

## EXECUTIVE SUMMARY OF DRAFT REGULATIONS FOR IRC SECTIONS 45Y AND 48E

The attached document includes draft language for forthcoming proposed regulations on IRC Sections 45Y and 48E:

### LIFE CYCLE ANALYSIS/GREET MODEL

- C2ES recommends using the most recent version of GREET and including emissions through the point of production (well-to-gate), meaning the aggregate lifecycle GHG emissions related to electricity at a production facility during the taxable year through the point of production, excluding plant cycle emissions.

### DEEMING CERTAIN TECHNOLOGIES AS ZERO EMISSIONS

- C2ES recommends that facilities producing electricity that utilize clean technologies that are non-combustible and non-gasification *generally* are designated as having a rate of zero emissions. These include wind, solar, nuclear, hydropower, energy storage (including hydropower), and marine and hydrokinetic technologies.
- Certain clean technologies that produce naturally occurring or de minimis emissions, including hydrogen produced with a greenhouse gas emissions rate of less than .45 kilograms of CO<sub>2</sub>e per kilogram of hydrogen, and geothermal with a greenhouse gas emissions rate of less than 45 grams of CO<sub>2</sub>e per KWh are also recommended to be designated as zero emissions technologies.

### DE MINIMIS STANDARD

- C2ES recommends a de minimis standard of 10 grams of CO<sub>2</sub>e per KWh, which is the same threshold used to determine when recapture of the Section 48E ITC is required.
- In the case of hydrogen and geothermal, the 10 grams de minimis standard is recommended in addition to the .45 kilograms and 45 grams thresholds to ensure the eligibility of clean technologies in line with congressional intent.

### SAFE HARBOR/ANTI-ABUSE RULE

- C2ES recommends the emissions rates published by the Secretary in the year construction begins may be relied upon as a safe harbor, with an anti-abuse rule allowing the Secretary to identify situations where the safe harbor may be abused and credit would therefore be denied.

### ENERGY STORAGE

- The proposed regulations cross referenced in the draft include thermal storage used to produce electricity and hydropower.

### INCREMENTAL PRODUCTION

- C2ES recommends that incremental production should be able to be determined through one of several alternatives, with taxpayers having the discretion to choose the method that is most advantageous. This could be based on increases in nameplate capacity, increases in production compared to an average of prior years' actual production, or reporting to a third party.
- A new unit includes a nuclear reactor that is licensed after December 31, 2024. The December 31, 2024, date is consistent with the incremental production dates in Sections 45Y and 48E.



April 12, 2024

Department of Treasury  
Internal Revenue Service  
CC:PA:LPD:PR (Notice 2022-49)  
Room 5203, P.O. Box 7604  
Ben Franklin Station, Washington, D.C., 20044

The Honorable Janet Yellen  
Secretary of the U.S. Treasury  
Department of the Treasury  
1500 Pennsylvania Ave., NW Washington, D.C. 20220

Submitted via [regulations.gov](https://www.regulations.gov)

Re: Request for Comments on Certain Energy Generation Incentives (Notice 2022-49).

Dear Secretary Yellen:

The Center for Climate and Energy Solutions (“C2ES”) is pleased to write to the U.S. Department of Treasury (“Treasury”) and the Internal Revenue Service (“IRS”) in response to Notice 2022-49 requesting comments regarding the energy investment credit under Sections 45Y and 48E of the Internal Revenue Code of 1986, as added and amended by Sections 13701 and 13102 of Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022.

C2ES is an independent, nonprofit, nonpartisan organization working to secure a safe and stable climate by accelerating the global transition to net-zero GHG emissions and a thriving, just, and resilient economy. C2ES has been working with leading companies across key sectors of the economy since our founding in 1998 and is known worldwide as a thought leader and trusted convener on climate change and energy issues.

To support the timely and effective implementation of the Section 45Y and 48E tax credits, C2ES has convened a group of companies that are leaders in their industries and that are also working to accelerate the deployment of net-zero GHG emissions electrical generation facilities across the country. These companies represent a range of sectors across the U.S. economy and bring a valuable and diverse range of perspectives in utilizing the existing tax regime to deploy clean energy in a variety of contexts.

