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**SUBMITTED ELECTRONICALLY**

Internal Revenue Service  
CC:PA:LPD:PR (REG-117631-23)  
Room 5203  
P.O. Box 7604, Ben Franklin Station  
Washington, D.C. 20044

The Honorable Lily L. Batchelder  
Assistant Secretary for Tax Policy  
Department of the Treasury  
1500 Pennsylvania Ave., N.W.  
Washington, D.C. 20220

The Honorable Daniel I. Werfel  
Commissioner  
Internal Revenue Service  
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Mr. William M. Paul  
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**Re: *Proposed Regulations Regarding the Section 45V Credit for Production of Clean Hydrogen (REG-117631-23)***

Dear Ms. Batchelder, Mr. Werfel, and Mr. Paul:

NextEra Energy, Inc. (“NextEra”) appreciates the opportunity to provide comments, pursuant to a Notice of Proposed Rulemaking (REG-117631-23) (the “Proposed Regulations”),<sup>1</sup> published in the Federal Register on December 26, 2023,<sup>2</sup> regarding the credit for production of clean hydrogen under section 45V of the Internal Revenue Code (the “Code”), as established by the Inflation Reduction Act of 2022 (the “IRA”).<sup>3</sup>

**I. Background**

The Treasury Department and the Internal Revenue Service (“IRS”) issued the Proposed Regulations to address eligibility requirements to claim the clean hydrogen production credit, including determining lifecycle greenhouse gas emissions from hydrogen production, verifying production and sale or use of clean hydrogen, and requirements to use energy attribute certificates (“EAC”), among other issues. The

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<sup>1</sup> Capitalized terms not otherwise defined herein shall have the meaning provided in the Proposed Regulations.

<sup>2</sup> 88 Fed. Reg. 89,220 (Dec. 26, 2023).

<sup>3</sup> All references to “section” or “sections” herein shall be to the Internal Revenue Code of 1986, as amended, unless specifically provided otherwise.

Proposed Regulations generally apply to taxable years beginning after December 26, 2023, and taxpayers are permitted to rely on the Proposed Regulations for taxable years beginning after December 31, 2022, and before final regulations are published in the Federal Register, provided the Proposed Regulations are followed in their entirety and in a consistent manner.

## II. Temporal Matching Transition Rule

**Requested Guidance:** Annual matching applies to hydrogen production facilities that start construction before 2028, determined under existing IRS start of construction guidance including a 4-year continuity safe harbor. For hydrogen production facilities that satisfy the start of construction requirement, annual matching would apply to the full 10-year PTC period.

Section 45V provides a tax credit for the production of qualified clean hydrogen (the “Section 45V PTC”). The amount of the credit is determined based on the lifecycle greenhouse gas emissions (“lifecycle GHG emissions”) rate of the process to produce qualified clean hydrogen. The Proposed Regulations provide that under certain circumstances an EAC may be considered in documenting purchased electricity inputs and assessing emissions impacts of electricity used in the production of hydrogen for purposes of the section 45V PTC.<sup>4</sup> Prop. Reg. § 1.45V-4(d)(3) would permit an EAC to be taken into account if it meets the requirements for incrementality, temporal matching, and deliverability. Temporal matching requires that qualifying EACs are retired that represent electricity produced in the same time period in which the hydrogen production facility consumes electricity in the production of hydrogen. **Under the Proposed Regulations, an EAC satisfies the temporal matching requirement if the electricity represented by the EAC is generated in the same hour that the taxpayer’s hydrogen production facility uses electricity to produce hydrogen.**<sup>5</sup> The Proposed Regulations further provide a limited transition rule to allow an EAC that represents electricity generated before January 1, 2028, to fall within the general rule if the electricity represented by the EAC is generated in the same calendar year that the taxpayer’s hydrogen production facility uses electricity to produce hydrogen (the “Temporal Matching Transition Rule”).<sup>6</sup>

**The clean hydrogen industry has the potential to accelerate the decarbonization of numerous sectors, including agriculture, heavy industry, maritime shipping, long-haul road transport, aviation, and the power sector, but only if it can reach the necessary scale.** Were it to reach scale, clean hydrogen could reduce U.S. emissions approximately 10 percent by 2050 relative to 2005 emissions levels, according to the Department of Energy’s June 2023 *National Clean Hydrogen Strategy and Roadmap*. However, this long-term, deep decarbonization will not occur under the current Temporal Matching Transition Rule for the Section 45V PTC. The simple reason is that the rule will not incentivize the necessary production volumes of clean hydrogen to achieve the Administration’s decarbonization goals, but modest changes to the Proposed Regulations can unlock the deep decarbonization potential of clean hydrogen.

