



August 2, 2024

**To:** Department of Treasury; Internal Revenue Service

**Re:** Section 45Y Clean Electricity Production Credit and Section 48E Clean Electricity Investment Credit, 89 Fed. Reg. 47792 (REG-119283-23)

The Institute for Policy Integrity at New York University School of Law (Policy Integrity)<sup>1</sup> respectfully submits to the Department of Treasury and the Internal Revenue Service’s (together, Treasury) the following comments regarding notice of proposed rulemaking *Section 45Y Clean Electricity Production Credit and Section 48E Clean Electricity Investment Credit* (the Proposed Rule).<sup>2</sup> Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.

The Proposed Rule would implement Inflation Reduction Act (IRA) tax credits that subsidize clean electricity production at facilities “for which the greenhouse gas [(GHG)] emissions rate . . . is not greater than zero”<sup>3</sup> (Section 45Y) and clean electricity investments in facilities “for which the anticipated [GHG] emissions rate . . . is not greater than zero” (Section 48E).<sup>4</sup> Because these IRA provisions are predicated on the absence of GHG emissions,<sup>5</sup> rather than the use of any particular generation technologies like wind or solar, the Proposed Rule raises significant questions around the proper role under Section 45Y and 48E of “renewable natural gas” (RNG),<sup>6</sup> biogas,<sup>7</sup> and fugitive methane<sup>8</sup> (together, Waste Methane Fuels). For example, parties that use fossil natural gas for electric generation might seek to qualify for these credits by using negative emissions of some Waste Methane Fuels to offset the positive emissions of the fossil natural gas, whether by physically blending, or by contracting for natural-gas-fired generation facilities to claim the environmental attributes of the Waste Methane Fuels.

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<sup>1</sup> This document does not purport to present the views, if any, of New York University School of Law.

<sup>2</sup> Section 45Y Clean Electricity Production Credit and Section 48E Clean Electricity Investment Credit, 89 Fed. Reg. 47792 (proposed June 3, 2024) (to be codified at 26 C.F.R. 1).

<sup>3</sup> 26 U.S.C. § 45Y(b)(1)(A)(iii).

<sup>4</sup> *Id.* § 48E(b)(3)(A)(iii).

<sup>5</sup> Policy Integrity’s comments are predicated on Treasury’s interpretation of Section 45Y and 48E with respect to relative net zero emissions and identify issues stemming from Treasury’s Proposed Rule adopting that interpretation.

<sup>6</sup> “‘RNG’” refers to biogas that has been upgraded to be equivalent in nature to fossil natural gas.” Proposed Rule at 47804.

<sup>7</sup> “Biogas is a mixture of methane, CO<sub>2</sub> and small quantities of other gases produced by anaerobic digestion of organic matter in an oxygen-free environment.” *An introduction to biogas and biomethane*, INT’L ENERGY AGENCY (2020), <https://perma.cc/D37S-5VQ3>.

<sup>8</sup> “Fugitive methane refers to the release of methane through, for example, equipment leaks during the extraction, processing, transformation, and delivery of fossil fuels to the point of final use, such as coal mine methane.” Proposed Rule at 47804.

Policy Integrity applauds Treasury's identification of some of the complexities raised by considering whether and how alternative fuels, including the Waste Methane Fuels,<sup>9</sup> can satisfy the zero-emissions statutory requirement. These comments highlight some of these complexities and recommend ways in which Treasury can mitigate some of the risks by requiring more thorough analyses and, where possible, erecting additional bulwarks against potential gamesmanship.

Part I discusses the statutory background underlying Treasury's proposed 45Y and 48E regulations and the Proposed Rule's treatment of Waste Methane Fuels. Part II responds to Treasury's specific questions regarding its Proposed Rule in accordance with Policy Integrity's general recommendations.

Overall, these comments recommend as follows:

- To be accurate, counterfactuals that determine the lifecycle GHG emissions for Waste Methane Fuel must be specific, because two fuels may share the same superficial label but have very different emissions implications.
- Counterfactuals must assume that, in the absence of Sections 45Y and 48E, businesses would have followed applicable laws, like prohibitions on venting.
- Because counterfactuals must account for significant indirect emissions related to the full fuel lifecycle, Treasury must model ripple effects through the complete energy market and across other industries with computable general equilibrium modeling.
- Treasury should establish an approach to excluding Waste Methane Fuels that would have been produced even without the Section 45Y and 48E subsidies.
- Treasury should adopt stringent policies to avoid the production of additional waste.
- Treasury should bolster its discussion of pipelines that carry Waste Methane Fuels mixed with fossil natural gas to ensure the final rule complies with the facility-focused language of Sections 45Y and 48E.
- Treasury should strengthen its Section 48E test for showing a facility is anticipated to have a GHG emissions rate of zero or less.

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<sup>9</sup> While these comments focus on Waste Methane Fuels, our prior comments to Treasury in the context of the Section 45V clean hydrogen production tax credit illuminate when hydrogen can be considered to have zero lifecycle GHG emissions, which is also relevant for Sections 45Y and 48E. *See* Comments of Institute for Policy Integrity on Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property (Feb. 26, 2024), <https://perma.cc/CF2P-FUKV>.

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## I. Legal Background

This section summarizes the requirements of Sections 45Y and 48E, and reviews how emissions-accounting rules established to qualify for the former will also govern administration of the latter. It then describes the Proposed Rule’s implementation of those statutory provisions with respect to Waste Methane Fuels.

### A. Section 45Y

Section 45Y provides a tax credit for every kilowatt-hour (kWh) of zero-emissions generation “produced by the taxpayer at a qualified facility . . . .”<sup>10</sup> New facilities placed in service after December 31, 2024 are eligible to earn this credit.<sup>11</sup> A facility remains eligible to earn the credit for the ten years following its placed-in-service date.<sup>12</sup> In addition to new facilities, an expanded facility can earn the credit for its incremental new capacity.<sup>13</sup> The base credit value is 0.3 cents/kWh, increasing to 1.5 cents/kWh when wage and apprenticeship conditions are met,<sup>14</sup> with further bonuses available for satisfying energy-community or domestic-content conditions.<sup>15</sup> The 45Y credit is mutually exclusive with several other tax credits, including the 48E investment tax credit (the other credit being implemented by the Proposed Rule), the 45U nuclear power production tax credit, and the 45Q carbon sequestration tax credit.<sup>16</sup> The entire 45Y program begins to phase out in the later of (a) 2032 or (b) the year in which the Secretary of the Treasury

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<sup>10</sup> 26 U.S.C. § 45Y(a)(1)(A).

<sup>11</sup> *Id.* § 45Y(b)(1)(A).

<sup>12</sup> *Id.* § 45Y(b)(1)(B).

<sup>13</sup> *Id.* § 45Y(b)(1)(C).

<sup>14</sup> *Id.* § 45Y(a)(2). These amounts increase with inflation. *Id.* § 45Y(c).

<sup>15</sup> *Id.* § 45Y(g)(7), (11).

