Coalition for Renewable Natural Gas

Please see attachment for comments.

June 3, 2024

Adam Saul
Washington Department of Ecology
300 Desmond Drive SE
Lacey, Washington

Re: Notice of Opportunity to File Written Comments on Proposed Update to Clean Fuel Standard Program Rules (173-424 WAC)

Dear Mr. Saul,

The Coalition for Renewable Natural Gas (RNG Coalition) submits the following comments for consideration by the Washington Department of Ecology (Ecology) during the informal comment period for the Clean Fuel Standard (CFS) rulemaking (173-424 WAC).[1]

RNG Coalition represents and provides public policy advocacy and education for the renewable gas industry across North America. Our organization supports the development and use of renewable natural gas (RNG, also known as biomethane), biogas, clean hydrogen, and renewable CO_2 as decarbonization solutions for various sectors of the economy. We comprise 404 members—cities, counties, airports, ports, municipalities, colleges, universities, and leading companies operating in each sector of the industry—including those who capture, clean and condition greater than 95% of all RNG in the United States and Canada.

We congratulate Ecology on its dedication to continuous improvement in the state's CFS program. As we describe in our comments below, this is a critical opportunity to enhance the CFS framework for biomethane crediting to maximize the greenhouse gas benefits that can be derived from RNG, as envisioned by the authors of Senate Bill 5447 (2023). As a newer CFS program, Ecology has the advantage of access to data derived from older programs to better inform this rulemaking. This provides Ecology with ample examples to learn from California, Oregon, and others during the CFS update—including the validity of current biomethane avoided methane crediting and book-and-claim models. Yet, Washington should also continue to demonstrate leadership on RNG issues, especially as it relates to the intersection between RNG, sustainable aviation fuels (SAF), and hydrogen in this rulemaking.

Sincerely,

/s/

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[1] https://ecology.wa.gov/getattachment/02bb32f5-c6d3-45ff-94fa-eee3008fddba/WSR-24-01-089.pdf

Background on RNG, Methane Capture, and Productive Use

Methane is a highly potent greenhouse gas (GHG) with impacts greater than 80-times that of carbon dioxide over a 20-year period. The critical need to address methane as a potent short-lived climate pollutant is well established by leading authorities including the Intergovernmental Panel on Climate Change (IPCC),[2] the International Energy Agency (IEA), [3] the World Resources Institute (WRI), [4] and the United States Environmental Protection Agency (EPA),[5] among others.

The concentration of methane in the atmosphere is increasing at an alarming rate.[6] It is the second most important GHG, behind carbon dioxide, and it must be addressed expediently. There is no more effective and immediate step we take as a planet to address climate change now than to aggressively and rapidly reverse methane emissions from all sectors, our organic waste streams. Fortunately, this is something that can be addressed quickly.

The IPCC emphasizes the importance of methane capture stating that, "reducing non-CO_2 emissions such as methane more rapidly would limit peak warming levels and reduce the requirement for net negative CO_2 emissions" and that, "strong, rapid and sustained reductions in methane emissions can limit near-term warming and improve air quality by reducing global surface ozone."[7]

As shown in *Figure 1*, the IPCC lists at least four key GHG mitigation options that relate directly to RNG production and use, including reducing methane from several sectors, but most importantly for CFS discussions—biofuels for transport. These RNG-related strategies will work in concert with, and not in opposition to, the use of electric vehicles (EVs) and other climate-smart strategies.

[2] https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-6/
[3] https://www.iea.org/energy-system/fossil-fuels/methane-abatement

[4] https://www.wri.org/insights/methane-gas-emissions-climate-change

[5] https://www.epa.gov/ghgemissions/overview-greenhouse-gases#:~:text=Methane%20Emissions,-Properties%20of%20Methane&text=In%202021%2C%20methane%20(CH4,natural%20sources%20such%20as%20termites.
[6] See "Increase in atmospheric methane set another record during 2021", National Oceanic and Atmospheric Administration, Press Release, April 7, 2022. http://noaa.gov/news-release/increase-in-atmospheric-methane-set-another-record-during-2021.
[7] IPCC, 2023: *Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