**The differences between an hourly matched hydrogen production facility and an annual matched hydrogen production facility are so foundational to project design that it is impossible to switch from one temporal matching regime to another once a project has reached its commercial operation date (“COD”).** Because switching from one regime to another is impossible, developers will have to build hydrogen projects to meet hourly matching requirements from COD, which will require substantial modifications including, but not limited to: (1) an overbuild of the electrolyzer capacity (up to 3x) to ensure constant output; (2) the addition of onsite storage for renewable electricity; (3) the addition of

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<sup>4</sup> 88 Fed. Reg. at 89,227.

<sup>5</sup> Prop. Reg. § 1.45V-4(d)(3)(ii)(A).

<sup>6</sup> Prop. Reg. § 1.45V(d)(3)(ii)(B).

onsite storage for clean hydrogen to ensure ratable output; and (4) the procurement of the type of electrolyzer that can ramp up and down in response to intermittent renewable electricity. By having to make these costly modifications before a hydrogen project achieves COD, developers would not benefit from the projected downward sloping cost curves of these design and technology modifications.

**Beyond facility design, the need to build for hourly matching from COD also affects electricity procurement. There is a severe mismatch between the short temporal matching transition period (less than four years) and the longer tenor of standard contracts (VPPA/PPA) for electricity from wind and solar projects (at least 10 years).** The typical approach of locking in a low fixed price for electricity over a long period of time will not work with a transition period that is shorter than the length of a standard VPPA/PPA. In addition, both the EAC volume and mix of renewable sources are substantially different under an annual matching versus an hourly matching regime, leading to similar difficulties switching regimes after a project's COD. Instead, hydrogen project developers will have to procure power according to hourly matching requirements from COD. As a result of these substantial design modifications and differences in electricity procurement, hydrogen projects will be nearly impossible to finance.

**Rather than support the scaling up of the clean hydrogen industry, these additional challenges endanger the very projects that would lay the foundation for the clean hydrogen industry.** Underlying inflation and associated interest rate increases since the IRA was passed in August 2022 have led to a difficult macroeconomic environment for capital intensive project development. The additional challenges mentioned above would amplify the macroeconomic difficulties by raising the cost of production of green hydrogen (levelized cost of hydrogen, or “LCOH”), which would feed into the higher cost of delivered hydrogen that offtakers pay. The willingness of offtakers to switch from incumbent gray hydrogen to green hydrogen will be critical to the clean hydrogen industry reaching scale, but a higher delivered cost will instead reduce green hydrogen's appeal and adoption as a feedstock among early users. Overall, these additional costs and financing risks result from an anticipated transition from annual matching to hourly matching in 2028; however, there is significant uncertainty over whether hourly matching will be implementable nationwide by the 2028 deadline.

**To ensure green hydrogen projects across the country can apply for the Section 45V PTC, the means to determine eligibility should also function nationwide.** The Proposed Regulations highlight this challenge, noting that, “[h]ourly tracking systems for EACs are not yet broadly available across the country and will take some time to develop.”<sup>7</sup> The Proposed Regulations also note that for the two regions (out of nine) with hourly tracking capability now, “software functionality in these two systems remains limited.”<sup>8</sup> To support the notion that four years will be enough time for reliable hourly-matched tracking and trading markets to develop nationwide, the Proposed Regulations cite a single survey. However, regions where green hydrogen production will be advantaged due to the available renewable resources or where major announced hydrogen hubs are planned provide longer or no timelines for implementation of reliable hourly tracking. ERCOT, the region with arguably the best potential for green hydrogen production, provides no timeline for such capability, while the largest market for renewable energy certificates (“RECs”) in the United States – WREGIS – estimates that it could take up to five years to implement hourly matching in a way that is consistent and reliable. In the survey, WREGIS notes that reliable hourly tracking “could” be possible if “(1) there is full state agency buy-in, (2) clear instructions are received from federal

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<sup>7</sup> 88 Fed. Reg. at 89,233.