<sup>16</sup> *Id.* § 45Y(b)(1)(D).

determines that annual U.S. GHG emissions from the production of electricity are less than or equal to 25% of their 2022 level.<sup>17</sup>

The requirement that the qualified facility’s GHG emissions be “not greater than zero” applies differently for different categories of facilities.<sup>18</sup> For facilities that produce electricity *without* combustion or gasification, the emissions that must be “not greater than zero” are “the amount of [GHGs] emitted into the atmosphere by a facility in the production of electricity.”<sup>19</sup> For facilities that *do* produce electricity through combustion or gasification, the emissions that must be “not greater than zero” are the “net rate of [GHGs] emitted into the atmosphere by such facility (taking into account lifecycle [GHG] emissions, as described in section 211(o)(1)(H) of the Clean Air Act) in the production of electricity.”<sup>20</sup> The cross-referenced subsection of the Clean Air Act defines the “[l]ifecycle [GHG] emissions” that must be taken into account for combustion and gasification facilities as:

the aggregate quantity of greenhouse gas emissions (including direct emissions and *significant indirect emissions* such as significant emissions from land use changes), . . . related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer . . . .<sup>21</sup>

Harmonizing these provisions results in combustion or gasification facilities qualifying under Section 45Y when the “net rate of [GHGs] emitted into the atmosphere by such facility . . . in the production of electricity” is “not greater than zero,”<sup>22</sup> including “significant indirect emissions . . . related to the full fuel lifecycle.”<sup>23</sup> The Environmental Protection Agency (EPA) recently released a memo, in the context of Treasury’s Section 45V clean hydrogen production tax credit rulemaking on the meaning of “significant indirect effects,” concluding that this phrase demands a “‘consequential’ approach to considering the real-world emissions[,] . . . includ[ing] consideration of market interactions induced by expanded . . . production and use that may result in secondary or indirect greenhouse-gas emissions.”<sup>24</sup> Each year, the Secretary of the Treasury shall “publish a table that sets forth the greenhouse gas emissions rates for types or categories of facilities.”<sup>25</sup>

## **B. Section 48E**

Section 48E provides an investment tax credit for electric generation facilities “for which the anticipated greenhouse gas emissions rate . . . is not greater than zero.”<sup>26</sup> As with Section 45Y,

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<sup>17</sup> *Id.* § 45Y(d).

<sup>18</sup> *Id.* § 45Y(b)(1)(A)(iii).

<sup>19</sup> *Id.* § 45Y(b)(2)(A).

<sup>20</sup> *Id.* § 45Y(b)(2)(B) (citation omitted).

<sup>21</sup> 42 U.S.C. § 7545(o)(1)(H) (emphasis added).

<sup>22</sup> 26 U.S.C. § 45Y(b)(1)(A)(iii), (2)(B).

<sup>23</sup> 42 U.S.C. § 7545(o)(1)(H).

<sup>24</sup> ENV’T PROT. AGENCY, LETTER TO TREASURY ON SECTION 45V (Dec. 20, 2023) at 3, <https://perma.cc/YB8V-5Y8W> [hereinafter EPA Letter].

<sup>25</sup> 26 U.S.C. § 45Y(b)(2)(C)(i).

<sup>26</sup> 26 U.S.C. § 48E(a)(1)(A), (b)(3)(A)(iii). Section 48E also applies to energy storage technologies. *Id.* § 48E(a)(1)(B).

facilities are eligible if they have been placed into service after December 31, 2024.<sup>27</sup> Section 48E also specifies that rules similar to Section 45Y’s policy on facility expansions will apply for incremental investments for facility expansions.<sup>28</sup> The base credit value is 6% of investments,<sup>29</sup> increasing to 30% when wage and apprenticeship conditions are satisfied.<sup>30</sup> Again, further bonuses are available for satisfying energy-community and domestic-content conditions.<sup>31</sup> This investment tax credit is incompatible with several other subsidies, including Sections 45Y, 45U, and 45Q.<sup>32</sup> The Section 48E program phases out under the same conditions as Section 45Y.<sup>33</sup>

Section 48E provides that “[r]ules similar to the rules of section 45Y(b)(2) shall apply” to govern whether a facility’s GHG emissions rate is “anticipated” to be “not greater than zero.”<sup>34</sup> Section 45Y(b)(2) describes the distinction between non-combustion/gasification facilities and combustion/gasification facilities presented above.<sup>35</sup> Therefore, Treasury’s approach to GHG emissions accounting under Section 45Y will also shape its implementation of Section 48E.

Treasury has a limited ability to recapture investment credits awarded under Section 48E, but later turn out to be undeserved. A determination by the Secretary of the Treasury that a facility’s GHG rate is greater than 10 grams of CO<sub>2</sub>e per kWh would trigger 26 U.S.C. § 50(a) for purposes of recapturing the Section 48E credit.<sup>36</sup> Under 26 U.S.C. § 50(a), the recapture period lasts only five years from the placed-in-service date, and the recapturable amount declines each year in that period.<sup>37</sup> Thus, if a facility’s emissions were “anticipated” to be “not greater than zero,” but then increase to above 10 grams of CO<sub>2</sub>e per kWh in year six or later, Treasury has no remedy to recapture any of the subsidy.

### C. The Proposed Rule’s Treatment of Waste Methane Fuels

Sections 45Y and 48E (through their cross-reference to the Clean Air Act) mandate that, when RNG, biogas, or fugitive methane is burned at a combustion or gasification facility,<sup>38</sup> the emissions intensities must reflect the fuel’s “lifecycle GHG emissions,”<sup>39</sup> which include direct and “significant indirect emissions . . . related to the full fuel lifecycle.”<sup>40</sup> These direct and indirect

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<sup>27</sup> 26 U.S.C. § 48E(b)(3)(A)(ii).

<sup>28</sup> *Id.* § 48E(b)(3)(B)(i).

<sup>29</sup> *Id.* § 48E(a)(2)(A)(i).

<sup>30</sup> *Id.* § 48E(a)(2)(A)(ii).

<sup>31</sup> *Id.* § 48E(a)(3).

<sup>32</sup> *Id.* § 48E(b)(3)(C).

<sup>33</sup> *Id.* § 48E(e).

<sup>34</sup> *Id.* § 48E(b)(3)(B)(ii); *see also id.* § 48E(b)(6) (“For purposes of this subsection, the terms ‘CO<sub>2</sub>e per kWh’ and ‘greenhouse gas emissions rate’ have the same meaning given such terms under section 45Y.”).

<sup>35</sup> 26 U.S.C. § 45Y(b)(2).

<sup>36</sup> 26 U.S.C. § 48E(g).

<sup>37</sup> 26 U.S.C. § 50(a).

<sup>38</sup> Treasury proposes defining a combustion or gasification facility as one that “produces electricity through combustion or uses an input energy source to produce electricity, if the input energy source was produced through a fundamental transformation, or multiple transformations, of one energy source into another using combustion or gasification.” Proposed Rule at 47801. This definition would include fuel cell facilities, so long as they involved gasification of a fuel prior to electricity production. *Id.*

<sup>39</sup> 26 U.S.C. § 45Y(b)(2)(B); *see also id.* § 48E(b)(3)(B)(ii).

