(4).
[30] "Income Tax; Taxable Years Beginning After December 31, 1953; Business Energy Investment Credit for Solar, Wind, and Geothermal Energy Property," July 21, 1987, 52 FR 27336-01.
[31] 18 CFR 292.204(b). Any primary energy source which, on the basis of its energy content, is 50 percent or more biomass shall be considered biomass. 18 CFR 292.204(b)(ii).

in the promulgation of the Dual Use Equipment rule when Treasury expressly rejected usage of FERC classifications to determine the extent of property's ITC eligibility.[32]

Even if appropriate to look to FERC standards, it should be noted that FERC's rules are focused on *fuel* usage. The Congressional conference report explaining the language even acknowledged drawbacks, stating that, "The language in these definitions relating to fuel use and fuel efficiency may not always be applicable as som [sic] power production facilities (such as hydroelectric facilities) may not use fuel."[33] Electricity from the grid is increasingly an energy input in the context of energy storage devices paired with renewable energy, but FERC's regulations are silent on grid energy. A battery charging and discharging grid energy would not render an otherwise qualifying solar or wind facility as ineligible for classification as a qualifying small power production facility, supporting a conclusion that grid energy should not even be included in a calculation of non-qualifying sources at the outset.

Generally, FERC's classifications primarily concern special rate and regulatory treatment in utility regulatory proceedings and have no foundation in the statutory or legislative intent evidenced by Congress with respect to the extent of ITC eligibility for equipment that uses multiple sources of energy. Even if the Dual Use Equipment rule was originally drafted in pursuit of regulatory symmetry with utility oversight, many renewable energy systems today (especially distributed systems at the residential, commercial, and industrial level) are not even regulated by FERC as qualifying small power production facilities.

ESA therefore requests that future Treasury regulations concerning Dual Use Equipment should eliminate the 75% Cliff as a threshold eligibility requirement. At a minimum, respecting credit eligibility to the extent of basis or cost allocable to the equipment's use of energy from qualifying resources during an annual measuring period would be consistent with precedent established within the IRC section 38 general business credit rules, generally, and other investment credits.

2) Confirm Taxpayers May Aggregate Qualifying Energy Sources in Basis Calculation

If new regulations continue to rely on an energy inputs approach to the Dual Use Equipment rule, Treasury should make clear that the taxpayer's calculation of qualifying ITC basis may combine inputs from all energy property that would otherwise individually qualify for the ITC, including technologies eligible for the PTC under IRC section 45 if the ITC is properly elected in lieu of PTC under IRC section 48(a)(5).

Congressional report language provides that multiple credit-eligible technologies could "supplement one another" in the provision of usable energy.[34] Treasury's preamble to the original 75% Cliff refers to measuring "qualified sources" to satisfy input requirements, implying that multiple qualifying inputs (e.g., solar and wind energy used by the same

[32] 52 FR 27336-01, supra note 29.
[33] H.R. Conf. Rep. 95-1750, 89, 1978 U.S.C.C.A.N. 7797, 7823.
[34] H.R. Rep. No. 95-496, supra note 8.

equipment) should be aggregated for purposes of calculating Dual Use Equipment's qualifying basis.[35]

Yet current regulations specifically applied to solar, wind, and geothermal technologies suggest a different standard.

For example, if a battery's energy use as measured by inputs is 50% geothermal and 50% solar, does the cost of the battery qualify for the ITC? Under Treasury definitions, the battery is likely Dual Use Equipment. The regulations, however, apply a separate Dual Use Equipment rule to each technology requiring each to meet the 75% Cliff separately. In other words, an aggregation of geothermal and solar inputs for purposes of satisfying the 75% Cliff is prohibited. The 50% geothermal and 50% solar inputs battery example would therefore be completely ineligible for the ITC, despite the fact that geothermal and solar are individually eligible for the credit. With respect to the extent of basis that is ITC eligible, the regulations appear inconsistent on their face:

- Solar Energy at Treas. Reg. section 1.48-9(d)(6): "…only to the extent of its basis of [sic] cost allocable to its *use of solar or wind* energy" (emphasis added).

- Wind Energy at Treas. Reg. section 1.48-9(e)(1): "…only to the extent of its basis or cost allocable to its *use of wind* energy" (emphasis added).

- Geothermal Energy at Treas. Reg. section 1.48-9(c)(10(iv): "…only to the extent of its basis or cost allocable to its *use of energy from a geothermal deposit*" (emphasis added).

Growing consumer and regulatory interest in micro-grids and community/shared renewable energy projects illustrate scenarios in which equipment may involve multiple renewable energy sources, in addition to other energy sources. New regulations should more clearly reflect Congressional intent and make clear that measurement of qualifying energy sources may aggregate all energy inputs that individually would qualify for the ITC, including technologies eligible to claim the ITC in lieu of PTC.