<sup>8</sup> *Id.*

or state agencies, and (3) funding for stakeholder participation is made available,”<sup>9</sup> but none of these conditions have been met, nor is it clear when they will be met, leaving significant uncertainty over any implementation timeline.

**The optimistic timeline for nationwide implementation of reliable hourly tracking capability also ignores challenges posed by data availability, data collection, and regulatory oversight.** For example, single-state tracking systems focus on ensuring compliance with state renewable portfolio standards. As a consequence, the survey cited by the Proposed Regulations notes that such states may not accept hourly tracking for compliance if the tracking was done in a multi-state system.<sup>10</sup> In terms of data availability, data collection, and the reliable tracking of RECs, WREGIS’s experience with switching tracking platforms in late 2022 underscores the difficulties in implementing new tracking systems. WREGIS’s new tracking platform was slated for release in the third quarter of 2022, but technological problems and errors, including with the creation and issuance of RECs, have resulted in delays in the full implementation of the new system that have lasted for more than a year. Given these concerns and documented challenges, NextEra believes the transition timeline from annual matching to hourly matching in the Proposed Regulations does not provide enough time for all qualified EAC registries to implement reliable hourly tracking.

**Nearly all of the first consumers of green hydrogen will require a constant ratable flow as a feedstock for industrial processes (e.g., refineries, producers of ammonia and other chemicals). A key component of effecting the substitution of incumbent gray hydrogen for green hydrogen, a process that will be critical to achieving long-term deep decarbonization in these hard-to-abate industries, is the delivered cost of hydrogen.** Many previous analyses estimating the LCOH and delivered cost of hydrogen assumed decreasing input costs or used only partial cost numbers (e.g., the purchase price of an electrolyzer instead of the fully installed price plus the associated balance of plant costs). As a result, these analyses significantly underestimated the difference between the delivered cost of gray and green hydrogen. However, macroeconomic trends over the last year have led to rising input costs, widening the cost gap between incumbent gray hydrogen and green hydrogen, even when the Section 45V PTC is taken into account. Transitioning to hourly matching before the nascent green hydrogen industry has reached the appropriate scale and not allowing grandfathering of first-mover projects will only add to these higher costs, making clean hydrogen too expensive for most offtakers in the United States. If green hydrogen is too expensive to serve as a frictionless substitute for incumbent gray hydrogen in the industries that currently use gray hydrogen as a feedstock, it would severely diminish green hydrogen’s usefulness as a tool for long-term deep decarbonization, preventing the United States from benefiting from up to 750 million metric tons of emissions reduction per year by 2050.

To address these significant concerns, NextEra recommends that the Temporal Matching Transition Rule be revised to provide that annual matching applies to hydrogen production facilities that start construction before 2028, determined under existing IRS start of construction guidance including a 4-year continuity safe harbor. For hydrogen production facilities that satisfy the start of construction requirement, annual matching would apply to the full 10-year PTC period. NextEra’s recommended guidance will allow more time for hourly tracking of EACs to be implemented nationwide, and it will

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<sup>9</sup> Center for Resource Solutions, *Readiness for Hourly: U.S. Renewable Energy Tracking Systems* (June 15, 2023), available at: <https://resource-solutions.org/wp-content/uploads/2023/06/Readiness-for-Hourly-U.S.-Renewable-Energy-Tracking-Systems.pdf>.

<sup>10</sup> *Id.*

provide first movers in clean hydrogen the certainty needed to ensure the United States’ objectives for long-term deep decarbonization of hard-to-abate industries.

### III. **80/20 Rule Application to Incrementality Requirement**

**Requested Guidance:** Clarify that COD for purposes of the incrementality requirement includes the tax COD for an electric generation facility that is repowered under the 80/20 rule.