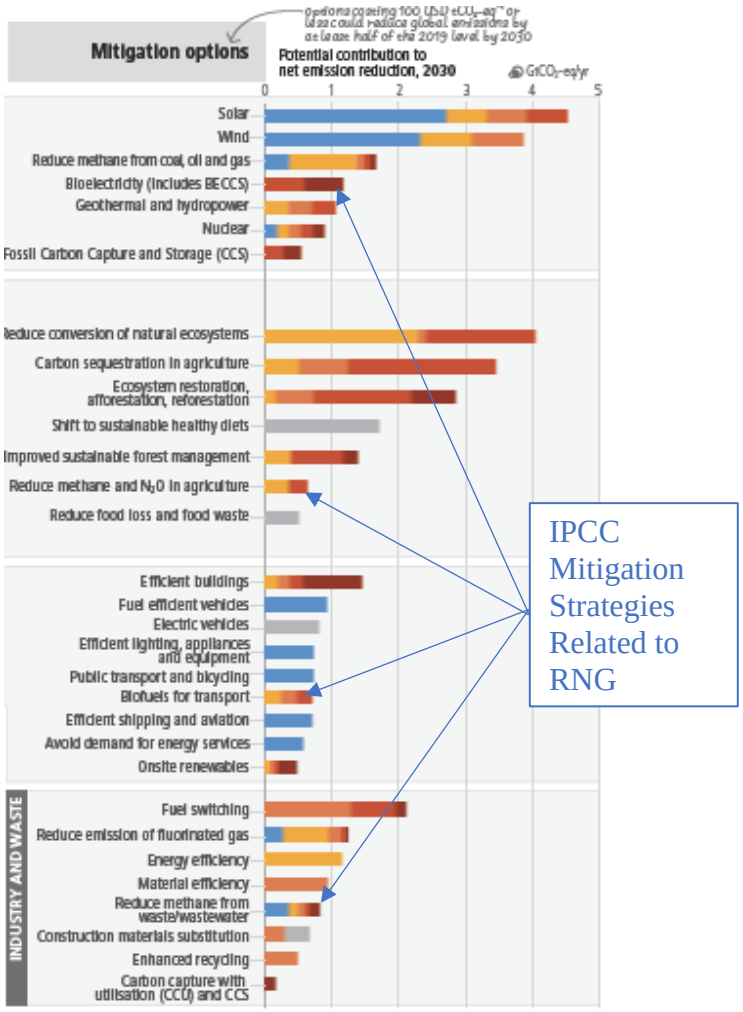

Figure 1. The IPCC Recommends Many Mitigation Options Related to RNG[8]

Last year, for the first time, the IEA included a special section on biogas and biomethane in their *Renewables 2023 Analysis and Forecast to 2028* report.[9] Renewables 2023 is the IEA's primary analysis on the renewables sector, based on current policies and market developments. It forecasts the deployment of renewable energy technologies in electricity, transportation, and heat to 2028, while also exploring key challenges to the industry and identifying barriers to faster growth.

In this special section[10] on biogas and biomethane, the IEA states that, "in view of the urgent need to limit global temperature rise to 1.5°C, countries have begun to view biogas as a ready-to-use technology that can help accelerate [decarbonization] in the short term, and they are therefore developing specific policies that include biogas as a key component in their energy transition strategies." The IEA also finds that, "using biogas and biomethane helps build a circular economy around residue and waste [valorization], contributes to rural economic development, and creates employment. Plus, producing

[8] Ibid. See Figure SPM.7: Multiple Opportunities for Scaling Up Climate Action.
[9] International Energy Agency, *Renewables 2023: Analysis and Forecasts to 2028* https://iea.blob.core.windows.net/assets/96d66a8b-d502-476b-ba94-54ffda84cf72/Renewables_2023.pdf
[10] https://www.iea.org/reports/renewables-2023/special-section-biogas-and-biomethane

natural [fertilizers] as a co-product of biogas and biomethane production can augment farmers' income and help reestablish soil health by eliminating certain environmental impacts related to untreated manure use."

Directly relevant to the Washington CFS, the IEA also finds that, "in the United States, biomethane development has historically been driven by the transport sector and support schemes such as the Renewable Fuel Standard (RFS) and California's Low Carbon Fuels Standard (LCFS) applicable to fuels sold in California." Ecology should build on these successful examples and continue to lead by example through following fact-based analysis from a data-driven perspective. RNG remains a well-recognized global strategy to reduce emissions from organic waste sectors that can work in conjunction with other strategies.

Sustainable Aviation Fuel and Other New Markets for RNG

Over the course of the 2023-2024 legislation session, the Legislature has endeavored to enact policies that make Washington appealing as a hub for SAF production and use. In the greater scheme of decarbonization, reducing emissions from aviation, which is a hard-to-electrify sector, is the a critical step towards economy-wide emissions reduction.

Washington's CFS provides a suitable structure in which to incorporate RNG-to-SAF pathways. We encourage Ecology to approve SAF pathways expediently, as the demand for low carbon fuels across different feedstocks and end uses will inevitably increase—with SAF becoming an emerging priority for many airlines.