3) New Technologies and Business Models Create Practical Challenges to Applying Current Dual Use Equipment Rule

Treasury regulations provide for an annual measurement of energy inputs on a BTU basis, but no additional clarity is provided with respect to measurement methodology. The emphasis of thermal systems and the singling out of a method based on a BTU basis is not surprising with respect to solar, as the dominant solar technology in the market during the time the regulations were written was solar thermal technology providing hot water. PV systems were still too expensive except for limited, remote off-grid installations and spacecraft. The regulations clearly indicate *electric* storage devices for solar and wind energy systems are eligible, but the drafters of the Dual Use Equipment rule provided no corresponding example for determining eligible basis.

[35] 51 FR 44315-01, supra note 21.

The Treasury Decision in 1987 announcing the final Dual Use Equipment rule emphasized energy input measurements on a "BTU basis," but also included language that the IRS may "may accept *any other method* that, in [the IRS Commissioner's] opinion, accurately establishes the relative annual use of energy from qualified sources and energy from other sources" (emphasis added).[36] Treasury acknowledged in its notice that other measurement methods may be acceptable, including methods that do not "reflect actual, relative energy inputs" but provided no examples of other acceptable methodologies.[37]

Very few authorities apply the Dual Use Equipment rule to specific case facts. At the outset, one must determine the level at which one must carry out measurements of energy inputs, assuming that method is adopted. In the only case to explore the 75% Cliff in any depth, the Tax Court declined to endorse an IRS position that analyses must be completed for individual assets:

> "Nowhere do we find the regulations requiring that a separate energy use study be made as to each asset. The purpose of the [tax credit] is to encourage the use of alternative sources of energy and thereby to reduce the country's dependence on traditional forms of energy. S. Rept. 95-529 (1977), 1978-3 C.B. (Vol. 2) 199, 205. In the instant case, [The mushroom facility] derives 81.9 percent of its energy from geothermal energy. [The facility] was built at the…site because geothermal energy was available. Thus, while [the facility] uses propane and electricity in its facility, it has met the requirements of the regulations set out above, and it satisfies the purposes of the statute."[38]

Application of the Dual Use Equipment rule to energy storage has been particularly unclear over the last five years. In 2011, the IRS issued two PLRs permitting taxpayers to claim a full 30 percent ITC on the eligible basis of storage devices paired with wind farms.[39] Both taxpayers contemplated using storage devices for grid services like frequency regulation, in which a certain portion of battery inputs of energy would be from the grid. Nonetheless, the IRS did not apply the Dual Use Equipment rule and require a corresponding ITC haircut. In 2012, the IRS issued a PLR for a combined solar PV and battery system that also provided frequency regulation, among other uses. The IRS concluded the taxpayer's storage device was Dual Use Equipment and subject to the associated ITC reduction and 75% Cliff requirements of Treas. Reg. section 1.48-9(d)(6).[40]

Renewable energy project complexity on a technical level has only increased in the energy storage context, creating practical challenges to compliance. For example, technological innovations have made it easier to couple renewable energy with storage devices through shared components like inverters and other wiring traditionally connecting the system to the host customer and the electric grid.

The current Dual Use Equipment rule provides little clarity for electric storage and market applications installed behind a consumer's utility meter (so-called "behind-the-meter" systems) where measurement of gross energy inputs is difficult or even technically impossible. Certain

[36] 52 FR 27336-01, supra note 29.
[37] Id.
[38] Oregon Trail Mushroom Co. v. Comm'r, 63 T.C.M. (CCH) 3045 (1992).
[39] IRS PLR 201142005; 201208035.
[40] IRS PLR 201308005.

grid-connected, behind-the-meter projects with storage in residential and commercial settings may feature equipment that provides for the simultaneous flow of electrons between the generation equipment, the host customer, a storage device, and the electric grid. Indeed, grid synchronization by definition requires electrons to be constantly flowing. It is therefore impossible to "tag" electrons on a real-time basis as qualifying or non-qualifying in these circumstances, yet the current regulations appear to require this level precision. In such configurations, a battery may receive an automated command via software controls to charge the battery during the day at the same time that generation equipment is generating electricity and the host customer is consuming electricity. At such moment, the electricity from the generation equipment may reach the host customer, be stored in the battery for later use by the host, or be exported to the grid via net metering. The battery's energy charging could be comprised of renewable energy electrons, grid electrons, or some combination of the two sources that is impractical to measure with precision. Standard interconnection practices would only require one utility meter to monitor the net exchange of electricity between the grid and the customer's site.

Even assuming the taxpayer added a second meter to record the aggregate electricity that could be generated by the generation equipment alone, real-time energy flows and overlapping equipment use in the behind-the-meter context makes it virtually impossible to guarantee the precise allocation of energy usage between renewable and non-renewable energy sources at all times. At the same time, such innovations in technology allow a host customer to lower the overall capital expenditure, increase his/her use of clean energy, obtain an emergency back-up power capability when the grid is down, and even provide critical grid-balancing services when the grid is operating normally.

4) Modernizing Dual Use Equipment Rule with Primary Use Standard for Full ITC Eligibility

Notwithstanding the incremental regulatory improvements described herein that could improve the administration of existing tax regulations, the legislative history suggests a flexible standard for taxpayers is appropriate as long as the primary use or activity of the Dual Use Equipment derives from ITC-eligible energy sources.