The Proposed Regulations would permit an EAC to be taken into account if it meets the requirements for incrementality, temporal matching, and deliverability.<sup>11</sup> **Prop. Reg. § 1.45V-4(d)(3)(i)(A) would provide that an EAC meets the incrementality requirement if the electricity generating facility that produced the unit of electricity to which the EAC related has a COD that is not more than 36 months before the hydrogen production facility for which the EAC is retired was placed in service.** For this purpose, COD means the date on which a facility that generates electricity begins commercial operations.<sup>12</sup> The preamble to the Proposed Regulations provides that the “general rules for determining an electricity generating facility’s placed in service date for Federal income tax purposes would not apply in determining its COD.”<sup>13</sup>

**NextEra is concerned that the language in the preamble could be interpreted to exclude electricity generation facilities that are treated as newly placed in service for U.S. federal income tax purposes as a result of satisfying the 80/20 repower test for purposes of the incrementality requirement.** It is not clear whether this result was intended and we see no policy justification for excluding repowered facilities if such facilities are treated as placed in service for U.S. federal income tax purposes not more than 36 months before the hydrogen production facility. Excluding repowered facilities could lead to uneconomic decisions, such as favoring demolition and rebuilding of existing electricity generation facilities instead of a more cost effective repower.

NextEra recommends that the Proposed Regulations be clarified to provide that the “commercial operations date” for purposes of the incrementality requirement includes the tax COD for an electric generation facility that is repowered under the 80/20 rule.

### IV. **Impact of Electricity Storage on Temporal Matching**

**Requested Guidance:** Clarify that stored electricity has a time stamp that correlates to the time such electricity is used in the production of clean hydrogen rather than when the electricity was generated or stored.

The Proposed Regulations do not address the treatment of electricity storage for purposes of applying the temporal matching requirement. Furthermore, the preamble provides that “[a]mong the issues that require resolution as EAC tracking systems move to hourly resolution is the treatment of electricity storage.”<sup>14</sup> **NextEra recommends that the Proposed Regulations be clarified to provide that stored electricity has a time stamp that correlates to the time such electricity is used in the production of clean hydrogen rather than when the electricity was generated or stored.** In an hourly matching regime, electricity storage will be critical to ensure that zero-emissions renewable electricity can be used to power

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<sup>11</sup> Prop. Reg. § 1.45V-4(d)(3).

<sup>12</sup> Prop. Reg. § 1.45V-4(d)(2)(i).

<sup>13</sup> 88 Fed. Reg. at 89,228.

<sup>14</sup> 88 Fed. Reg. at 89,233.

the electrolyzer in an efficient manner. Grid-tied electrolyzers are typically most economic when operating as close to 100 percent capacity as possible, which means that to meet a true green standard, they typically need to procure power as a block around the clock from wind, solar, and storage resources—allowing the electrolyzers to run at high-capacity factors. However, this only works if the electricity taken from a storage device is treated as produced in the same time period that such electricity is used by the hydrogen production facility. Otherwise, the storage device serves no benefit for the purpose of allowing the electrolyzer to run at full capacity.

#### V. Energy Attribute Certificate Clarifications

**Requested Guidance:** Clarify that (1) electricity from generating facilities that are directly connected to the hydrogen production facility may be taken into account for purposes of determining the lifecycle GHG emissions rate regardless of whether such electricity generation creates an EAC that is retired and (2) the 4.9% Line Loss Assumption (defined below) does not apply to electricity generating facilities that are directly connected to a hydrogen production facility.

**Prop. Reg. § 1.45V-4(d)(1) provides that if a taxpayer determines a lifecycle GHG emissions rate for hydrogen produced using the most recent GREET model or a provisional emissions rate (“PER”), then the taxpayer may reflect in GREET or include in a PER the hydrogen production facility’s use of electricity as being from a specific electricity generating facility rather than from the regional electricity grid if the taxpayer acquires and retires a qualifying EAC for each unit of electricity that the taxpayer claims from such source.** To satisfy this requirement, a taxpayer’s acquisition and retirement of qualifying EACs must be recorded in a qualified EAC registry or accounting system so that the acquisition and retirement of such EACs may be verified by a qualified verifier.<sup>15</sup> The Proposed Regulations further state that these requirements apply regardless of whether the electricity generating facility is grid connected, directly connected, or co-located with the hydrogen production facility.<sup>16</sup>