The topic of RNG-to-SAF is well covered in an article from the consulting firm Guidehouse, entitled *Renewable Natural Gas Poised to Propel Green Transition in Maritime and Aviation Sectors*.[11] Key issues highlighted in that work include the following points:

- A type of SAF, known as Fischer-Tropsch Synthetic Paraffinic Kerosene (FT-SPK) can be produced by reforming RNG and has been approved for use when blended up to 50% with petroleum-derived jet fuel.[12]
- RNG Coalition member, SkyNRG Americas, is developing a production facility in the Pacific Northwest that will also use RNG as one of the feedstocks to supply Boeing, among others, with SAF.

Alternative technologies that involve RNG as an input, including methanol-to-jet, and hydrotreating of lipids using RNG-derived hydrogen. Therefore, we strongly support the inclusion of hydrogen as a feedstock for SAF under the program. We encourage Ecology to develop a workable framework that incents both electrolytic hydrogen and biologically derived hydrogen. We believe that the state should embrace diverse low-carbon pathways for hydrogen production, which would benefit not only industry growth, but allow for a varied portfolio that can adequately meets our climate goals while servicing the state's energy needs across economic sectors. Lastly, we recommend expanding RNG-to-electricity generation matched with electric vehicle use.

[11] https://guidehouse.com/insights/energy/2023/rng-poised-to-propel-green-transition-in-maritime-and-aviation-sectors#:~:text=Flexibility%3A%20RNG%20can%20be%20used,feedstock%20are%20readily%20available%20globally.

[12] https://www.energy.gov/sites/prod/files/2020/09/f78/beto-sust-aviation-fuel-sep-2020.pdf

Disregard Misinformed Calls from Anti-Dairy Voices to Change Avoided Methane Crediting Framework

The US EPA has been tracking and attempting to incentivize RNG projects (including anerobic digestion with productive energy use) since the inception of the AgStar[13] and Landfill Methane Outreach Programs.[14] Washington has been exploring the potential for RNG as an transportation decarbonization tool for more than a decade.[15] Since the initial serious US exploration of this approach, while biogas recovery systems are technically feasible for over 8,000 *existing*[16] large dairy and hog operations across the US, AgSTAR estimates that still only 343 manure-based anaerobic digestion systems are installed and reducing methane emissions.[17] As of July 2023, 487 MSW landfills provide landfill gas (LFG) to one or more LFG energy projects currently in operation, for a total of 532 projects. EPA estimates that 463 additional "candidate" landfills could cost-effectively have their methane turned into an energy resource.[18] In this example, the CFS is a key tool to accelerating the critically needed action to reduce methane from these sources and promote productive energy use.

Many agricultural and organic waste diversion projects are heavily dependent on CFS/LCFS revenue for profitability, driven by the avoided methane components of their CI scores. Avoided methane crediting is critical to meet capital repayment requirements for new projects, and at current CFS credit prices, a framework without avoided methane crediting would not cover operating costs for existing agricultural projects, in some instances.

We are confident that Ecology will independently consider these facts when debating biomethane crediting, as any decision to adjust avoided methane crediting will have a chilling effect on how the RNG industry views the state's young CFS program and diminish its ability to contribute to SAF production—which is a state policy priority not only for decarbonization, but for job-creation and economic growth.

Opponents of RNG's avoided methane benefits often portray the lifecycle analysis framework for methane from organic waste as if it is outside of the norm or misaligned with other leading jurisdictions, and this is not the case—similar accounting was first pioneered in the European Union's Renewable Energy Directive (RED) before adoption in US Clean Fuel Programs. RED is the legal framework for the development of clean energy across all sectors of the EU economy. The EU found[19] that there is a clear need to scale-up RNG (biomethane) by 2030, as outlined in the *REPowerEU Plan* published in May of

[13] https://www.epa.gov/agstar

[14] https://www.epa.gov/lmop/about-landfill-methane-outreach-program

[15] https://www.energy.wsu.edu/documents/biomethane_for_transportation_wwcleancities.pdf

[16] We emphasize EPA's assessment of the number of existing farms that can support digesters to avoid triggering concerns that avoided methane crediting somehow leads to expansion or consolidation of farms. As discussed in more detail below, incentivizing anaerobic digestion as a clean fuel and manure management method does not incentivize manure production by dairy farmers or increases in herd size.

[17] https://www.epa.gov/agstar/agstar-data-and-trends

[18] https://www.epa.gov/lmop/lmop-landfill-and-project-database

[19] https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomethane_en#:~:text=EU's%20biomethane%20production%20needs%20to,amounts%20to%20%E2%82%AC37%20billion.&text=This%20is%20a%20modal%20window.&text=Beginning%20of%20dialog%20window.,cancel%20and%20close%20the%20window.

