November 4, 2022

Internal Revenue Service
CC:PA:LPD:PR (Notice 2022-47, Notice 2022-49, Notice 2022-50, Notice 2022-51)
Room 5203
P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

The Honorable Lily L. Batchelder
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RE: COMMENTS ON REGULATORY IMPLEMENTATION OF THE INFLATION REDUCTION ACT OF 2022 IN RESPONSE TO NOTICE 2022-47, NOTICE 2022-49, NOTICE 2022-50 AND NOTICE 2022-51

Dear Ms. Batchelder and Ms. Porter:

Form Energy submits the following comments in response to the questions asked in Notice 2022-47, Notice 2022-49, Notice 2022-50 and Notice 2022-51.

Company Overview

Form Energy manufactures, and plans to develop projects using a pioneering utility-scale long-duration battery that can store electricity for days at a time rather than the current market standard of up to four hours. The battery uses iron, which is plentiful in supply, rather than lithium ion, for which the U.S. must rely on foreign suppliers. It has the potential to enable the electricity grid to run on low-cost renewable energy year-round.

The company hopes to claim the advanced manufacturing production credits under new section 45X for the battery components it manufactures. We expect our customers to be able to claim investment tax credits under sections 48 and 48E on the batteries they purchase from us. We have an interest in clear guidance related to section 45X and ITC eligibility. Further, since many of our customers may be owners

of wind farms or solar power plants who can claim production tax credits under the Inflation Reduction Act on their electricity output, we are also seeking guidance addressing the interplay between a taxpayer's claim to an ITC on a battery and PTCs on the electricity generated by a co-located wind or solar facility. We have identified a number of areas where further clarification would be helpful.

As more fully explained below, we respectfully recommend that any guidance or proposed regulations include the following items:

- Clarify the definition of "sale" for purposes of triggering section 45X credits.
- Clarify that the capacity-to-power ratio of a battery cell or battery module should be calculated using the component's direct current capacity.
- Confirm a manufacturer may claim a credit under section 45X for each eligible component that it integrates, incorporates or assembles into another eligible component.
- Define each of the materials listed in the section 45X definition of "electrode active materials."
- Clarify that certain additions, modifications and upgrades to the transmission or distribution system, including project substations and substation components, interconnection studies, and other additions or modifications needed that may be included in basis pursuant to the section 48(a)(8) interconnection cost provision and confirm that the basis is basis in the power plant as opposed to an intangible asset.
- Confirm that a battery placed in service after 2022 does not have to be considered part of a co-located section 45 "qualified facility" and is not barred from ITC eligibility.
- Reiterate the single project determination factors in Notice 2018-59 still apply to co-located storage-plus-renewable-generation projects or hybrid-storage projects so that the start of construction of any part of the co-located facility is considered the start of construction of the entire project.
- Address inclusion of costs of equipment shared between a section 45 qualified facility and a section 48 battery storage system in the cost basis used to compute the ITC. Specifically, address whether section 45X credits could apply to inverters for storage, not just for solar power.
- Provide explicit authority for taxpayers to make a section 6417 election with respect to section 45X credits on a factory-by-factory basis.
- Wage and apprenticeship provisions:
    - Confirm accredited apprenticeship programs created by taxpayer-employers are in compliance with relevant apprenticeship requirements introduced under the IRA.
    - Define "alteration" and "repair" to mean only permanent improvements to the qualified facility or energy property, and not maintenance conducted in the normal course of business.
    - Establish a time-to-cure period for the apprenticeship requirement.
    - Clarify that laborers and mechanics performing work off of the project site are beyond the purview of the prevailing wage and apprenticeship requirements.
    - Exempt *de minimis* alterations and repairs from the prevailing wage and apprenticeship requirements.
    - Establish an alternative prevailing wage calculation methodology for jobs or locations where the Department of Labor has not yet made a wage determination.