The Proposed Regulations adopt the 45VH2-GREET model for the purposes of calculating well-to-gate emissions of hydrogen production facilities. The 45VH2-GREET model includes estimates of the emissions associated with the generation of electricity from various power sources. **In determining the emissions associated with the consumption of electricity from specific power sources, 45VH2-GREET assumes that 4.9% of generated electricity produced is lost in transmission and distribution prior to consumption (the “4.9% Line Loss Assumption”).**<sup>17</sup> It appears that the 4.9% Line Loss Assumption is solely for purposes of calculating the emissions rate and does not impact the number of EACs that must be retired under the temporal matching requirement.<sup>18</sup>

**NextEra requests that the Proposed Regulations be clarified to provide that electricity from generating facilities that are directly connected to the hydrogen production facility (“Behind-the-Meter” or “BTM”) be taken into account for purposes of determining the lifecycle GHG emissions rate without the need**

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<sup>15</sup> Prop. Reg. § 1.45V-4(d)(1).

<sup>16</sup> *Id.*

<sup>17</sup> U.S. Dept. of Energy, Guidelines to Determine Well-to-Gate Greenhouse Gas (GHG) Emissions of Hydrogen Production Pathways using 45VH2-GREET 2023 (Dec. 2023) (“DOE 45VH2-GREET Guidelines”), §§ 2.4.1 (Emissions of Electricity Generation) and 3.2 (Accounting for Electricity in 45VH2-GREET 2023).

<sup>18</sup> See DOE 45VH2-GREET Guidelines, § 3.2 (“To account for transmission and distribution losses, 45VH2-GREET 2023 will then automatically assume that an addition ~4.9% of electricity was actually produced by each generator type chosen.”); Prop. Reg. § 1.454(d)(1) (“one megawatt-hour of electricity use to produce hydrogen would need to be matched with one megawatt-hour of qualifying EACs”).

**to retire an EAC if none is created.** The Treasury Department could require the taxpayer to certify that no renewable energy certificate was created with respect to the BTM configuration and the IRS could confirm the taxpayer's representation with the renewable energy certificate market. This provides BTM projects certainty that they will be able to generate a Section 45V PTC irrespective of whether hourly tracking will be available nationwide by 2028. The preamble to the Proposed Regulations suggests that the qualified EAC retirement requirements were adopted because the Treasury Department and the IRS are concerned with the potential double counting of EACs.<sup>19</sup> However, in circumstances where directly connected electricity generating facilities do not create tradable EACs that can be retired, there is no potential for double counting because there is no EAC to be traded in the first instance. Furthermore, it would be nonsensical to treat a BTM configuration differently than a grid connected facility for purposes of determining lifecycle GHG emissions, especially where the electricity of the BTM configuration can be easily traced to the hydrogen production facility. NextEra supports including safeguards to address the Treasury Department and IRS double counting concerns, but requests that future guidance clarify that electricity generated by a BTM configuration be counted in determining the lifecycle GHG emissions rate even if an EAC is not created or separately retired.

**Furthermore, the Treasury Department should confirm that the 4.9% Line Loss Assumption does not apply to electricity generating facilities that are directly connected to hydrogen production facilities.** The 4.9% Line Loss Assumption is based on 2018 estimates from the EIA regarding nationwide electricity losses relative to electricity disposition.<sup>20</sup> This assumption is not applicable to BTM configurations because the generated electricity is travelling a short distance to the hydrogen production facility and not subject to significant line loss. Accordingly, it does not make sense to burden a directly connected electricity generating facility with an assumed line loss as the quantity produced by the BTM renewables will be the same as the quantity delivered to, and consumed by, the electrolyzer.

#### **VI. Incrementality for Certain Existing Clean Electricity Generators**

**Requested Guidance:** Existing clean electricity generators qualify for incrementality based on a formulaic approach to allow for 10% of the hourly generation from facilities placed in service prior to January 1, 2023, which is administered across an operator's entire fleet within the same deliverability region.