<sup>40</sup> 42 U.S.C. 7545(o)(1)(H).

emissions related to the full fuel lifecycle include “all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer.”<sup>41</sup>

To satisfy the statutory mandate to account for these indirect GHG emissions, the Proposed Rule contemplates requirements that credit applicants must meet before RNG, biogas, and fugitive methane can receive an emissions value consistent with such alternative fuel (and not that of fossil natural gas).<sup>42</sup> Specifically, Treasury proposes to limit eligibility to fuels derived from actual unavoidable waste, stating that “[r]equirements would be established to reduce the risk that entities will deliberately generate additional biogas [or other waste methane] for purposes of the [45Y and 48E credits], above historic and expected future levels . . . , for example by generating biogas through the intentional generation of waste.”<sup>43</sup>

Relatedly, the Proposed Rule seeks to mitigate the risk that lucrative Section 45Y and 48E subsidies could divert existing supplies of potentially qualifying Waste Methane Fuels from their current uses.<sup>44</sup> If this were to happen, the applications from which the fuels would have been diverted may then turn to other fuels with less favorable lifecycle emissions, yielding a subsidy that merely reshuffles fuel usage without producing any net emissions reduction. To address this risk, Treasury “anticipate[s] requiring” that, to receive a GHG lifecycle emissions value consistent with one of the fuels that are derived from waste methane, and not that of fossil natural gas, the waste stream cannot already have had a “valuable application” in a year before the natural gas plant became operational.<sup>45</sup> Under this first-productive-use rule, Treasury would not consider venting and flaring to be valuable applications.<sup>46</sup>

Treasury envisions that electric generating facilities using RNG, biogas, or fugitive methane would need to acquire and retire energy attribute certificates (EACs) evidencing the environmental qualities of the alternative fuel, via a “book-and-claim” system.<sup>47</sup> As envisioned by Treasury, such a system would need to accurately ensure that the EACs claimed to demonstrate a facility’s emissions intensity under Sections 45Y or 48E are not being double counted or being used for compliance with any separate legal obligation.<sup>48</sup>

The Proposed Rule contemplates that some Waste Methane Fuel usage could happen through “direct use,” meaning “a direct exclusive pipeline connection to a facility that generates biogas or RNG or from which fugitive methane is being sourced.”<sup>49</sup> Treasury also raises the possibility of “non-direct use,” i.e., “production using biogas, RNG, or fugitive methane sourced from a commercial or common-carrier natural gas or other specified pipeline.”<sup>50</sup>

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<sup>41</sup> *Id.*

<sup>42</sup> Proposed Rule at 47804.

<sup>43</sup> *Id.* at 47804–05 (describing requirements to be established for biogas and adding that “[a]ny fugitive sources of methane would be treated in the same fashion as biogas or RNG. . .”).

<sup>44</sup> Proposed Rule at 47804.

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> *Id.* at 47805.

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

For purposes of the 48E investment tax credit, Treasury’s Proposed Rule establishes how applicants must demonstrate that the facilities they are seeking to subsidize would have an anticipated emissions rate of zero or less. Specifically, there must be “objective indicia that such facilities will operate with a [GHG] emissions rate that is not greater than zero” but only for “at least 10 years beginning from the date the facility is placed in service.”<sup>51</sup> The Proposed Rule provides a non-exhaustive list of such indicia, including:

- “[c]o-location of the facility with a fuel source (for example, an anaerobic digester) for which the combination of fuel, type of facility, and practice is reasonably expected to result in a greenhouse gas emissions rate that is not greater than zero;”<sup>52</sup> and
- “[a] 10-year contract to purchase fuels for which the combination of fuel, type of facility, and practice is reasonably expected to result in a greenhouse gas emissions rate that is not greater than zero.”<sup>53</sup>

Besides this sketch of Treasury’s intended approach, the Proposed Rule solicits comments on a number of specific topics. These comments address several of Treasury’s questions next.

## II. Answers to Treasury’s Questions

This section begins by addressing Treasury’s question about proper counterfactual selection to ensure that a qualifying combustion and gasification facility’s net GHG emissions rate is not greater than zero. Below, Policy Integrity emphasizes that counterfactuals must be specific because the “same” Waste Methane Fuel can have different counterfactuals. This section also addresses the need for selected counterfactuals to include: (1) relevant laws as part of the baseline; (2) significant indirect effects; and (3) other policies that would drive the production of Waste Methane Fuels even without Section 45Y and 48E. Then it discusses the risk of additionally produced waste and explains how one solution would be to adopt a cut-off date based on the IRA’s enactment date. Next, it explains why a deliverability standard may help align Treasury’s final rule with the authorizing statutes it is implementing. Finally, this section analyzes how the Proposed Rule is overly permissive in describing when a natural gas plant is “anticipated” to have zero emissions or less.

### A. Counterfactual Assumptions

*(11) What counterfactual assumptions and data should be used to assess the net greenhouse gas emissions of facilities that rely on biogas, RNG, or fugitive methane (for example, venting, flaring, or other practice)? Is venting an appropriate counterfactual assumption in some cases? If not, what other factors should be considered?*<sup>54</sup>

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<sup>51</sup> *Id.* at 47846.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> Proposed Rule at 47805.

## 1. Counterfactuals must be specific to be accurate

The net GHG emissions of a generation facility that relies on Waste Methane Fuels depends on what emissions would have occurred if the particular biogas or fugitive methane had not been captured for power sector use pursuant to Section 45Y and 48E incentives.<sup>55</sup> Proper and specific counterfactual selection is critical for assessing a facility’s net GHG emissions because Section 45Y mandates that Treasury account for “lifecycle [GHG] emissions,”<sup>56</sup> which include significant indirect emissions from fuel production.<sup>57</sup> And “significant indirect emissions” may be positive or negative depending on the counterfactual scenario. Accordingly, a facility’s net GHG emissions rate must include any negative emissions due to the particular Waste Methane Fuel being used for energy in response to the Section 45Y or 48E incentives, just as it would include any positive indirect emissions.<sup>58</sup>

Some Waste Methane Fuels may even have negative (relative) lifecycle GHG values because they contain methane that would otherwise have been vented into the atmosphere absent Sections 45Y and 48E.<sup>59</sup> This negative-lifecycle-emissions phenomenon can occur because methane is significantly more climate-forcing than CO<sub>2</sub>, and burning methane releases CO<sub>2</sub> into the atmosphere instead of methane.<sup>60</sup>

In designating counterfactuals, specificity is critical, because two instances of a Waste Methane Fuel may be the “same”—in the sense that they are both RNG, biogas, or fugitive methane—yet have very different lifecycle emissions. For example, RNG produced and captured in various ways can have significantly divergent lifecycle emissions. One study compared the lifecycle GHG emissions of three categories of RNG: RNG that otherwise would have been vented, RNG that otherwise would have been non-productively flared at 99% efficiency, and RNG that is produced from intentionally created methane.<sup>61</sup> While the would-have-been-vented RNG had a highly negative lifecycle emissions value, the would-have-been-flared RNG had a negative lifecycle value only if the leakage from the RNG system was under 1%, which is improbable.<sup>62</sup> If leakage exceeded 1%, the would-have-been-flared RNG had positive lifecycle emissions that increased as

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<sup>55</sup> Emily Grubert, *At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates*, 15 ENV’T. RSCH. LETTERS at 3 (2020).

<sup>56</sup> 26 U.S.C. § 45Y(b)(2)(B); *see also id.* § 48E(b)(3)(B)(ii).

<sup>57</sup> 42 U.S.C. 7545(o)(1)(H).

<sup>58</sup>

<sup>59</sup> *See LCFS Pathway Certified Carbon Intensities*, CA. AIR. RES. BD. (2024), <https://perma.cc/B75U-PA7E>; TOM CYRS. ET AL., WORLD RES. INST., *RENEWABLE NATURAL GAS AS A CLIMATE STRATEGY: GUIDANCE FOR STATE POLICYMAKERS* 7 (2020); Aaron Smith, *Cow Poop is Now a Big Part of California Fuel Policy*, AG. DATA NEWS (Jan. 22, 2024), <https://perma.cc/3GVM-4G5Y>.