- Domestic content provisions:
  - Define "qualified facility" for purposes of the domestic content bonus ITC.
  - Confirm the domestic content requirements do not require iron ore to be mined domestically as mining is not a manufacturing process.
  - Confirm availability of exemptions and waivers to the domestic content requirement analogous to those provided for by the regulations under the Buy America Act.
  - Confirm subcomponents are not assessed for compliance with domestic content requirements.
  - Address treatment of costs of hybrid equipment in domestic content threshold calculations for co-located storage projects.
- Impose a standard requiring satisfaction of a minimum threshold, based on costs or square footage, for taxpayers to confirm a project is located within an energy community to address situations where projects may be located across county lines, parcels, or otherwise partitioned.

Comments in Response to IRS Notice 2022-47

1. Tax Year of Component "Sale"

Section 45X production tax credits are available to taxpayers who produce and sell, during the tax year, eligible components, including qualifying battery components.[1] Battery cells and modules are typically intermediary components intended to be integrated with other energy systems (*e.g.*, for automotive applications or large energy storage development projects). There may plausibly be months, even years, between the date the battery component is available for end use by the purchaser and the date the component is physically delivered to the project site. To enable battery manufacturers to receive timely compensation from the production and sale of the battery cells and modules, we propose guidance clarifying the definition of "sale" for purposes of section 45X to mean either (i) the date of physical transfer of the component to the unrelated purchaser or (ii) the date care, custody and control passes to the unrelated purchaser.

2. Direct Current Capacity-to-Power Ratio

The section 45X tax credit amount for battery cells and battery modules is calculated as a product of a statutory amount multiplied by the capacity of the battery cell or module. Section 45X(b)(4)(A) provides that the capacity used in the calculation cannot exceed a "capacity-to-power ratio" of 100:1. Section 45X(b)(4)(B) defines "capacity-to-power ratio" to mean the ratio of the capacity of a battery cell or battery module to the maximum discharge amount of the cell or module. Although other subsections in section 45X make clear whether capacity is to be determined on an alternating current or direct current basis, subsection (b)(4) does not say which should be used to determine the capacity-to-power ratio.[2]

[1] *See* section 45X(a)(1).
[2] *See* sections 45X(b)(1)(A)(ii), 45X(b)(1)(E), 45X(b)(1)(I)(ii), and 45X(c)(2).

The guidance should clarify that direct current should be used. The alternating current capacity of a battery cell or module depends on its end use in a completed and interconnected project. The manufacturer-taxpayer cannot know the alternating current capacity of a battery cell or module at the time of manufacture.

3. Unlimited, Stackable Credits

The advanced manufacturing production credit for any taxable year is the sum of the credits computed with respect to each eligible component produced and sold by a taxpayer.[3]

We believe the statute, namely the reference to "*each*" eligible component, supports a manufacturer's ability to earn production tax credits on any number of products, without limitation, as long as the requirements in section 45X are satisfied. Guidance should confirm the section 45X tax credits are stackable with respect to each eligible component a taxpayer manufactures, including those integrated, incorporated or assembled into other eligible components. It would also be helpful to provide an example of a component that is considered integrated, incorporation or assembled into another eligible component.

4. "Electrode Active Materials" Encompasses Essential Inactive Materials

Electrode active materials are defined as "cathode materials, anode materials, anode foils, and electrochemically active materials, including solvents, additives, and electrolyte salts that contribute to the electrochemical processes necessary for energy storage."[4] The defined term 'electrode *active* materials' (emphasis added) and the materials listed in its definition, including each of "cathode materials," "anode materials" and "anode foils," none of which is defined, require clarification. Certain components necessary to produce a functional electrode, such as current collectors, sensibly fall under at least one of the listed electrochemically active materials (*e.g.*, an aluminum cathode current collector is a "cathode material" and a copper anode current collector is an "anode material" or an "anode foil").