The preamble to the Proposed Regulations provides that the Treasury Department and the IRS are considering alternative circumstances under which an EAC may be deemed to satisfy the incrementality requirement, including approaches based on avoided retirements, minimal induced grid emissions, or a formula.<sup>21</sup> **The Proposed Regulations note the difficulty in administering approaches such as avoided retirement or zero or minimal induced grid emissions.<sup>22</sup> Therefore, a formulaic approach provides a consistent pathway to account for alternatives in a consistent manner without undue administrative burden.** As referenced by the Lawrence Berkeley National Laboratory report, negative prices have increased from 2.3% of the time in 2018 to 6.3% in 2022, given the observed rate of change it is

<sup>19</sup> See 88 Fed. Reg. at 89,227 ("Uniformly requiring claims of using electricity generated from specific sources to be evidenced by EACs that meet the requirements of proposed § 1.45V-4(d)(1) would mitigate the risk of double counting.").

<sup>20</sup> DOE 45VH2-GREET Guidelines, § 2.4.1 (Emissions of Electricity Generation) ft. nt. 18.

<sup>21</sup> 88 Fed. Reg. at 89,230.

<sup>22</sup> 88 Fed. Reg. at 89,231 ("This pathway may be appropriate because some circumstances (including periods of curtailment or times when generation from minimal-emitting electricity is on the margin) may make the resulting incremental generation difficult to anticipate or identify, or because the process for identifying the circumstances (such as avoided retirement risk or modeling of minimal-emissions) may be overly burdensome to evaluate for specific electricity generators or require data that is not available.").

appropriate to utilize 10% in the formulaic approach to account for the trend that is likely to eclipse 10% later this decade. Furthermore, administering a formulaic approach across an operator's fleet within a deliverability region takes into account the likelihood of pricing dynamics that will similarly impact all existing clean generators within a deliverability region.

## VII. Renewable Natural Gas ("RNG") Emissions

Requested Guidance: Remove the first productive use requirement to incent raw biogas to be upgraded to RNG, which ensures that harmful air pollutants are not released into the atmosphere by burning raw biogas. Allow RNG and hydrogen producers to pursue a Blended Pathway approach to self-select the proportion of fossil fuels and RNG used as a feedstock to produce section 45V eligible hydrogen. Adopt a viable book-and-claim system for hydrogen producers utilizing RNG as a feedstock, similar to the California Low Carbon Fuel Standard framework.

**The Proposed Regulations do not provide meaningful guidance on RNG emissions, but provide that the Treasury Department and the IRS anticipate that final regulations will address RNG.** The preamble to the Proposed Regulations states that such rules will apply to all RNG used for the purposes of the Section 45V PTC and would provide conditions that must be met before certificates for RNG or fugitive methane (representations of the environmental attributes of the methane) and the GHG emissions benefits may be taken into account in determining lifecycle GHG emissions rates for purposes of the Section 45V PTC. It is expected that the conditions would be consistent with, but not identical to, the incrementality, temporal matching, and deliverability requirements for electricity derived EACs. The Treasury Department and the IRS also anticipate requiring that for biogas or biogas-based RNG to receive an emissions value consistent with that gas, the RNG used during the hydrogen production process must originate from the first productive use of the relevant methane. This proposal would effectively exclude biogas from any source that had been productively used in a taxable year prior to the taxable year in which the hydrogen production facility was placed in service from receiving an emissions value consistent with biogas-based RNG, and instead, such gas would receive a value consistent with natural gas.

According to the EPA, methane is the second most abundant anthropogenic GHG after CO<sub>2</sub>, accounting for about 16 percent of global emissions. Methane is more than 28 times as potent as CO<sub>2</sub> at trapping heat in the atmosphere. Over the last two centuries, methane concentrations in the atmosphere have more than doubled, largely due to human-related activities. Because methane is both a powerful greenhouse gas and short-lived compared to CO<sub>2</sub>, achieving significant fugitive methane reductions would have a rapid and significant effect on atmospheric warming. **The collection of fugitive methane from necessary human activities, such as landfill waste disposal and agricultural farming practices, provides a cost effective and viable pathway for the reduction of potent GHG emissions. Promoting economic incentives for the collection of methane in the form of raw biogas, which is then upgraded to become commercially salable RNG will help to further the Administration's goals to combat climate change.** Promulgating rules that enable RNG to qualify for the Section 45V PTC will promote the increased collection and commercial use of fugitive methane. The Proposed Regulations do not provide any meaningful guidance on RNG emissions but provide that the Treasury Department anticipates final regulations will address RNG.