2022.[20] Under that plan, the EU's biomethane production, either as biogas or as RNG, is targeted to reach 35 billion cubic meters per year by 2030.

Within the RED framework,[21] Annex VI provides Default GHG emission values and calculation rules for gaseous biomass fuels and their fossil fuel comparators.[22] As can be seen in *Table* 1, reproduced from that RED Annex, RNG from dairy manure for use as a transport fuel has carbon negative performance (e.g., achieves emission reductions greater than 100% relative to the emissions of the fossil fuel displaced).

Table 1. The EU RED Framework Continues to Recognize the Carbon-Negative Performance of Manure to RNG Transportation Pathways

BIOMETHANE FOR TRANSPORT (*)			
Biomethane production system	Technological options	Greenhouse gas emissions savings – typical value	Greenhouse gas emissions savings – default value
Wet manure	Open digestate, no off-gas combustion	117 %	72 %
	Open digestate, off-gas combustion	133 %	94 %
	Close digestate, no off-gas combustion	190 %	179 %
	Close digestate, off-gas combustion	206 %	202 %

Despite ongoing analogous scrutiny in Europe of anaerobic digestion of animal wastes (from similar voices as those active in the US) the EU found that it is appropriate to continue this framework in the amending Directive EU/2023/2413, entered into force in November of 2023.[23]

Embracing the true GHG performance of RNG projects has contributed to successful RNG project buildout in both the CA LCFS and EU cases. Washington should continue to collaborate with California and European leaders to promote project buildout in support of the Washington CFS. Due to the importance of the CFS crediting in project viability, is important to maintain avoided methane crediting, unless a detailed replacement policy is developed to ensure methane abatement continues to progress.

Book-and-Claim Accounting History and Rational

Book-and-claim accounting is a well-established method for tracking RNG and is important to RNG. It is not possible to physically segregate delivery of renewable gas once it is intermingled with fossil gas in the pipeline system, so other chain of custody methods must be used. "Book-and-claim" is a guarantee of origin concept that was pioneered in the EU's renewable fuel policies. A key advantage is that such

[20] https://eur-lex.europa.eu/resource.html?uri=cellar:fc930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02/DOC_1&format=PDF
[21] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02018L2001-20231120
[22] https://joint-research-centre.ec.europa.eu/welcome-jec-website/reference-regulatory-framework/renewable-energy-recast-2030-red-ii_en
[23] https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en#the-revised-directive

accounting lowers administrative barriers and facilitates matching sources of renewable fuel production to demand centers.

Alternatives such as requiring redundant RNG-only pipeline infrastructure and/or physically segregated trucking/rail of gas would increase GHG emissions, and the non-climate environmental impact, of RNG delivery. Requiring an RNG developer to hold long-term firm pipeline capacity from production source to end use does not ensure that the renewable molecules flow in that path. Instead, it only adds an extra layer of cost because it does not allow market participants to take advantage of liquid supply trading hubs and pipeline displacement, which can bring gas transportation costs down significantly.

The renewable gas strategies of leading European countries, such as Denmark[24] which currently have around 40% RNG in their gas system (and expect to reach 100% by 2034), should be closely studied by Ecology as it relates to these issues. Denmark's Green Gas Strategy[25] prioritizes free trade of green gases across borders and states that for the gas supplier to prove the origin of the gas supplied to the final customer, guarantees of origin are used, where the consumed volume of gas is matched by the equal production of green gas.

There are now ongoing efforts to move from national RNG registries to a European-wide registry to track RNG volumes using the book-and-claim concept. The European Renewable Gas Registry (ERGaR) was established as an independent documentation scheme for tracking RNG, and other renewable gases distributed along the European gas network.[26] Recently there was also a €3 million EU-funded project known as REGATRACE[27] to develop an efficient trading system based on the issuance and trading of Guarantees of Origin (GO) for RNG.[28] The final report[29] from this process contains the following statements:

> "The European Renewable Gas Registry (ERGaR) was started by and continues to be composed of long-established registries and stakeholders of the biomethane and renewable gas industry. A growing imbalance between biomethane production and consumption in several countries necessitated cross border transfers. Individual bilateral solutions were established, but in most cases member states refused to grant any benefits to imported biomethane. As such, it has been in its best interest to create a system in which the cross-border transfer of gas certificates could be both technically facilitated and [recognized] in the target country.
>
> GOs serve only for consumer disclosure, which means that the "green gas" attribute is separated from the gas physical volume. This model is called "book and claim" and is useful for setting the path to the European biomethane market because the GOs help document the volumes being produced, distributed and consumed."