<sup>60</sup> Grubert, *At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates*, 15 ENV’T. RSCH. LETTERS at 2 (2020).

<sup>61</sup> *Id.* at 3.

<sup>62</sup> *Id.* at 3, 4 tbl.1. (citing a study in which “evaluation of 23 biogas plants, including seven facilities encompassing production through biogas upgrading to biomethane, where facility leakages from 0.4 to 14.9% of production were observed” and using a “best-guess estimate of downstream emissions alone is 0.8%”); *see also Satellite Data Suggest U.S. Methane Emissions Underestimated*, NASA Earth Observatory (2019), <https://perma.cc/9KLG-3HLL> (“The satellite and model-based estimates for oil and gas operations and livestock production, the two largest sources of methane in the U.S., were higher than EPA’s estimates by 12 percent and 11 percent respectively.”).



a function of the system's leakage.<sup>63</sup> Finally, intentionally produced methane that would not have otherwise existed had the highest lifecycle emissions value, because, once it has been produced, some of it will inevitably leak (i.e., be vented) before it can be combusted.<sup>64</sup>

Accordingly, for any category of RNG, accurate assessment of a facility's net GHG emissions under Section 45Y and 48E requires careful attention to whether the counterfactual for that facility's RNG would have been venting, flaring, non-existence, or something else without these incentives.

Importantly, even a single waste collection mechanism, like an anaerobic digester at a dairy, may simultaneously produce a blend of multiple types of Waste Methane Fuel, each with its own counterfactual.<sup>65</sup> Absent a digester, the manure at a dairy will produce some amount of methane; processing the animal waste in the digester will result in more methane than would have occurred without that intervention. A dairy operator facing incentives to produce RNG might either opt to use a digester rather than not, or use a digester more extensively rather than less extensively; either way the result might be generating more methane than the animal waste would have yielded without the digester.<sup>66</sup> While some of a digester's methane production would therefore also have occurred in the counterfactual (that is, directly from animal waste if there were no Section 45Y or 48E incentive to produce RNG) and then would have been vented, the RNG incentive can lead to the digester being used in a manner that produces more methane than would otherwise have been produced.<sup>67</sup> In such a scenario, the digester produces a combination of would-have-been-vented methane *and* methane that otherwise would not have existed, each with its own lifecycle GHG emissions value.<sup>68</sup>

Treasury must weight the emissions value of the resulting mixture to reflect the lifecycle emissions of the different proportions, with attention to the specific counterfactuals of each proportion, to fulfill the statutory mandate of ensuring zero-emissions credits are appropriately determined.

## **2. Counterfactuals must assume that relevant laws would have been followed if the subsidies did not exist**

As Treasury considers the most accurate counterfactuals for particular sources of Waste Methane Fuels, it should treat the requirements of federal, state, and local laws as dispositive.

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<sup>63</sup> Grubert, *At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates*, 15 ENV'T. RSCH. LETTERS at 3, 4 tbl.1. (2020).

<sup>64</sup> *Id.* at 4 & tbl.1.

<sup>65</sup> *Id.* at 5.

<sup>66</sup> *Id.*

<sup>67</sup> Aaron Smith, *Cow Poop is Now a Big Part of California Fuel Policy*, AG. DATA NEWS (Jan. 22, 2024), <https://perma.cc/3GVM-4G5Y> ("Microbes produce different amounts of gas inside a digester than they would in an open lagoon because of differing environmental factors such as oxygen exposure and temperature."); *Anaerobic Digestion*, Iowa State Univ., <https://perma.cc/S5SK-MZVT> ("In anaerobic digesters, the same microbial decomposition process that occurs in lagoons is utilized for manure stabilization, but there are several key differences. Anaerobic digesters are designed and managed in a way to optimize the bacterial decomposition of organic matter.").

<sup>68</sup> Grubert, *At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates*, 15 ENV'T. RSCH. LETTERS at 5 (2020).

For example, under Section 111 of the Clean Air Act, EPA requires certain landfills to install gas collection and control systems that flare gas or collect it for beneficial use.<sup>69</sup> Several states have more stringent requirements.<sup>70</sup> These requirements dictate the counterfactual; the lifecycle greenhouse gas emissions of landfill gas cannot be calculated based on a counterfactual of venting if venting would have been illegal. Thus, for Treasury’s lifecycle values to be accurate, they must reflect all applicable legal requirements affecting the counterfactual. If Waste Methane Fuels receive inappropriately favorable lifecycle emissions values (for example, negative values when the accurate assessment would be positive), natural gas electric generating facilities could attempt to obtain Section 45Y and 48E subsidies by using those fuels to improperly “offset” their other emissions arising from using fossil natural gas.

The concept of “regulatory additionality” in the carbon offset market context underscores this point.<sup>71</sup> If an entity is legally obligated to take action, it cannot dress up that required action as an offset representing negative emissions, because there was no reduction in emissions in excess of existing legal requirements.<sup>72</sup> For instance, if a property owner is legally required to conserve trees, it would be improper for them to sell a carbon offset premised on a promise not to log, because the law secures that outcome—not the offset.<sup>73</sup> The same reasoning applies to Sections 45Y and 48E implementation: A Waste Methane Fuel like RNG cannot function as an “offset” to cancel out fossil natural gas emissions unless it represents a true source of avoided emissions beyond the legal baseline.

Treasury should also ensure that counterfactuals promptly adjust with legal changes governing feedstocks. If a state were to begin requiring flaring or beneficial use at all dairies, for example, the counterfactual for all RNG and biogas from dairies in that state should become flaring.<sup>74</sup> Treasury should consider how to design the final rule so that, whenever a new legal requirement phases in, the counterfactuals adjust accordingly. This design is especially important because many states have economy-wide GHG emissions mandates that increase in stringency over time. Indeed, as methane policies develop, and declining emissions limits are sector-allocated over time, it will be less and less likely that venting would be an appropriate counterfactual.<sup>75</sup>

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<sup>69</sup> SALATA INST. FOR CLIMATE & SUSTAINABILITY AT HARVARD UNIV., EPA’S MUNICIPAL SOLID WASTE LANDFILL METHANE EMISSION RULES 3 (2024), <https://perma.cc/XQ55-5X7E>.

<sup>70</sup> *Id.* at 6.

<sup>71</sup> See Brian Joseph McFarland, *Carbon Reduction Projects and the Concept of Additionality*, 11 SUSTAINABLE DEV. L. & POL’Y 15 (2011).

<sup>72</sup> See VITTORIA BATTOCLETTI ET AL., EUROPEAN CORP. GOV. INST., THE VOLUNTARY CARBON MARKET: MARKET FAILURES AND POLICY IMPLICATIONS 11 (2023).

<sup>73</sup> GOV’T ACCOUNTABILITY OFFICE, OPTIONS FOR ADDRESSING CHALLENGES TO CARBON OFFSET QUALITY 18 (2011), <https://perma.cc/H6AE-QD7J> (“[A]ll of the programs we reviewed seek to accept only those projects that achieve emissions reductions beyond what is already required by law or regulation . . .”).

<sup>74</sup> Comments of Env’t Def. Fund to Treasury on Section 45V Credit for Production of Clean Hydrogen at 56 (Feb. 27, 2024), <https://www.regulations.gov/comment/IRS-2023-0066-29722>.