The "primary use" standard is applied for asset class depreciation determinations, changes in use, and for asset disposition purposes applying a similar logic with regard to Dual Use Equipment. ESA proposes Treasury adopt a similar "primary use" standard for Dual Use Equipment for IRC section 48 purposes.

Specifically, the primary use standard should incorporate the following elements to provide both flexibility and specificity to taxpayers:

1. A flexible provision whereby Dual Use Equipment may be 100% eligible for the ITC provided the primary use of the equipment for depreciation purposes is as otherwise ITC-eligible energy property.
2. Primary use would be determined in the identical manner in which the taxpayer would determine the primary use of the asset when determining the appropriate class life for depreciation schedule purposes.

3. Specific scenarios for which the primary use determination will be deemed satisfied, providing both taxpayers and tax professionals greater certainty with respect to eligibility.

The above principles are illustrated in the proposed regulatory language below, which would be a substitute for the current Dual Use Equipment rule. The proposed regulatory language and example below refer only to solar energy merely for simplicity, and ESA reiterates its proposal in Section VII(B)(2) herein that new regulations should confirm that all ITC-eligible technologies' energy inputs, including technologies eligible to claim the ITC in lieu of PTC, may be aggregated and included for purposes of calculating the extent of ITC-eligible basis.

Proposed Language for Dual Use Equipment
(6) Dual Use Equipment.

(i) Solar energy property does not include equipment ("auxiliary equipment"), such as furnaces and hot water heaters, that use a source of power other than solar energy to provide usable energy.

(ii) Solar energy property includes equipment, such as ducts and storage devices (e.g., batteries), which is used by both auxiliary equipment and solar energy equipment ("dual use equipment").

(iii) Dual use equipment is qualifying solar energy property if the primary use of the equipment for purposes of section 167(a) is as equipment or material (and parts related to the functioning of such equipment) that uses solar energy. In general, primary use may be determined by the taxpayer in any reasonable manner that is consistently applied to the dual use equipment. Solely for purposes of this section, dual use equipment will be deemed to primarily use solar energy if:

(1) the dual use equipment allows the taxpayer to use solar energy when local utility service is unavailable; or

(2) to the extent energy inputs are allocable to solar energy and energy from other sources, at least 50 percent of the allocable energy inputs used by such dual use equipment in an annual measuring period is solar energy.

(iv) An "annual measuring period" for an item of dual use equipment is the 365-day period beginning with the day it is placed in service or a 365-day period beginning the day after the last day of the immediately preceding annual measuring period. The allocation of energy use required for purposes of this section may be made by comparing, on a Btu or kilowatt hour basis, the energy input to dual use equipment from solar energy with energy input from other sources.

(v) (A) If the dual use equipment is not primarily used for solar energy as described in paragraph (iii), dual use equipment is only solar energy property to the extent of the equipment's cost or basis allocable to use of solar energy during an annual measuring period; and

> *(B) No additional credit is allowable for dual use equipment upon which the taxpayer has already claimed a tax credit if, in any subsequent taxable year, the portion of such dual use equipment's basis or cost allocable to use of solar energy increases above what the taxpayer originally determined when placing the property in service and calculating the corresponding credit for such dual use equipment. If a taxpayer's use of solar energy in an annual measuring period decreases below what the taxpayer originally determined as the allowable portion for purposes of clause (A) when placing the property in service, however, the taxpayer will be subject to recapture in the taxable year in which such annual measuring period closes for the proportional amount of the credit claimed on the dual use equipment that would have otherwise vested in such annual measuring period.*

ESA's proposal provides the taxpayer the flexibility to determine primary use in any reasonable manner that is consistently applied to the Dual Use Equipment. Such a determination would provide policy parity with the residential ITC under IRC section 25D, where 100% of expenditures are nonetheless eligible for the ITC even if the measurement of energy inputs is less than 100% solar energy. Considering the legislative history of the business credit suggests an even less restrictive standard for eligibility for property that merely uses a qualifying energy source, ESA believes the statutory language of IRC section 25D(d)(1) provides the most appropriate reflection of Congressional intent concerning the portion of basis of Dual Use Equipment that should be taken into account in computing the ITC.

Much like the current regulations, the taxpayer would make the primary use determination when placing the equipment in service. Thereafter, during the ITC recapture period, the taxpayer must re-assess the primary use of the equipment for each annual measuring period, just as the taxpayer must assess whether any asset's primary use has changed for purposes of depreciation under IRC section 168.[41]

In the interest of clarity, ESA proposes two specific fact scenarios in which primary use will be deemed satisfied.

The first scenario primarily concerns energy storage that provides the host with emergency back-up power. Current electrical codes require behind-the-meter projects to shut down completely when the electrical grid experiences an outage.[42] Consumers often express frustration that their distributed energy systems are rendered useless exactly at moments when they need the distributed energy the most:

> "'Here's a $70,000 [solar PV] system sitting idle,' said Ed Antonio, who lives in the Rockaways in Queens and has watched his 42 panels as well as those on several other houses in the area go unused since the power went out Oct. 29 [as a result of Hurricane Sandy]. 'That's a lot of power sitting. Just sitting.'"[43]

[41] See Treas. Reg. § 1.168(i)-4(d)(2)(i).
[42] See UL Standard 1741.
[43] Cardwell, Diane, "Solar Companies Seek Ways to Build an Oasis of Electricity," *New York Times*, 19 November 2012, available online at http://nyti.ms/10ieJWd.