Guidance should define each material that the statute says are "electrode active materials" and clarify that the broad term "electrode active materials" includes all materials, active and inactive, essential to produce a functional electrode. The guidance should avoid a static list of materials that will limit future innovation in the dynamic energy storage industry, and should instead allow for future Treasury approval by private letter ruling or frequently-asked question and answer of functionally-equivalent material that contributes to the electrochemical process.

[3] Section 45X(a)(1).
[4] Section 45X(c)(5)(B)(i).

Comments in Response to IRS Notice 2022-49

1. **Interconnection Costs Includable in Energy Property Basis Cover All Tangible Interconnection Costs**

   Section 48(a)(8) allows certain amounts paid or incurred for qualified interconnection property to be included in basis. Qualified interconnection property is tangible property that "is part of an addition, modification, or upgrade to a transmission or distribution system" and is required at or beyond the point of interconnection.[5] The owner of a renewable power plant or storage facility pays for the interconnection property as part of its cost to connect to the grid. However, the property will be owned by the interconnecting utility.

   It would be helpful for the guidance to confirm that the renewable energy or storage facility owner can add the qualified interconnection property costs to basis in its power plant and that such costs include costs for interconnection studies, network upgrades whose costs are not reimbursed to the generator through transmission credits, gen-tie lines, substations and substation components (including lightning arresters, conductors, insulation, transformers, relays, circuit breakers, bus bars, capacitor banks, isolators and supervisory control and data acquisition (SCADA) systems), and metering and telemetry that will be owned by the interconnecting utility.

2. **Single Project Analysis for Co-Located Battery Storage Technology**

   Energy storage technology placed in service after 2022 is "energy property" eligible for the new ITC for standalone storage.[6] ITC eligibility of energy storage technology placed in service through the end of 2022, however, is governed by the pre-IRA provisions of section 48 (*i.e.*, standalone battery storage property is not eligible for an ITC, but battery storage integrated into an otherwise ITC-eligible solar or wind facility may be eligible, depending on the facts).[7]

   We respectfully request the IRS to issue guidance confirming that PTCs under Section 45Y can be claimed on electricity generated from solar or wind that is used to charge the energy storage system at the same time that ITC is claimed on a co-located energy storage system. More specifically, we request the IRS to issue guidance clarifying that the PTC under 45Y claimed for charging energy should be measured at the solar and wind facility generation output meter before such charging energy enters the battery.

   The guidance should also confirm that batteries can still be considered part of a solar or wind generating facility and qualify for an ITC on that basis, as long as an ITC, rather than PTCs, is claimed on the rest of the project and the percentage ITC claimed reflects the percentage of solar or wind electricity used to charge the battery each year during the ITC recapture period.

[5] Section 48(a)(8)(B)(i).
[6] Section 48(a)(3)(A)(ix).
[7] *See* Treas. Reg. section 1.48-9(d), (e).

Finally, the guidance should also make clear that two facilities -- a power plant and a co-located battery -- can be considered a single project under the single-project factors in Notice 2013-39 and Notice 2018-59 so that the start of construction on any part of the single project is considered the start of construction on the whole project.

3. Shared Solar-Plus-Storage Equipment

As discussed, the IRA's expansion of the ITC to include battery storage technology creates opportunity for taxpayers to claim PTCs on energy generated and sold from a wind or solar facility and an ITC on the eligible cost basis of a co-located storage system. However, the statute does not address appropriate treatment of equipment shared between the electricity producing facility and the energy storage property.

As the PTC is based on the qualified facility's output, the costs of shared equipment such as a substation or transformer have no effect on the credit computation. The ITC is a percentage of the property's costs. Guidance addressing how the costs of shared facilities should be allocated is important.

Additionally, the IRS should clarify that inverters that are used for storage are qualifying components under section 45X. Section 45X(c)(2)(A) generally defines an "inverter" as an end product that is suitable to convert DC electricity into AC electricity for clean energy projects, but does not identify energy storage in that context. However, energy storage projects—which are critical for the production of clean energy—also use AC/DC inverters to store electricity produced from clean energy projects. As the intent of section 45X was to provide enhanced credits for manufacturing of components for clean energy projects, section 45X(c)(2)((B)(C)(E)(F) &(G)) should include storage inverters as both appropriate and necessary to fulfill the purpose of the IRA.