<sup>75</sup> Grubert, *At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates*, 15 ENV’T. RSCH. LETTERS at 5 (2020) (“[I]f the methane can be captured for RNG production, it can be captured for diversion to a flare, and it is unrealistic to assume that capturable methane would be vented under a GHG conscious policy regime.”).

### 3. The counterfactuals must include significant indirect effects

This section addresses several sources of significant indirect emissions that Treasury must account for when calculating Methane Waste Fuel’s lifecycle emissions in a manner that fulfills Section 45Y’s and 48E’s statutory mandate.<sup>76</sup>

Treasury’s Proposed Rule contains a first-productive-use restriction that grapples with one source of indirect emissions: how the use of Waste Methane Fuels for electric generation could induce emissions elsewhere by diverting Waste Methane Fuels from their current uses.<sup>77</sup> If this were to happen, the energy needs previously served by Waste Methane Fuels might instead be met through other fuels with positive lifecycle GHG emissions, if demand remains constant or increases. Policy Integrity supports Treasury’s proposed requirement that, to receive a GHG lifecycle emissions value consistent with diverted waste, the relevant waste methane must not already have had a “valuable application” in a year before the potentially qualifying facility using it became operational.<sup>78</sup>

By helping to ensure that existing Waste Methane Fuels are not diverted, this policy would largely avoid the need to adjust lifecycle emissions values to account for induced emissions from positive-lifecycle-emissions fuels replacing currently used Waste Methane Fuels. Diversion from existing uses, however, is only one indirect source of emissions for which Treasury must account to faithfully implement Sections 45Y and 48E.<sup>79</sup>

First, the production of Waste Methane Fuels based on the incentive structure of Sections 45Y and 48E will cause significant indirect emissions by lowering the price of Waste Methane Fuels. Because Waste Methane Fuels and fossil natural gas are substitutes, the price of fossil natural gas will also decline. This decrease in the price of energy sources could cause more energy consumption overall, with attendant emissions increases. If the price of Waste Methane Fuels and fossil natural gas drops low enough, these fuels could start to displace investment in and consumption of renewable energy. Consequently, beyond directly increasing short-term emissions, a significant indirect effect of producing Waste Methane Fuels may be expanding natural gas production and limiting the growth of clean energy sources.<sup>80</sup>

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<sup>76</sup> Identifying all necessary sources of indirect emissions is a separate question from how to shape the rule to discourage the production of additional waste that would not have otherwise existed—a topic addressed in Part II.B, which concerns questions (7) and (8).

<sup>77</sup> Proposed Rule at 47804.

<sup>78</sup> *Id.*

<sup>79</sup> Proposed Rule at 47803 (“Proposed §1.45Y-5(d)(2)(v) would interpret the reference to section 211(o)(1)(H) of the CAA as requiring that an LCA must take into account direct emissions, significant indirect emissions in the United States or other countries, emissions associated with market-mediated changes in related commodity markets, emissions associated with feedstock generation or extraction, emissions consequences of increased production of feedstocks, emissions at all stages of fuel and feedstock production and distribution, and emissions associated with distribution, delivery, and use of feedstocks to and by a [combustion and gasification] Facility.”).

<sup>80</sup> And if Treasury does not prevent additional waste generation, these indirect effects would be especially pronounced. For a more complete discussion, *see* Section II.B of these comments.

All these indirect emissions are analogous to one type of indirect emissions expressly called out in the incorporated-by-reference Clean Air Act provision—that is, emissions resulting from “land use changes.” Like land use changes, these indirect emissions operate by price effects.<sup>81</sup> Analyzing them constitutes the type of “consideration of market interactions,” which EPA specifically found to be appropriate in the context of hydrogen.<sup>82</sup> As such, Treasury must interpret Sections 45Y and 48E to require lifecycle emissions analysis that incorporates all these indirect effects.<sup>83</sup>

Treasury should model the emissions impacts of these indirect effects through a computable general equilibrium (CGE) model, which is a widely used tool for evaluating a broader set of economic impacts and costs and benefits of policies. One example is EPA’s SAGE mode, an intertemporal model at the sub-national level with detailed sectoral disaggregation, including agriculture, natural gas extraction and distribution, electric power, water, sewage, and waste, and others potentially impacted by the proposed rule.<sup>84</sup> EPA integrated SAGE with the Integrated Planning Model to evaluate social costs and benefits associated with regulatory policy in the power sector.<sup>85</sup> Another example is the National Energy Modeling System (NEMS) from the Energy Information Administration. NEMS is an energy-economy modeling system of U.S. energy markets extending through 2050, projecting the production, imports, exports, conversion, consumption, and prices of energy under various assumptions. It produces a general equilibrium solution for energy supply and demand annually.<sup>86</sup> In particular, the Renewable Fuels Module of NEMS covers biomass and landfill gas among other major renewable electricity resources.<sup>87</sup> NEMS also models biomass in the industrial sector and biofuels in its Liquids Fuels Market Module.<sup>88</sup> Additionally, the Department of Agriculture applied a CGE model to study the impact of its food assistance policy.<sup>89</sup> This model contains about 50 aggregated industries with considerable detail about farming and food processing, alongside fossil fuel mining and processing, and electric utilities.<sup>90</sup> Treasury could combine such models with other energy models

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<sup>81</sup> 42 U.S.C. 7545(o)(1)(H).

<sup>82</sup> EPA Letter, *supra* note 24, at 2–3 (describing the EPA’s interpretation of the phrase “significant indirect effects” and reviewing a rulemaking in which EPA concluded the phrase must include “consideration of market interactions induced by expanded biofuel production,” including “through changes in agricultural prices”).

<sup>83</sup> Treasury’s proposed § 1.45Y-5(d)(2)(v) appears designed to do just that. *See* n. 79.

<sup>84</sup> *SAGE Model Documentation, version 2.0.1*, ENV’T PROT. AGENCY (2024), <https://www.epa.gov/environmental-economics/sage-model-documentation-version-201>.

<sup>85</sup> New Source Performance Standards for Greenhouse Gas Emissions, 89 Fed. Reg. 39798, 40004–05 (May 9, 2024).

<sup>86</sup> ENERGY INFO. ADMIN., NATURAL GAS MARKET MODULE OF THE NATIONAL ENERGY MODELING SYSTEM: MODEL DOCUMENTATION 2022 at 10 (2022), [https://www.eia.gov/outlooks/aeo/nems/documentation/ngmm/pdf/ngmm\(2022\).pdf](https://www.eia.gov/outlooks/aeo/nems/documentation/ngmm/pdf/ngmm(2022).pdf).

<sup>87</sup> ENERGY INFO. ADMIN., RENEWABLE FUELS MODULE OF THE NATIONAL ENERGY MODELING SYSTEM: MODEL DOCUMENTATION 2022 at 19, 76 (2022), [https://www.eia.gov/outlooks/aeo/nems/documentation/renewable/pdf/RFM\\_2022.pdf](https://www.eia.gov/outlooks/aeo/nems/documentation/renewable/pdf/RFM_2022.pdf).

<sup>88</sup> ENERGY INFO. ADMIN., LIQUID FUELS MARKET MODULE OF THE NATIONAL ENERGY MODELING SYSTEM: MODEL DOCUMENTATION 2022 (2022), [https://www.eia.gov/outlooks/aeo/nems/documentation/lfmm/pdf/LFMM\\_AEO2022\\_Documentation.pdf](https://www.eia.gov/outlooks/aeo/nems/documentation/lfmm/pdf/LFMM_AEO2022_Documentation.pdf).