The rule is premised on safety concerns for electrical and utility workers to ensure distributed generation projects are not feeding electricity back onto utility lines while workers are trying to restore power. ESA fully recognizes that there are no shortcuts or work-arounds when it comes to the safety of utility personnel. Projects incorporating a storage device can be configured to disconnect the host from the grid when an outage occurs and allow the host to continue using renewable energy stored in the storage device. Furthermore, a configuration can be implemented to provide a host with electricity in real-time during the day, when the sun is shining, and in evening hours when the host can draw from the storage device any excess electricity generated over the course of the day.

The host's consumption of renewable energy for emergency power purposes may only occur over the actual duration of a grid blackout. But the storage device may retain stored renewable energy 24 hours a day, seven days a week for weeks or months to be ready and available as soon as an outage occurs. Because storage is not just a function of energy inputs and outputs, but also a function of the time in which the energy is stored, ESA believes a primary use should be deemed satisfied when such equipment allows the taxpayer to use a qualifying energy source when local utility service is unavailable. This is also consistent with parallel public policy goals of ensuring individuals and communities become more resilient to extreme weather and other events that threaten U.S. utility infrastructure.

The second scenario provides the taxpayer with the option to use an energy inputs method for determining primary use, even as the overall primary use standard would permit other reasonable methods that do not reflect energy inputs. The proposed rule mirrors the 50% threshold for certain solar energy property under IRC section 25D to provide consistent policy treatment. ESA agrees that at least 50% use of a qualifying energy source is one reasonable method to demonstrate primary use and should be available under IRC Section 48, including facilities that can elect to claim the ITC in lieu of PTC.

Clause (A) of paragraph (v) of the proposed language retains the underlying standard consistent with other parts of the Internal Revenue Code that removes a "cliff" for ITC eligibility and notes that Dual Use Equipment that does not primarily use ITC-eligible energy sources may still be eligible for the ITC, but only to the extent of basis allocable to the Dual Use Equipment's use of qualifying energy sources. To the extent some portion of the basis cannot be reasonably allocated to qualifying and non-qualifying use, such portion of unidentifiable inputs would be removed from both the numerator and the denominator of the calculation.

Clause (B) of paragraph (v) attempts to better balance ITC recapture considerations for the taxpayer and IRS. Under the current rules, the taxpayer is subject to ITC recapture on proportional decreases in qualifying energy inputs in an annual measuring period. If qualifying energy usage increases with respect to certain Dual Use Equipment, however, the taxpayer is prohibited from claiming additional credit. Under the proposed regulatory language, the taxpayer may not claim additional credit for any increase, but the taxpayer's recapture liability with respect to the Dual Use Equipment rule would be limited to the proportional amount of credit that would have vested in that taxable year. The application of this requirement can be illustrated in the following example:

> Taxpayer's basis in Dual Use Equipment is $100 when placed in service. 40% of energy inputs is expected to be attributable to solar, and taxpayer claims a 12% ITC on the cost basis of the Dual Use Equipment, vesting $2.40 each year over the five-year recapture period. At the end of the first annual measuring period, the taxpayer's energy inputs measurement shows that only 35% was attributable to solar, which would have constituted a total ITC of $10.50, vesting $2.10 each year over five years. Therefore, the taxpayer's recapture at the close of the first annual measuring period is $.30 ($2.40-$2.10 = $.30). If the solar energy percentage increases in the following annual measuring period, no additional credit may be claimed. Alternatively, if the solar energy percentage falls to 30% in year 2, the proportional recapture for that annual measuring period will be the difference between 40% and 30%, or $.60 ($2.40-$1.80 = $.60).

The above recapture is not proposed as a replacement for other applicable recapture requirements under IRC section 50 for qualifying energy property. For example, if the taxpayer were to sell or otherwise dispose of the Dual Use Equipment in year 2, the taxpayer would be subject to full recapture of 80% of the unvested credit.

C. *Retrofits: Storage devices added to existing, operational projects should be eligible for the ITC*

Neither ITC nor ITC in lieu of PTC regulations preclude credit eligibility where qualifying property is added to energy property previously placed in service. That said, there is significant uncertainty in the market today concerning the eligibility of a storage device integrated into an existing renewable energy system.

PLR 201208035 concluded that a storage device will be considered part of the "qualified property" at a "qualified investment credit facility" within the meaning of IRC section 48(a)(5) and, therefore, eligible for the ITC in lieu of PTC. The taxpayer represented that it planned to install the storage device at a wind generation facility after the wind generation facility had been placed in service for federal income tax purposes. The ruling described the storage device's "primary use" as storing the wind farm's electricity to work around transmission constraints that had interfered with the taxpayer's delivery of electricity to the grid. The storage device would enable the taxpayer to make best use of its electricity by storing the energy that would otherwise be wasted and delivering it to the grid at a later point in time. Furthermore, the addition of the storage device to the wind farm provided the taxpayer with new capabilities to use its wind energy, including the provision of ancillary services such as frequency regulation to compensate for grid instability caused by intermittent renewable generation like the taxpayer's facility, and other causes of grid variability.