4. Measuring Electric Output of Section 45 Solar or Wind Facility with Co-Located Battery Storage Technology

Another area of uncertainty in cases where a developer elects PTCs for its solar or wind facility and an ITC for a co-located battery storage system relates to identifying the point at which the solar or wind facility's PTCs are triggered. We propose guidance to make clear that electricity produced by the solar or wind facility before it passes through the separate storage property, as measured at the generation output meter, will be considered in calculating the solar or wind facility's PTCs.

Alternatively, to deny PTC qualification for electrons that are used to charge a storage system that may, beginning in 2023, earn tax credits on a standalone basis, is to clearly ignore the intended function of energy storage technology. The energy stored in the battery system can still satisfy the Section 45(a)(2) requirements of (i) production by the taxpayer from qualified energy resources at a qualified facility (here, the solar facility) and (ii) sale by the taxpayer to an unrelated person. The

battery storage technology in this example is simply an intermediary system designed to improve flexibility and reliability of a secure and renewable electric grid.

Comments in Response to Notice 2022-50

1. Direct Pay on a Factory-by-Factory Basis

The option under section 6417 to apply for refunds of certain business tax credits will allow smaller battery manufacturers without enough tax capacity to use section 45X tax credits directly to convert them into cash. Section 6417 allows such an election to be made, with respect to PTCs -- section 45V clean hydrogen production tax credits and renewable electricity production tax credits -- separately for each qualified facility and, with respect to section 45Q carbon capture credits, separately with respect to the carbon capture equipment placed in service by the owner during the tax year.[8] However, the statute is silent about whether a manufacturer owning more than one factory can elect refunds of tax credits on a factory-by-factory basis.

We seek IRA guidance to confirm that manufacturers should have the same flexibility to elect refunds on a factory-by-factory basis – regardless of whether the factories are within a consolidated group. Such a clarification would provide horizontal equity.

Comments in Response to IRS Notice 2022-51

1. Prevailing Wage and Apprenticeship Requirements

a. Forming a Qualified Apprentice Program

Under the prevailing wage and apprenticeship requirements, the term "qualified apprentice" means an individual who is employed by the taxpayer or by a contractor or subcontractor and who is participating in a registered apprenticeship program, as defined by section 3131(e)(3)(B)."[9] A "registered apprenticeship program" means an apprenticeship registered under the Act of August 16, 1937, commonly known at the National Apprenticeship Act, that meets the standards of subpart A of part 29 and part 30 of title 29, Code of Federal Regulations.[10]

Registering an apprenticeship program requires acceptance and recording of the program by the office of apprenticeship at the U.S. Department of Labor or registration or approval by a recognized state apprenticeship agency, as meeting the basic standards and requirements of the Department of Labor for approval of such a program for federal purposes.[11]

[8] Sections 6417(d)(3)(B)(i), 6417(d)(3)(D)(i)(I), 6417(d)(3)(E)(i), and 6417(d)(3)(C)(i)(I).
[9] Section 45(b)(8)(E)(ii).
[10] 29 U.S.C. section 3131(e)(3)(B).
[11] 29 U.S.C. section 50.

There is no suggestion in the statute that employers are barred from creating apprenticeship programs under the National Apprenticeship Act. Evidence of private companies creating and registering their own apprenticeship programs can be found on state apprenticeship websites.[12] Guidance should confirm a taxpayer can establish its own registered apprenticeship program in compliance with the relevant requirements under the IRA. Such a result is not only in line with the National Apprenticeship Act, but would also further enhance the pool of qualified apprentices for hire.

b. Define Alteration and Repair to Include Only Permanent Improvements

Mechanics and laborers employed directly by the developer or by construction contractors or subcontractors to work on a project must be paid the "prevailing wages" not only during construction but also on "alterations and repairs" for the next 5 to 12 years after the project is placed in service.[13] The statute does not define "alteration" or "repair."