<sup>89</sup> KENNETH HANSON ET AL., DEP’T OF AGRIC., TRACING THE IMPACTS OF FOOD ASSISTANCE PROGRAMS ON AGRICULTURE AND CONSUMERS A COMPUTABLE GENERAL EQUILIBRIUM MODEL (2002).

<sup>90</sup> *Id.*

to estimate changes in social welfare, sectoral output, labor demand, and other economic indicators associated with its Proposed Rule.<sup>91</sup>

Second, notwithstanding the immediate climate benefits from combusting methane instead of venting it, the Section 45Y and 48E subsidization of Waste Methane Fuel production could cause significant indirect emissions by preventing or delaying future emissions reductions. Even if Sections 45Y and 48E are limited to existing waste, adding a revenue stream for a business's waste could keep it operating longer than it otherwise would have by lowering the marginal cost of production.<sup>92</sup> In those circumstances, the counterfactual for the Waste Methane Fuels would be non-existence because the waste-producing business would have ended, and all of the business's emissions (including emissions that are not themselves amenable to being converted to fuel, such as enteric formation emissions) also would not have happened in the counterfactual. Treasury should also include these additional indirect emissions effects (preventing or delaying future emissions reductions) by requiring modeling with CGE models, explicitly including policies, specifying a counterfactual, and/or including constraints in its final rule.

Third, the immediate climate benefits from combusting methane instead of venting it may be offset or negated by changes to the political economy of waste regulation by creating constituencies politically invested in opposing laws critical for reaching net zero where such laws would reduce these waste streams' value. If these groups (for example, dairies) can successfully delay future emissions regulations, that delay would have a significant indirect effect. As this cannot be modeled, Treasury should instead consider and discuss these types of effects qualitatively when creating lifecycle emissions parameters for its final rule.

#### **4. The counterfactuals must reflect the effects of other subsidies**

Even if Treasury were to limit credit eligibility to fuels derived from existing waste sources,<sup>93</sup> Treasury should not grant venting as a counterfactual to every extant source that currently vents methane and later starts to capture it. Critically, many federal and state subsidies encourage businesses to capture their waste streams for beneficial use,<sup>94</sup> and these incentives will likely proliferate as U.S. jurisdictions work to decarbonize hard-to-abate industries through Waste Methane Fuels. In some cases, these other incentives will suffice to encourage methane capture without any need for Section 45Y and 48E credits to sweeten the pot; indeed, existing incentives were sufficient for the 343 anaerobic digesters installed in the U.S.<sup>95</sup> If a source would have gone

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<sup>91</sup> It is important that the chosen CGE model has the necessary spatial resolution to capture state level regulations, such as a venting prohibition, and policy incentives.

<sup>92</sup> Cf. Aaron Smith, *Cow Poop is Now a Big Part of California Fuel Policy*, AG. DATA NEWS (Jan. 22, 2024), <https://perma.cc/3GVM-4G5Y> (raising the possibility that California's methane-capture subsidies have delayed the exodus of dairies from the state).

<sup>93</sup> See Part II.B.

<sup>94</sup> E.g., WHITE HOUSE OFF. OF DOMESTIC CLIMATE POL'Y, U.S. METHANE EMISSIONS REDUCTION ACTION PLAN 11–12 (2021); Aaron Smith, *Cow Poop is Now a Big Part of California Fuel Policy*, AG. DATA NEWS (Jan. 22, 2024), <https://perma.cc/3GVM-4G5Y> (raising the possibility that California's methane-capture subsidies have delayed the exodus of dairies from the state); ENV'T PROT. AGENCY, AGSTAR PROJECT DEVELOPMENT HANDBOOK 6-14 to 6-15 (2020); PATRICIA FISHER, THE 'DARK HORSE' OF CLIMATE CHANGE: AGRICULTURAL METHANE GOVERNANCE IN THE UNITED STATES AND CANADA at 9–16 (2022).

<sup>95</sup> *AgSTAR Data and Trends*, Env't. Prot. Agency (2023), <https://perma.cc/5A5Y-XTEP>.

from venting to capture because of other subsidies—such that the subsidies under Sections 45Y and 48E are not the actual cause of the avoidance of waste methane—then that reality should be reflected in the counterfactual for fuel derived from that source’s methane.

This lifecycle calculation is effectively similar to the diverted-existing-use scenario, because in both cases, the Waste Methane Fuel was always going to be used beneficially, just not necessarily for power generation.<sup>96</sup> That suggests a similar solution is appropriate: In the same way that Treasury proposes the first-productive-use rule to address the diversion-from-existing-use problem, Treasury can also prohibit Waste Methane Fuels from receiving lifecycle values consistent with avoiding waste methane under Sections 45Y and 48E if the Waste Methane Fuels would have been beneficially used even without those subsidies.

Treasury should integrate these subsidies in its CGE modeling efforts discussed above. This integration will give the agency better insight into the impact of these other subsidies. Doing so is also necessary to capture any interactions between policies, which may also affect indirect emissions accounting discussed above.

## **B. Treasury Should Adopt Policies to Avoid Additional Waste Production**

*(7) How can the potential for the generation of additional emissions from the production of additional waste, waste diversion from lower-emitting disposal methods, and changes in waste management practices be limited through emissions accounting or rules for biogas and RNG use established for purposes of the Clean Electricity Tax Credits?*

*(8) To limit the additional production of waste, should the final regulations limit eligibility to methane sources that existed as of a certain date or waste or waste streams that were produced before a certain date, such as the date that the IRA was enacted? If so, how can that be documented or verified? How should any changes in volumes of waste and waste capacity at existing methane sources be documented and treated for purposes of the Clean Electricity Tax Credits? How should additional capture of existing waste or waste streams be documented and treated?<sup>97</sup>*

Additionally produced waste is waste methane that would not have existed but for Section 45Y and 48E subsidies. Treasury should clarify its rationale for seeking to avoid the production of additional waste methane. In contrast to Waste Methane Fuels that represent the productive use of genuine waste methane, the counterfactual for additionally created RNG, biogas, or fugitive methane would be that the gas would never have existed at all.<sup>98</sup> As a result, the total lifecycle emissions would be greater than zero, as discussed in Part II.A. Such waste fuels would necessarily fail the statutory not-more-than-zero emissions requirement.

Treasury should adopt policies squarely disincentivizing additional waste production. Sections 45Y and 48E exist to incentivize electricity generation with zero or less emissions per kWh,<sup>99</sup> so

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<sup>96</sup> See Part II.A.1.

<sup>97</sup> Proposed Rule at 47805.

<sup>98</sup> See Emily Grubert, *At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates*, 15 ENV’T. RSCH. LETTERS at 3-4 (2020).

<sup>99</sup> 26 U.S.C. § 45Y(b)(1)(A)(iii); *id.* § 48E(b)(3)(A)(iii).

it would be contrary to congressional intent if its implementing regulations caused new, net-positive GHG emissions from increased production of Waste Methane Fuels. And, to the extent that Treasury can avoid causing the creation of additional waste, there will be less of a risk of Treasury later mistaking additional waste for true waste and erroneously awarding subsidies for the use of positive-GHG Waste Methane Fuels.