In the solar context, there are many scenarios in which solar energy equipment will be added to energy property for which an ITC has already been claimed. A taxpayer may add additional PV panels or other energy generation equipment to an existing project to expand generation capacity. Following the five-year vestment period, the taxpayer may replace a degraded inverter or other power conditioning equipment with new equipment. In the case of solar water heating, the taxpayer may replace the water storage device with a new storage device. In each of these circumstances, it would follow that the new property integrated into the existing renewable energy system is fully eligible for the ITC even though the unit of

property has been originally placed in service at a later date in relation to when the balance of other system property was originally placed in service for federal income tax purposes.

Even in the case of the IRC section 45 PTC, for which credit eligibility is determined on a facility-by-facility basis, there is precedent for system property additions to be deemed qualifying property for purposes of the energy credit even when placed in service after the initial credit-eligible property/facility is placed in service for federal income tax purposes.

Notice 2008-60, Notice 2009-52 and Notice 2013-29 are all consistent with the proposition that integral property may be "part of" a qualified facility under IRC section 45 even when it is placed in service at a date subsequent to the original placed-in-service date of the facility as a whole. The concept of determining the component property that is an "integral part" of a "qualified facility" for federal income tax purposes is best defined in the ITC regulations. Specifically, Treas. Reg. section 1.48-1(d)(4) states in pertinent part that "property [may be determined to be] used as an integral part of one of the specified activities if [such property] is used directly in the activity and is essential to the completeness of the activity."

Notice 2008-60 specifically contemplates a case where property added to a facility is nonetheless treated as "part of the qualified facility" that is generating electricity from a qualifying resource for PTC purposes. Section 3.01 provides the example of a power plant using fossil fuel originally placed in service before October 22, 2004. After October 22, 2004, one new burner and boiler using open-loop biomass are added to the power plant. The new burner and boiler are connected to the existing steam header, turbine, and generator in the power plant. The open-loop biomass facility consists of the entire power plant that is operated as a separate integrated unit and includes both the existing power plant and the new burner and boiler. As the new additions failed to meet the so-called "80/20 Test" on a facility-wide basis, the additions were not treated as the placement in service of a "new" facility. Nonetheless, the power generated by the new additions were treated as eligible for the IRC section 45 PTC for the remained of the tax credit period. Accordingly, the new additions would constitute "qualified property" that is part of a "qualified investment credit facility" within the meaning of IRC section 48(a)(5) and, potentially eligible for the ITC in lieu of PTC to the extent that the taxpayer has not previously claimed the PTC with respect to the facility.

Notice 2009-52 provides guidance with respect to the applicable procedures for electing to treat a "qualified facility" under IRC section 45(d) as a "qualified investment credit facility" under IRC section 45(a)(5). Section 2.01 of the Notice provides in pertinent part: "[t]o make the election with respect to a qualified facility, a taxpayer must claim the energy credit with respect to qualified property that is an integral part of the facility on a completed Form 3468 and file such form with the taxpayer's income tax return for the year in which the property is placed in service."

ESA believes that a storage device added to an existing renewable energy project may be eligible for the ITC under the "integral part" rule, because the storage device may be used directly in the activity of producing electricity from the renewable sources in a manner that enables the taxpayer to use the energy when needed, and thus, the storage device may be considered essential to the completeness of such activity.

D. Separate Ownership: Storage devices should not be rendered ineligible for the ITC due to separate ownership of the storage relative to other property constituting a renewable energy project

Third-party ownership of energy property has contributed to the rapid growth of new technologies, notably renewable energy technologies under IRC sections 48 and 45. In many cases, the taxpayer/owner of the qualifying property is separate from the end user of the electricity. But as innovations continue, companies are further specializing in the provision of specific services and specific units of property that enable the qualifying activity. For example, some companies may provide individual inverters and/or storage devices through a services agreement to a solar project developer who will, in turn, sell renewable energy and emergency back-up power to an end-consumer. Conceptually, the relationship is similar to a sub-contractor, but whose equipment and services will be necessary for the ongoing operation of the developer's system to provide electricity to the end-consumer. From a policy perspective, the division of ownership between taxpayers should not alter the ITC eligibility of such equipment, provided the taxpayers are otherwise eligible to claim the ITC. Project developers already fully account for ITC-eligible equipment and expenditures, and separate ownership alone creates no additional risk of abuse. Future regulations should more clearly affirm what we believe can already be inferred from the tax law precedent:

- There is nothing inherent to IRC sections 48 and 45 that would prohibit property owned by multiple parties from being ITC-eligible.

- Parties should be eligible for ITC to the extent of their proportionate ownership interest in such property.

- In the case where multiple component units of "qualified property" are considered part of the same "qualified facility," each individual unit of property is eligible to the extent of its tax basis. Where these individual units of property are owned by separate taxpayers, each taxpayer is eligible for ITC to the extent of the cost basis of the "qualified property" which they own.