We suggest the guidance define "alteration" and "repair" to mean permanent improvements to the project. We further urge, to encourage compliance and avoid imposing overly burdensome documentation burdens on employers of mechanics and laborers, guidance exclude from such definitions any routine maintenance performed with respect to a facility or energy property.

c. Time to Cure for Failure to Satisfy Apprenticeship Requirements

Section 45(b)(7)(B)(iv) establishes that, following a final determination that a taxpayer failed to satisfy the prevailing wage requirement, a taxpayer has 180 days to cure the failure by paying back wages plus interest to any undercompensated laborers or mechanics and a penalty to the IRS. Although the apprenticeship requirement has a similar penalty in the event of a failure, the statute is silent on the time period a taxpayer has to cure the failure by making the penalty payment. Guidance should set a similar time period and cure procedures.

d. Laborers and Mechanics Performing On-Site Construction, Alteration, or Repair Subject to Prevailing Wage and Apprenticeship Requirements

The prevailing wage requirements apply to any laborers and mechanics employed by the taxpayer or any contractor or subcontractor to perform construction, alteration or repair work with respect to a facility.[14] The apprenticeship requirements similarly apply with respect to construction of a qualified facility or energy property. The statute does not define the scope of such "construction, alteration, or repair work."

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[12] *See*, *e.g.*, Apprenticeship | West Virginia Department of Economic Development Website.
[13] Sections 30C(g)(2), 45(b)(7), 45L(g), 45Q(h)(3), 45Y(g)(9), 45Z(f)(6), 48(a)(10), 48C(e)(5), and 179D(b)(4).
[14] Section 45(b)(7)(A).

We believe the requirements should apply to laborers and mechanics performing construction, alteration or repair work at the project site. Off-site employees of the taxpayer or any contractor or subcontractor (*e.g.*, truckers and railroad employees) should be expressly beyond the scope of the prevailing wage and apprenticeship provisions. Likewise, factories that manufacture equipment for use in a project should not be subject to the prevailing wage and apprenticeship requirements. Supplying equipment for a project is not what the IRA had in mind by construction, alteration or repair. Overbroad inclusion of either off-site work or equipment supply efforts in such cases would further complicate determination of a finite period of "construction" for purposes of the prevailing wage and apprenticeship requirements.

e. *De Minimis* Repair Exemption

Satisfaction of the prevailing wage requirements demands taxpayers ensure any laborers and mechanics employed by the taxpayer or any contractor or subcontractor are paid prevailing wages for construction work *and* for work later on alterations or repairs during the period PTCs are claimed or the ITC is subject to recapture. Having to line up a qualified apprentice for a *de minimis* repair is too burdensome, as is making the contractor certify on small jobs to comply with the prevailing wage requirements. The guidance should provide a de minimis exception based on a dollar or percentage of cost basis threshold.

f. Missing Department of Labor Comparable Wages

"Prevailing wages," published on the Department of Labor ("DOL") website, vary by job type and location. However, there are no postings for many job types or locations (*i.e.*, a drilling rig operator employed to drill a geothermal well or workers on the U.S. outer continental shelf constructing offshore wind projects). The guidance should explain what taxpayers should do in such situations. In instances in which wage information is not publicly available from DOL for a given locality wherein a qualified facility or energy property is located, IRS should clarify that the employer, contractor, or subcontractor may use a state average wage for the applicable craft category and that this can be self-certified by the taxpayer vis-a-vis a filing with the DOL.