The risk of inadvertently incentivizing the creation of additional waste should be a serious concern for Treasury because giving businesses economic rewards for removing harm can result in a perverse incentive to create more harm to receive the rewards. In climate policy, a relatively recent example of a perverse incentive involved the United Nations' attempt to reduce a climate-forcing gas, HFC-23, with its Clean Development Mechanism.<sup>100</sup> Because the United Nations made it so lucrative to destroy HFC-23, a coolant manufacturing byproduct, businesses began to produce more and more HFC-23, including by shifting to less efficient coolant manufacturing processes to create more of waste gas.<sup>101</sup>

In addition to increases in direct emissions (e.g., leakage of waste methane), additional waste also comes with significant indirect emissions that Treasury would need to account for to comply with the statute. Section 45Y and 48E subsidies would increase profits for the waste-producing businesses that produce and sell waste, leading the expansion of existing businesses and the creation of new ones. Not all resulting emissions would be beneficially captured. Animal agriculture provides an example: The methane emissions from enteric fermentation dwarf the methane emissions from manure management.<sup>102</sup> Yet only the latter are easily amenable to capture.<sup>103</sup> If the profits from Sections 45Y and 48E caused a new dairy to open, it would release significant enteric emissions, even if all its manure-based emissions were captured and used to create Waste Methane Fuel.

Treasury would need to factor these additional enteric emissions into its calculation of lifecycle GHG emissions for the resulting Waste Methane Fuel, because they would be “significant indirect emissions . . . related to the full fuel lifecycle”—specifically “fuel and feedstock production.”<sup>104</sup> As EPA has explained in discussing the relevant Clean Air Act language, “[t]he term ‘related to’ is generally interpreted as providing a broad and expansive scope for a provision. It has routinely been interpreted as meaning to have a connection to or refer to a matter.”<sup>105</sup> When Sections 45Y or 48E cause Waste Methane Fuel to be produced using the manure-derived feedstock, any

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<sup>100</sup> Elisabeth Rosenthal & Andrew W. Lehren, *Profits on Carbon Credits Drive Output of a Harmful Gas*, N.Y. TIMES (Aug. 8, 2012).

<sup>101</sup> *Id.* (“That incentive has driven plants in the developing world not only to increase production of the [HCFC-22] but also to keep it high — a huge problem because [HCFC-22] itself contributes to global warming and depletes the ozone layer. . . . The production of coolants was so driven by the lure of carbon credits for waste gas that in the first few years more than half of the plants operated only until they had produced the maximum amount of gas eligible for the carbon credit subsidy, then shut down until the next year, United Nations reports said. The plants also used inefficient manufacturing processes to generate as much waste gas as possible . . .”).

<sup>102</sup> WHITE HOUSE OFF. OF DOMESTIC CLIMATE POL’Y, U.S. METHANE EMISSIONS REDUCTION ACTION PLAN 6 (2021).

<sup>103</sup> PATRICIA FISHER, THE ‘DARK HORSE’ OF CLIMATE CHANGE: AGRICULTURAL METHANE GOVERNANCE IN THE UNITED STATES AND CANADA 6 (2022)

<sup>104</sup> 42 U.S.C. 7545(o)(1)(H).

<sup>105</sup> EPA Letter, *supra* note 24, at 3.

additional enteric emissions would be “related” to the production of the manure and the Waste Methane Fuel.

As Treasury suggests, one solution would be limiting eligibility to methane sources and amounts that existed as of a certain date.<sup>106</sup> This approach would mirror the United Nations’ eventual policy of refusing to award credits to new factories destroying HFC-23.<sup>107</sup> This approach would make the most sense for methane production that is mostly likely to be influenced directly by these subsidies, as would be the case for animal agriculture and fossil natural gas production.<sup>108</sup> One appropriate cut-off date would be August 16, 2022: the day the IRA became law. For animal agriculture, for example, farms with existing manure lagoons on that date would be eligible for the amount of methane that was being vented then.<sup>109</sup>

Even if Treasury were to adopt a cut-off date, the Proposed Rule proposes a possible exception for “expected future levels” of waste.<sup>110</sup> For Waste Methane Fuels derived from human waste, the phrase “expected future levels” is potentially an appropriate qualifier, to the extent that human waste is an exogenous factor that cannot be readily exploited to garner lucrative Section 45Y/48E credits.<sup>111</sup> For livestock-derived or oil- and gas-production-derived Waste Methane Fuels, however, Treasury’s unqualified inclusion of any “expected future levels” has the potential to work mischief. Treasury should consider these potential effects and clarify that expected future levels of livestock feedstock and oil and gas feedstock have no place in establishing a baseline for lifecycle emissions analyses.<sup>112</sup>

### **C. Treasury Should Bolster Its Discussion of Pipelines That Carry Waste Methane Fuels and Fossil Natural Gas**

*(9) Are geographic or temporal deliverability requirements needed to reflect and reduce the risk of indirect emissions effects from biogas, RNG, or fugitive methane use in the electricity production process? If so, what should these requirements be and are electronic tracking systems able to capture these details?*<sup>113</sup>

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<sup>106</sup> Proposed Rule at 47805.

<sup>107</sup> Elisabeth Rosenthal & Andrew W. Lehren, *Profits on Carbon Credits Drive Output of a Harmful Gas*, N.Y. TIMES (Aug. 8, 2012) (“The United Nations, recognizing the temptation for companies to jump into the lucrative business, has refused since 2007 to award carbon credits to any new factories destroying the waste gas.”).

<sup>108</sup> Human beings are less likely to respond to a biogas subsidy by producing more human waste; however, landfills and wastewater facilities that receive human waste might respond to a biogas subsidy by altering how they process biogas arising from human waste, for example through the use of a digester.

<sup>109</sup> While there is some potential for distortionary effects within the animal agriculture industry from restricting this income stream to existing sources and amounts of waste, it is unlikely that new demand would be preferentially served by existing sources because (1) additional waste at existing facilities would also be excluded and (2) this animal-producing segment of the industry is particularly competitive, suggesting a lack of market power. *E.g.*, *Beef Cattle Production in the US - Number of Businesses*, IBISWorld (May 9, 2024), <https://www.ibisworld.com/industry-statistics/number-of-businesses/beef-cattle-production-united-states/> (“There are 769,065 Beef Cattle Production businesses in the US as of 2023 . . .”).

<sup>110</sup> Proposed Rule at 47804.

<sup>111</sup> *But see* n.108, *supra*.

<sup>112</sup> In the case of livestock-derived Waste Methane Fuel, Policy Integrity recognizes that there could be increased demand for livestock products independent of these subsidies. It is difficult to understand how Treasury could rationally establish that this is independent of the potential to receive subsidies.

<sup>113</sup> Proposed Rule at 47805.



The Proposed Rule states that electric generating facilities would purchase EACs representing the emissions attributes of Waste Methane Fuels through a book-and-claim system, and that such facilities could be connected to the fuel sources either through exclusive direct connections, commercial or common-carrier natural gas pipelines, or other specified pipelines.<sup>114</sup>

Treasury’s proposal to exclude from Section 45Y/48E eligibility Waste Methane Fuels without any pipeline connection to the electric generating facility is appropriate. Section 45Y and 48E subsidy availability turns on “the amount of greenhouse gases emitted into the atmosphere *by a facility*,”<sup>115</sup> accounting for the fuel’s lifecycle GHG emissions.<sup>116</sup> Because the statute focuses on the emissions of the fuel combusted at the facility, including that fuel’s lifecycle emissions, it would be inappropriate to allow electric generating facilities to claim credit for emissions reductions associated with fuel that they cannot possibly be burning.