In Cooper v. Comm'r, a group of investors purchased packages of system property that would form the majority, but not all, of the property comprising solar water heating systems. Each package was then leased by the investors to a separate taxpayer who, in turn, sub-leased the solar water heating systems to individual homeowners. The original lessee purchased and retained ownership of the additional system property not included in the package, including a storage device, miscellaneous piping, fitting, insulation, and other small devices. The Tax Court noted that the investors' solar water heating equipment did not constitute a complete solar water heating system without the storage device and other system property owned by the lessee. In upholding the taxpayers' credits claimed on their solar water heating equipment, the Tax Court found both the regulations and statutory definitions "sufficiently broad" to conclude that *component parts* constituting solar energy property are individually eligible for the ITC and

expressly rejected the contention that ITC eligibility, with respect to an individual taxpayer, is dependent on that individual taxpayer owning "a completely functional system as a whole."[44]

The same conclusion follows, therefore, with respect to the definition of qualifying solar energy property. New regulations should confirm individual units of property that have been established as constituting energy property that would otherwise be eligible for the ITC will be respected as ITC-eligible even when other property constituting the fully functioning system may owned by separate taxpayers.

The IRS has already indicated that separate ownership of qualifying energy property should not preclude credit eligibility, even in the case of system property owned by separate taxpayers. In PLR 201536017, the IRS concluded that an individual taxpayer could claim the homeowner's solar ITC under IRC section 25D on expenditures to purchase individual solar PV panels installed in a ground-mounted, off-site solar project. The panels were installed with other PV panels owned by other unrelated taxpayers as part of a 'community solar' project in which a utility would credit to each participating taxpayer an amount of electricity from a single centrally-located solar array attributable to each taxpayer's respective PV panels. Each taxpayer owned panels outright, and each taxpayer was also allocated "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 [the] Public Utility's electric distribution system."

The taxpayer and each of the other owners of the solar panels included in the array were members of a special purpose limited liability company ("LLC"), but the LLC did "not hold any ownership interest in Taxpayer's panels, the array, or any of the related equipment or wiring." The LLC was formed solely to "represent the common interests of its members in managing certain administrative and financial matters in connection with ownership of the panels included in the array" as well as communicating with the utility "to calculate the net metering credit allocable to Taxpayer's and the other owners' respective Public Utility accounts."

Thus, individual units of tangible personal property constituting the qualifying activity were divided between multiple unrelated taxpayers. Each taxpayer's proportionate ownership interest in PV panels and equipment could not on its own constitute an operational solar project. The qualifying activity depended on the installation and operation of components owned by multiple taxpayers. And despite separate ownership, the IRS concluded that each taxpayer's expenditures for the PV panels, related equipment, and installation services were consistent with the statutory intent underlying the solar ITC and therefore constituted a "qualified solar electric property expenditure" under IRC section 25D(d)(2). The taxpayer was permitted to claim the full ITC on expenditures related to his/her PV panels, equipment, and installation costs.

New regulations under IRC section 48 should affirm this position for the definition of energy property under IRC section 48.

[44] Cooper v. Comm'r, 88 T.C. 84, 116-17 (1987).

There is ample tax precedent that the separate ownership of integrated units of property should not in and of itself change such property's tax classification. In Samis v. Comm'r, the court held that the taxpayers' "total energy plant" which supplied domestic hot water, heating and air conditioning to an apartment complex in which they did not have an interest, was a structural component of the complex. The court stated that, despite the separate ownership of the energy plant and the apartment complex, the plant must be classified as a structural component of a building. The Court noted:

> "Bearing in mind the basic objective which Congress sought to achieve by means of the investment credit…the separate ownership of the energy plant in the present circumstances is wholly irrelevant."[45]

Further guidance indicating that multi-party ownership of ITC-eligible property is permissible includes Rev. Rul. 78-268 and PLR 8341057. Rev. Rul. 78-268 addressed a fact pattern involving two investor-owned utilities, a tax-exempt cooperative, and a tax-exempt municipally-owned utility shared a common tenancy with respect to an electric generating facility. As enacted in 1978, IRC section 48(a)(4) effectively stated that property owned by a tax-exempt entity could not be ITC property. The issue was whether ownership by the tax-exempt entities disqualified the entire electric generating facility for purposes of ITC. The government held in Rev. Rul. 78-268 that the two investor-owned utilities were eligible for the ITC despite the fact the electric generating facility was not ITC-eligible property in the hands of the tax-exempt entities. The ruling states that its holding applies whether an election out of Subchapter K rules has been made or not and whether the parties involved are a partnership or tenants in common. Rev. Rul. 78-268 has been interpreted by subsequent cases and IRS rulings, including PLR 8341057 and GCM 39142, as standing for the proposition that fractional interests in common tenancies should be treated as separate assets for federal income tax purposes.

PLR 8341057 concluded that parties holding tenancy in common may elect separate depreciation methods for their respective ownership shares where one of the parties is restricted to straight-line depreciation.