Incorporating feedback from these companies, C2ES has developed draft regulatory guidance that articulates approaches that can maximize the deployment of private capital in service of the aims of the IRA, namely the rapid deployment of zero-carbon electricity generating technologies at scale.

## **Life Cycle Analysis/GREET Model**

### **§ 1.45Y-\_\_. Greenhouse Gas Emission Lifecycle Analysis for the Production of Electricity through Combustion or Gasification.**

#### **(a) R&D GREET Model.—**

(1) *In general.* The term *lifecycle GHG emissions*. For purposes of section 45Y(b)(2)(B), the term *lifecycle GHG emissions*—

(i) has the meaning given by 42 U.S.C. 7545(o)(1)(H), as in effect on August 16, 2022; and

(ii) includes lifecycle GHG emissions only through the point of production (well-to-gate), as determined under the most recent Greenhouse gases, Regulated Emissions, and Energy use in Transportation model (GREET model) developed by Argonne National Laboratory, or a successor model.

(2) *Most recent GREET model.* The term *most recent GREET model* means the latest version of R&D GREET developed by Argonne National Laboratory that is publicly available on the first day of the taxable year during which the electricity for which the taxpayer is claiming the section 45Y credit was produced or, in the case of the Reg. 1.45Y- safe harbor, the year in which construction begins. If a new version of R&D GREET becomes publicly available after the first day of the taxable year of production or beginning of construction (but still within such taxable year), then the taxpayer may, in its discretion, treat such later version of R&D GREET as the most recent GREET model.

(3) *Emissions through the point of production (well-to-gate).* The term *emissions through the point of production (well-to-gate)* means the aggregate lifecycle GHG emissions related to electricity at a production facility during the taxable year through the point of production. It includes emissions associated with feedstock growth, gathering, extraction, processing, and delivery to a qualified facility. It also includes the emissions associated with the electricity generation process, inclusive of the electricity used by the facility and any capture and sequestration of carbon dioxide generated by the production facility.

## **“Deeming”**

### **§ 1.45Y-\_\_ Designation of Facilities Using Established Clean Energy Technologies as Zero Emissions Facilities.**

(a) *In General.* For purposes of section 45Y(b)(1)(A)(iii) and section 45Y(b)(2), a facility shall be considered to have a greenhouse gas emissions rate of not greater than zero to the extent the facility produces electricity through the use of an established clean technology.

(b) *Established Clean Technology.* The term “established clean technology” means—

- (1) solar power within the meaning of section 45(c)(1)(E) (without regard to the requirement that construction begins before January 1, 2025),
- (2) wind power within the meaning of section 45(c)(1)(A) (without regard to the requirement that construction begins before January 1, 2025),
- (3) nuclear power at a facility whose reactor design has been approved by the Nuclear Regulatory Commission,
- (4) hydropower, including qualified hydropower within the meaning of section 45(c)(1)(H) (except that section **45(c)(8)(A)** shall not apply for facilities placed in service after December 31, 2024)
- (5) energy storage technology within the meaning of section 48(c)(6) (except that subparagraph (D) of such section shall not apply for energy storage technology placed in service after December 31, 2024),
- (6) marine and hydrokinetic energy generation within the meaning of section 45(c)(1)(I),
- (7) the production of electricity from hydrogen through a process that results in a lifecycle greenhouse gas emissions rate of less than 0.45 kilograms of CO<sub>2</sub>e per kilogram of hydrogen as determined within the meaning of section 45V(b)(2)(D),
- (8) the production of geothermal energy within the meaning of section 45(c)(4) through a process that results in a lifecycle greenhouse gas emissions rate of less than 45 grams of CO<sub>2</sub>e per kWh (without regard to the requirement that construction begins before January 1, 2025), and
- (9) other technologies identified by the Secretary as zero emissions technologies under section 45Y(b)(1)(A)(iii) in the annual table of greenhouse gas emission rates published pursuant to section 45Y(b)(2)(C)(i).

**(c) De Minimis Standard.--**

(1) *General rule.* For purposes of section 45Y(b)(1)(A)(iii), a facility shall be considered to have a greenhouse gas emissions rate of not greater than zero if the emissions rate published by the Secretary pursuant to section 45Y(b)(2)(C)(i) is not greater than 10 grams of CO<sub>2</sub>e per kWh.