For the same reason, however, Treasury should consider whether any pipeline connection that delivers commingled Waste Methane Fuels plus fossil natural gas (rather than an exclusive direct connection) would satisfy Sections 45Y’s and 48E’s demands. In the final rule, Treasury should either modify its proposal, or explain why purchasing EACs for Waste Methane Fuels but then burning a combination of Waste Methane Fuels and fossil natural gas could satisfy the Section 45Y and 48E requirements for *facility* emissions. In doing so, Treasury should consider whether a deliverability standard would shore up the legality of allowing connections via common carriers and commercial pipelines.

For example, to ensure that natural gas usage is displaced within California, the state’s renewable portfolio standard requires, for new contracts, that “the applicant must demonstrate that each segment of the pipeline on the delivery path from the point of injection to the point of receipt physically flows toward the generation facility at least 50 percent of the time on an annual basis.”<sup>117</sup> California recently proposed the same deliverability requirement in the context of its Low Carbon Fuel Standard.<sup>118</sup>

Additionally, to the extent that pipelines that otherwise would not have existed are built to carry commingled Waste Methane Fuel and fossil natural gas, the emissions from the lifecycle of the fossil natural gas could become “significant indirect emissions . . . related to . . . distribution” of

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<sup>114</sup> Proposed Rule at 47805.

<sup>115</sup> 26 U.S.C.A. § 45Y(b)(2)(A) (emphasis added); *see also id.* § 45Y(b)(2)(B) (“In the case of a facility which produces electricity through combustion or gasification, the greenhouse gas emissions rate *for such facility* shall be equal to the net rate of greenhouse gases emitted into the atmosphere *by such facility* (taking into account lifecycle greenhouse gas emissions, as described in section 211(o)(1)(H) of the Clean Air Act in the production of electricity, expressed as grams of CO<sub>2</sub>e per KWh.” (citation omitted) (emphases added)); *id.* § 48E(b)(3)(A) (“For purposes of this section, the term ‘qualified facility’ means a facility . . . for which the anticipated greenhouse gas emissions rate . . . is not greater than zero.”).

<sup>116</sup> 26 U.S.C. § 45Y(b)(2)(B); *see also id.* § 48E(b)(3)(B)(ii).

<sup>117</sup> CA. ENERGY COMM’N, RPS ELIGIBILITY GUIDEBOOK, NINTH EDITION REVISED 10 (2017), <https://www.energy.ca.gov/programs-and-topics/programs/renewables-portfolio-standard/previous-renewables-portfolio-standard>.

<sup>118</sup> Ca. Air Res. Bd., Staff Report: Initial Statement of Reasons 31 (2023), <https://perma.cc/TJP5-YAUS>.

the Waste Methane Fuel.<sup>119</sup> The question would be whether this fossil natural gas would have been produced and shipped in the counterfactual. If not, the emissions associated with producing, distributing, and burning the fossil natural gas over the entire lifetime of the pipeline (not solely the period of the subsidy) would add to the lifecycle emissions of the Waste Methane Fuel.

#### **D. Treasury’s Test for Anticipated Emissions Under Section 48E Is Too Loose**

*The Treasury Department and the IRS request comment on what evidence or substantiation taxpayers should be required to maintain to establish an anticipated GHG emissions rate for a facility. In addition, comment is requested on the appropriate period of time for which taxpayers should be required to demonstrate that there is a reasonable expectation that a facility will operate with a GHG emissions rate that is not greater than zero.*<sup>120</sup>

The Proposed Rule’s test for demonstrating that a facility is anticipated to have zero emissions or less is limited to evaluating objective indicators of this for a 10-year period. This a serious misstep. Although Treasury suggests that the appropriate timeline for this anticipated-emissions analysis might be “the anticipated lifetime of the facility,”<sup>121</sup> the Proposed Rule adopts a 10-year window without explaining this limited timeframe.<sup>122</sup> Section 48E subsidizes the construction of generation facilities “for which the anticipated [GHG] emissions rate . . . is not greater than zero,”<sup>123</sup> without a temporal limitation. Treasury should not adopt an implementing rule that allows the credit to flow to generation facilities that emit zero emissions for their first ten operational years but then transition to the emissions profile of an ordinary natural gas plant burning fossil natural gas for the next twenty years.<sup>124</sup> Accordingly, Treasury must ensure that Section 48E subsidies flow exclusively to facilities that are anticipated to produce zero emissions or less for their entire operational lifetimes.

Even when creating a 10-year limited window, the Proposed Rule goes awry by suggesting an electric generating facility would have anticipated emissions of zero or less simply because it has a 10-year contract to purchase fuels with zero lifecycle-GHG emissions.<sup>125</sup> A fuel contract may be insufficient evidence of anticipated emissions even for that initial 10-year period, if the damages the natural gas plant would pay from renegeing on the contract would be less than the savings from switching from fuels with zero lifecycle GHG emissions to ordinary fossil natural gas. Accordingly, to avoid the problem of electric generation stations taking the investment tax credit,

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<sup>119</sup> 42 U.S.C. 7545(o)(1)(H). Moreover, if a pipeline is built due to increased demand for RNG stemming from Section 45Y and 45E subsidies, but that pipeline increases fossil natural gas production during or after the subsidy’s lifetime, this also counts as positive lifecycle emissions that Treasury should include in its full fuel lifecycle emissions analyses. CGE modeling may be required to examine these potential interactions.

<sup>120</sup> Proposed Rule at 47821.

<sup>121</sup> Proposed Rule at 47821.

<sup>122</sup> Proposed Rule at 47846.

<sup>123</sup> 26 U.S.C. § 48E(b)(3)(A)(iii).

<sup>124</sup> Shravan Bhat & Ryan Foelske, RMI, *You Might Be Paying for a Worthless Gas Plant* (Apr. 18, 2022), <https://perma.cc/F872-MQH7>; Anna Duquiatan, S&P GLOBAL, *Average age of US power plant fleet flat for 4th-straight year in 2018* (Jan. 16, 2019), <https://perma.cc/YHV2-8482>.

<sup>125</sup> See Proposed Rule at 47846 (listing “[a] 10-year contract to purchase fuels for which the combination of fuel, type of facility, and practice is reasonably expected to result in a greenhouse gas emissions rate that is not greater than zero” as one “objective indicia that may establish an anticipated greenhouse gas emissions rate that is not greater than zero”).

waiting out the 5-year recapture period,<sup>126</sup> and then renegeing on their fuel contracts and burning unlimited fossil gas, Treasury should consider requiring a more persuasive showing.

This showing might be a direct pipeline connection to a source of Waste Methane Fuels in lieu of other pipeline connections, or a showing that Waste Methane Fuels will become cost-competitive with fossil natural gas by the end of the recapture period. It is also possible that, given the existence of the risk of facilities switching to fossil natural gas (a risk that does not exist for the resources that have been funded by prior versions of the Investment Tax Credit), a Waste Methane Fuel-based facility lacking a direct, exclusive pipeline connection to feedstock simply will not be able to make a legitimate showing satisfying Section 48E's requirements.

Policy Integrity appreciates Treasury's awareness of the complications of bringing Section 45Y and 48E credits into a technology-neutral setting and encourages Treasury to reconsider some aspects of its Proposed Rule in accordance with the comments offered herein. Doing so will help ensure that Treasury fulfills its statutory mandate to ensure that clean energy production and investment credits are only available to zero (or less) emissions electric generators.

Sincerely,

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<sup>126</sup> 26 U.S.C. § 48E(g); 26 U.S.C. § 50(a).