GCM 39142 addressed a fact pattern involving a public corporation that was an instrumentality of a state ("Public Corporation") that issued industrial development bonds in order to raise capital to lend capital to an investor-owned utility for the construction of an electricity-generating facility. As enacted in l984, IRC section 103 provided that the interest on an industrial development bond is excludible from gross income if the proceeds from the bonds are used to provide facilities for the "local furnishing of electricity energy or gas." A facility furnishing "local" electricity was defined as one that provided electricity needs within one contiguous county (or metropolitan area). The utility shared a tenancy in common with certain other utility companies. The facility itself generated electricity to serve two counties, but the utility used its tenancy in common interest to serve only a single county. The primary issue was whether the utility's use of the bond proceeds should be treated as "local furnishing of

[45] Samis v. Comm'r, 76 T.C. 609, Footnote 6 at 623 (1981). See also Rev. Rul. 83-146, (taxpayer's ownership of property "does not affect [its] classification as tangible personal property or structural components.") and Rev. Rul. 67-359 (air conditioning units installed by a lessee of a building function as a central air conditioning system and are structural components of a building and ownership of the units by a taxpayer other than the building owner does not affect their classification).

electricity." To assess the primary issue, the memorandum analyzed whether the entire facility's service of two counties meant that none of the tenants in common would be treated as providing "local furnishing of electricity" and whether the fact that the utility used its share of tenancy in common ownership to serve only one county allowed the utility to fulfill the "local furnishing of electricity" requirement.

The general counsel memorandum further evaluated the applicability of Rev. Rul. 78-268 and whether the ruling dictated that a taxpayer's percentage of a tenancy in common interest constituted a separate asset for purpose of the "local furnishing of electricity" test. The memorandum advised that the facility does not qualify for IRC section 103 exemption as the facility as a whole served two counties. The memorandum distinguished Rev. Rul. 78-268, indicating that Rev. Rul. 78-268 addressed a case where the federal income tax treatment was a function of the relationship between the taxpayer and the property, but that the federal income tax treatment of the fact pattern in the memorandum was a function of the nature of the property itself and not the taxpayer's relationship to the property

Finally, Treasury and IRS had to address the issue of multiple owners when interpreting the ARRA section 1603 statute and concluded that the statute allowed taxpayers owning different portions of a "qualified facility" to claim cash grants despite the statutory language that inextricably links IRC section 45(e)(3) and IRC section 45(a) for PTC purposes. In other words, the definition of a "qualified facility" under IRC section 45(d) for grant purposes is not confined to a single taxpayer that would otherwise be eligible to claim PTCs because the definition of specified energy property did not incorporate the provisions of IRC section 45(a) or IRC section 45(e)(3). The Frequently Asked Questions and Answers document issued with respect to ARRA section 1603 grants supports multi-owner eligibility in the context of ARRA section 1603 grants.[46] Specifically, FAQ #34 illustrates a facility eligible for an ARRA section 1603 grant that is owned by more than one party:

> "34. Question: In the case of a qualified facility that produces electricity by burning gases or liquids derived from a qualified energy resource such as open-loop biomass or municipal solid waste, can the equipment used to convert the qualified energy resource into a gas or liquid qualify for a Section 1603 payment?"
>
> "Answer: Yes, but only if the equipment used to produce the gas or liquid (the conversion equipment) is an integral part of the qualified facility. In general, conversion equipment that is owned by the same person and located at the same site as the qualified facility will be treated as an integral part of the facility. In addition, the conversion equipment may be treated as an integral part of the qualified facility, even if under different ownership or at a different site, if it is established that the conversion equipment is integrated into the facility. Factors that may be relevant in determining whether the conversion equipment is integrated into the facility include whether the conversion equipment and the facility are placed in service simultaneously, the extent to which the gas or liquid produced is dedicated to the facility (for example, under an exclusive long-term supply contract), and the

[46] U.S. Treasury Dep't of the Fiscal Assistant Sec'y, Payment for Specified Energy Property in Lieu of Tax Credits under the American Recovery and Reinvestment Act of 2009, Frequently Asked Questions and Answers.

> dependence of the facility on the gas or liquid produced by the conversion equipment."

Moreover, FAQ #35 requires a separate application process in the case of separate ownership:

> "Question: If components of a facility are owned by different persons, must each owner submit a separate application for a Section 1603 payment?"
>
> "Answer: Yes, a separate application must be submitted for each part of the facility with a different ownership structure. For example, if an open-loop biomass facility consists of conversion equipment owned by corporation X and generation equipment owned by corporation Y, X and Y must submit separate applications to receive Section 1603 payments for their portions of the facility. All owners of the facility (including owners of portions of the facility that are not eligible for a Section 1603 payment) must join in each separate application for the Section 1603 payment and agree to the terms and conditions, including the waiver of the right to claim a credit under section 45 with respect to the facility. In any such case, the application and the terms and conditions will be appropriately modified to reflect the participation of persons other than the claimant."