(2) *Specific rules.*

(i) *Hydrogen.* For purposes of Reg. 1.45Y- (b)(ii), a facility producing hydrogen shall be considered to have a greenhouse gas emissions rate of not greater than zero if the emissions rate published by the Secretary pursuant to section 45Y(b)(2)(c)(i) is within the range specified in section 45V(b)(2)(D).”

(ii) *Geothermal Energy.* For purposes of Reg. 1.45Y- (b)(viii), a facility producing geothermal energy shall be considered to have a greenhouse gas emissions rate of not

greater than zero if the emissions rate published by the Secretary pursuant to section 45Y(b)(2)(c)(i) is not greater than 10 grams of CO<sub>2</sub>e in excess of 45 grams of CO<sub>2</sub>e per KWh.

**(d) Safe Harbor.--**

*Safe harbor with respect to subsequent changes in greenhouse gas emissions rate.* For purposes of section 45Y(b)(1)(A)(iii), a taxpayer may rely on the emissions rate published pursuant to section 45Y(b)(2)(C)(i) in the year that construction begins to determine a facility's greenhouse gas emissions rate for the applicable credit period. If the published greenhouse gas emissions rate for a type or category of facility changes over the course of the credit period such that a taxpayer who previously did not qualify for the credit qualifies in a later year, the taxpayer may claim the section 45Y credit earned in each remaining year of the applicable credit period.

*(e) Anti-abuse Rule.* For purposes of Reg. 1.45Y-\_\_\_ and Reg. 1.48E- \_\_\_ [the safe harbor], the Secretary shall issue regulations intended to prevent abuse of the safe harbor rule that could lead to improper claims of the tax credit.

*Example 1.* Specifications for a facility in the year construction begins indicate the facility would meet the zero emissions threshold. Due diligence is not exercised during construction so that when the facility is placed in service it fails to meet the zero emissions requirement.

*Example 2.* Specifications for a facility in the year construction begins indicate the facility would meet the zero emissions threshold. Upon being placed in service, the facility is not operated or maintained in a manner that meets the zero emissions threshold.

**Energy Storage**

**§ 1.48E-\_\_\_. Energy Storage Technology.** For purposes of section 48E(a)(1)(B)—

(a) the term *energy storage technology* has the same meaning as in Treas. Reg. 1.48-9(e)(10)(ii) and (iv)[proposed], and

(b) the greenhouse gas emissions rate of energy storage property shall be calculated without taking into account greenhouse gases emitted during the production of the energy that is stored in the energy storage property.

**§ 1.45Y-\_\_\_. Expansion of Facility; Incremental Production.**

(a) Uprates, upgrades, or efficiency improvements resulting in increased production of electricity may establish incremental production for purposes of section 45Y(b)(1)(C).

(b) *New Unit.* For purposes of section 45Y(b)(1)(C) a new unit includes a nuclear reactor licensed by the Nuclear Energy Regulatory Commission after December 31, 2024.

- (c) *Additions of Capacity.* For purposes of section 45Y(b)(1)(C), a taxpayer may determine additions of capacity by one of the following alternative methods.
- (1) *Nameplate Capacity.* An addition of capacity may be measured as the increase in the maximum electrical generating output in MW that the generating facility is capable of producing, on a steady state basis and during continuous operation under standard conditions, compared to the nameplate capacity of the unit of energy property as defined in Treas. Reg. 1.48-14(g)(iii)(2)(A)[proposed].
  - (2) *Rolling Baseline.* An addition of capacity may be measured as the increase in the maximum electrical generating output in MW that the unit of energy property is capable of producing, on a steady state basis and during continuous operation under standard conditions, compared to the average actual operating capacity of the generating facility during the previous three years. Such previous average operating capacity may be established by reporting to the U.S. Energy Information Administration, or governmental or quasi-governmental agencies such as independent system operators or regional transmission operators.
  - (3) *Reported Incremental Capacity.* An addition of capacity may be the addition to capacity reported to a licensing entity, including the Nuclear Regulatory Commission, the Federal Energy Regulatory Commission, or any other entity responsible for approving the transmission of electricity, including independent system operators or regional transmission organizations.