2. Domestic Content

a. Define "Qualified Facility" for Section 48 Domestic Content Provisions

Eligibility for the domestic content adder requires, initially, at least 40% of the cost of all manufactured products used to build a qualified facility must be produced in the United States.[15] The 40% threshold is a fraction, the numerator of which is the cost of the manufactured products manufactured in the United States and the denominator of which is the cost of all of the

[15] Section 45(b)(9)(C)(i).

manufactured products used to build the end product (*i.e.*, with respect to section 45, the "qualified facility").[16]

Under section 48, the domestic content requirement is provided by cross reference to the tests in section 45. The manufactured product minimum threshold in section 45, however, is based on costs of all manufactured products attributable to the "qualified facility." As "qualified facility" is not a defined term under section 48, we suggest the IRS clarify what costs should be used to determine eligibility for the domestic content ITC. Section 48 uses the term "energy project." The term "energy project" should include, in the case of a battery storage technology, the fully integrated and fully installed storage system, including piping, conduits, electrical cabling, switchgear, relays, power electronics, controls, and all other ancillary equipment.

b. Iron Ore

The domestic content requirement is satisfied by taxpayer certification that any steel, iron or manufactured product that is a component of a project was produced in the United States.[17] We understand from the tax committee staff that iron ore does not have to have been mined in the United States. The guidance should confirm this. Iron ores are mineral substances mined to undergo future manufacturing processes to yield metallic iron. Iron ores are clearly not yet, without further intervention, "iron." Further, mining is not a manufacturing process.[18]

c. Exemption of Subcomponents and Waiver for Insufficient Quantity or Quality of Domestic Materials

The domestic content requirement cites 49 C.F.R. section 661.5 (the Federal Transit Administration regulations under the Buy America Act) for purposes of determining whether steel, iron or manufactured products are produced in the United States. Both the IRA and the federal transit regulations provide exceptions or waivers in the following situations:

- The materials are not produced in the United States in sufficient and reasonable quantities or of satisfactory quality.[19]
- The inclusion or use of a domestic item or material is cost-prohibitive because it would increase the cost of the item or material by more than 25 percent.[20]

[16] Section 45(b)(9)(B)(iii).
[17] Section 45(b)(9)(B).
[18] *See Ayers Materials Co. v. Commissioner*, 62 T.C. 557, 591; *Carborundum Co. v. Commissioner*, 70 T.C. 59, 68-71; *see also* Conf. Rept. No. 2005, 86th Cong., 2d Sess. (1960), 1960-2 C.B. 741, 745: "Under the Senate amendment the treatment processes considered as mining are *limited to those specifically listed* in the amendment." (Emphasis added.)
[19] *Id*. at section 661.7(c); We further propose guidance make clear that insufficient quantity may be found in instances where the material available domestically is not of the requisite degree of quality needed to manufacture the energy component.
[20] *Id.* at section 661.7(d).

The guidance should clarify in what circumstances a taxpayer can waive into a domestic content bonus credit, and specifically when materials are considered to not be of "satisfactory quality." Guidance should also clarify the process for Secretarial exception.

d. Accounting for Shared Equipment

Co-located batteries typically share equipment with a corresponding solar or wind system (*e.g.*, inverters, transformers, substations). The guidance should address the treatment of such hybrid equipment for purposes of the domestic content calculation.

3. Energy Communities

a. Property "Straddling" an Energy Community and a Non-Energy Community

The IRA offers an increase on the tax credit amount under sections 45, 45Y, 48, and 48E for any facility or energy project located in an "energy community" and placed in service after 2022. It is unclear what happens when projects are only partly in an energy community.

The IRS had to address similar issues in the context of qualified opportunity zones and the continuity requirement for completing projects on federal land.[21] The guidance should establish a minimum threshold whose satisfaction will allow a qualified facility or energy project to qualify for the bonus tax credit. The portion of the project cost or square footage inside versus outside of the energy community can be used.

We appreciate the opportunity to submit these comments and are available to meet with the Department of Treasury and Internal Revenue Service to discuss these points in greater detail and to answer any questions that you may have.

Respectfully submitted,

Nidhi Thakar

Vice President, Policy and Regulatory

Form Energy

[21] *See* Treas. Reg. section 1.1400Z2(d)-1(d)(3)(ix)(E)); Notice 2021-05, 2021-03 I.R.B. 479.