Although the ARRA section 1603 guidance is not binding for ITC eligibility purposes, this ARRA section 1603 grant guidance is grounded in and consistent with related tax law applicable to the ITC and not simply a policy decision for purposes of administering the ARRA section 1603 grant program. ITC eligibility shares the same statutory pathway as grant eligibility. Even in the case of PTC technologies whose eligibility is assessed on a facility basis, both ITC and 1603 rules treat as eligible any "qualified property" determined to be part of a "qualified facility" under IRC section 48(a)(5)(D) and IRC section 45(d), respectively. The relevant statutory language from ARRA section 1603 statute is:

> (d) SPECIFIED ENERGY PROPERTY. For purposes of this section, the term "specified energy property" means any of the following:
>
> QUALIFIED FACILITIES. Any qualified property (as defined in section 48(a)(5)(D) of the Internal Revenue Code of 1986) which is part of a qualified facility (within the meaning of section 45 of such Code) described in paragraph (1), (2), (3), (4), (6), (7), (9), or (11) of section 45(d) of such Code.

There is no statutory basis for taking a different position regarding multiple owners for purposes of the ITC and ITC in lieu of PTC than under ARRA section 1603.

E. Separate Credits: Otherwise qualifying energy property should not be rendered ineligible if separate tax credits are claimed on separate components

Just as business models are evolving to include separate ownership of components, other models are emerging in which components may be divided between the ITC under IRC section 48 and the ITC under IRC section 25D. New regulations should clarify that otherwise qualifying energy

property, such as storage devices, should not be rendered ineligible for the ITC and ITC in lieu of PTC where the system property is divided between the two investment tax credits.

Third-party ownership of storage with renewable energy is growing in popularity, but developers are also selling storage devices like batteries to consumers outright. In some cases, the installer may lease solar or small wind energy equipment to an end-user at a residence or sell electricity from the system to the customer through a power purchase agreement ("PPA"). In both cases, the installer would retain ownership for federal income tax purposes and be entitled to claim the ITC under IRC section 48. At the same time, the energy generation equipment may be paired with a battery that the customer purchases in order to use its system during a grid outage.[47] In this example, ownership of ITC-eligible equipment is not only divided between separate owners, but the installer may be claiming the commercial solar ITC under IRC section 48 and the homeowner may claim the homeowner's ITC under IRC section 25D.

The IRS has already established a similar position with respect to solar energy property used for both non-business and business purposes. In general, expenditures under IRC section 25D must be primarily for nonbusiness purposes (i.e., energy generation for use by the taxpayer at a residence). If a taxpayer uses property eligible for the 25D ITC solely for business purposes, the property will not qualify for the IRC section 25D ITC. If business use of the otherwise qualifying property is more than 20%, the taxpayer may claim the ITC but may only take into account that portion of the expenditures for the property that are properly allocable to use for nonbusiness purposes.

In Notice 2013-70, the IRS considered the example of a taxpayer who used the electricity at its residence but also sold more than a minimal amount of excess electricity to a utility. The IRS concluded the taxpayer may claim the IRC section 25D credit for the portion of the solar electric property expenditure that relates to the electricity generated for use in the taxpayer's home, and, further, that taxpayer "may be able to claim the IRC section 48 credit for a portion of the solar electric property expenditure if the requirements of IRC section 48 are satisfied."[48]

Accordingly, new regulations should provide greater clarity and apply this position consistently to structures in which different energy credits are claimed on the generation and storage components of a single project, provided each taxpayer's respective credit is limited to the property's eligible basis for which each taxpayer is owner for federal income tax purposes and no double benefit is provided with respect to eligible basis.

VIII. Conclusion

Energy storage optimizes delivery of energy across time. As energy storage technological innovation has advanced rapidly, storage is increasingly playing an essential role in renewable power generation, which otherwise lacks controllability in the time of delivery of electricity.

[47] Some jurisdictions are considering residential demand charges that would require the homeowner to the utility for certain peak usage. The homeowner's system with storage could also be used to increase output of distributed generation at specific points in time in order to avoid such demand charges. See e.g., Lehrman, Matt, "Are Residential Demand Charges the Next Big Thing in Electricity Rate Design?" Rocky Mountain Institute, 21 May 2015, available online at http://blog.rmi.org/blog_2015_05_21_residential_demand_charges_next_big_thing_in_electricity_rate_design.
[48] Notice 2013-70, "Q&A on Tax Credits for 25C and 25D" (Nov. 18, 2013).

While prior IRS guidance on the ITC has contemplated the use of storage equipment in qualifying energy property, to date the guidance has been unclear or inappropriately restrictive.

ESA acknowledges the IRS for issuing Notice 2015-70 in recognition of both the increasing popularity of pairing energy storage equipment with other qualifying energy property and the lack of clear guidance on that equipment's eligibility. In light of continuing innovation in energy storage, ESA asks that the IRS issue guidance on the ITC that ensures the eligibility of a broad diversity of storage technologies, configurations, and use cases, all of which meet the same goal of better utilizing qualifying energy property. Additionally, ESA asks that the IRS issue guidance that enhances flexibility and certainty for owners of eligible energy storage equipment, such as through a primary use eligibility standard and modified recapture rules for Dual Use Equipment, eligibility of storage added to existing projects, and eligibility of separately-owned equipment.

With appropriate guidance on energy storage, the IRS can ensure that it meets its responsibilities to prudently interpret statutory language without unduly limiting the ITC from meeting the public policy goals set out for it by Congress. Thank you for your attention to this matter and your consideration of these comments.