The preamble to the Proposed Regulations notes that the Treasury Department and IRS anticipate requiring that, for biogas or biogas-based RNG to receive an emissions value consistent with that gas (and not standard natural gas), the RNG used during the hydrogen production process must originate from the first productive use of the relevant methane. Productive use is generally defined as any valuable application of biogas, including to provide heating or cooling, generate electricity or upgrade to RNG, and not venting or flaring. The Treasury Department and IRS propose to define "first productive use" of



methane as the time when a producer of that gas first begins using or selling it for productive use in the same taxable year as (or after) the relevant hydrogen production facility was placed in service. **Instituting a requirement that the use of RNG for hydrogen production be the “first productive use” of the relevant methane would severely limit the pool of eligible projects for the Section 45V PTC.** For example, as written, the first productive use requirement would not be satisfied if an existing biogas to electricity plant is upgraded to produce RNG, and accordingly, the RNG would not be taken into account for purposes of determining the lifecycle GHG emissions of the hydrogen produced.

The Proposed Regulations do not provide guidance on how RNG can be applied to the production of hydrogen via traditional and emerging hydrogen methods, such as steam methane reforming (“SMR”), autothermal reforming (“ATR”), gasification, and chemical looping to produce low carbon clean hydrogen. Some RNG production pathways can achieve negative carbon intensity (“CI”) scores, which can help to reduce the carbon impact of hydrogen production, especially when paired with carbon capture and sequestration. **However, the high cost of RNG makes it economically unviable to use as a pure feedstock for hydrogen paired with carbon sequestration. For the RNG pathway for section 45V to be viable, hydrogen producers must be able to utilize a blended stream of fossil fuel, RNG, or other biogenic feedstock, as a feedstock to synthesize hydrogen.** Currently, 45VH2-GREET treats fossil fuel and landfill gas as a binary choice for feedstock to produce hydrogen.

**The Treasury Department should allow landfill gas (“LFG”), RNG, and other forms of biogenic fuels to be feedstock inputs in the “User Defined Mix” under “Enter Process Details.” This would allow GREET to account for the fractional use of RNG and other biogenic fuels.** Enabling custom feedstock inputs to allow for fossil-based fuels to be blended with RNG and other biogenic feedstocks would encourage adoption of renewables by incentivizing hydrogen production projects utilizing a hydrogen production process in conjunction with carbon capture and sequestration to utilize renewable power in the process. Absent this change, projects of this configuration are likely to elect the section 45Q carbon capture and sequestration credit, which is measured by carbon captured as compared to section 45V, which measures carbon intensity of the hydrogen. By allowing for custom feedstock inputs, hydrogen projects utilizing carbon capture and sequestration will be incented to achieve the lowest possible carbon intensity score through the combination of high rates of CO<sub>2</sub> capture combined with utilizing zero or negative CI renewables to meet the power needs for these projects.

**Section 45V regulations with respect to RNG should include the implementation of a viable Book and Claim system.** RNG is currently produced across the United States but is concentrated in the Midwest, Northeast, and West. Even within these regions, RNG may not be produced near the final consumer using it as a prospective hydrogen feedstock. By using a book-and-claim system, RNG consumers can contract for the RNG virtually, allowing the environmental attributes connected to the carbon emission reduction to be purchased and reassigned to hydrogen production occurring in an entirely different location.

To address the concerns outlined above, NextEra recommends that (1) the first productive use requirement not be adopted to incent raw biogas to be upgraded to RNG, which ensures that harmful air pollutants are not released into the atmosphere by burning raw biogas, (2) RNG and hydrogen producers be allowed to pursue a Blended Pathway approach to self-select the proportion of fossil fuels and RNG used as a feedstock to produce section 45V eligible hydrogen, and (3) a viable book-and-claim system be applied for hydrogen producers utilizing RNG as a feedstock, similar to the California Low Carbon Fuel Standard framework.

**VIII. Conclusion**

NextEra appreciates the opportunity to file comments regarding the Proposed Regulations and issues related to the clean hydrogen production credit under section 45V. We would welcome the opportunity to meet with you to discuss our comments.