[24] https://ens.dk/sites/ens.dk/files/Naturgas/groen_gasstrategi_en.pdf

[25] Ibid.

[26] https://www.ergar.org/abous-us/

[27] https://www.regatrace.eu/

[28] Given the recent gas crisis in Europe, the EU now plans to increase biomethane deployment to displace 17 bcm of gas imports in the short-term. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en

[29] https://www.europeanbiogas.eu/wp-content/uploads/2022/11/EN_Renewable-GAs-TRAde-Center-in-Europe_WEB.pdf

Given that Europe is expanding RNG trade, built on a clear guarantee of origin system (book-and-claim), one centralized registry, and the same conceptual principles, we think North America can achieve the same objective if leading jurisdictions, like Washington, support that framework. It is a better outcome for the climate if we start by setting up one well-functioning North American system for RNG, rather than create unnecessary delays with balkanized programs (that likely must be consolidated at some point in the future, in line with the European experience).

Registry Tracking and Verification of RNG Reporting

The RNG Coalition supports the development of one North American registry for tracking RNG production and end use to ensure no double counting of RNG volumes. The leading registry system tracking RNG, and other forms of renewable thermal energy continues to be the Midwest Renewable Energy Tracking System (M-RETS).[30] We continue to support the use of M-RETS to supplement CFS reporting reduces administrative burden on Ecology staff and offers Washington a chance to harmonize the design of such systems with other jurisdictions undertaking similar RNG-supportive policies.

However, we believe that the interface between M-RETS and Washington CFS tracking could, and should, undergo further streamlining as a third-party verification component is added to the program to minimize administrative delays. We also support Ecology Staff's proposal that LCFS and OR-CFP verified pathways would be accepted in Washington, as it is not necessary for Ecology to duplicate work completed by partner jurisdictions.

As Ecology adds third-party verification to the CFS program we also recommend consideration of the requirements for independent verification/validation under the RFS. RFS rules allow for a voluntary third-party quality assurance program (QAP) option for RINs that regulated parties may exercise as a supplement to the "buyer beware" liability under existing regulations. The program provides a means for ensuring that RINs are properly generated and that audits are conducted by independent third parties using a QAP, which provides an affirmative defense for the transfer or use of invalid RINs that had been verified, also known as QRINs.

QAP requirements include such things as verification of feedstocks, verification that volumes produced are consistent with amount of feedstocks processed, and verification that RINs generated are appropriately categorized and match the volumes produced; qualifications for third-party auditors; requirements for audits of renewable fuel production facilities, including minimum frequency, site visits, review of records, and reporting; conditions under which a regulated party could assert an affirmative defense to liability for transferring or using an invalid RIN; and identification of the party/parties who are responsible for replacing invalid RINS.

Most RNG facilities that participate in the RFS take part in the QAP program, which as the above paragraph demonstrates, provides an ample layer of third-party checks.

Aligned Accounting Frameworks for All End Uses of RNG Should Be the Goal

[30] https://www.mrets.org/m-rets-renewable-thermal-tracking-system/

The US EPA's Renewable Fuel Standard (RFS) has consistently created a strong framework for RNG growth and is also an important program for Washington's CFS to continue to align with. A key market reality today is that most RNG projects need both CFS and RIN credits to be viable.[31]

Deliverability rules in the RFS program have long recognized that once RNG and fossil gas is co-mingled there is no way to ensure deliverability of just the subset of renewable molecules. For a recent example of EPA's analysis of this issue, the preamble[32] for the RFS "Set" rulemaking explicitly stated that the issue of molecule mingling and that there is no meaningful way to identify the molecules by source, thus the EPA set up a system for RNG as transportation fuel that relied on accounting and recordkeeping protocols.

The EPA recognized that efforts to trace deliverability (e.g., based on securing gas transmission rights or tracing prevailing pipeline physical flows) still cannot guarantee that the RNG molecules flow along preferred paths (or separate paths from fossil molecules). Therefore, any attempts to impose such tests simply increases compliance costs for parties without achieving any additional environmental benefit.

It's essential for the Washington CFS book-and-claim rules to allow for consistent claims in RNG volumes across the RFS and the CFS. Other approaches will inherently create misalignment in claims, leading to administrative confusion and fewer financially viable projects. The US EPA may also eventually enhance the incentive for the biogas/RNG resource to be sent toward electricity generation for electric vehicle use (eRINs), use in hydrogen production, and as a bio-intermediate to producing liquid fuels—including SAF.

Conclusion

RNG Coalition appreciates the opportunity for continued engagement on these topics. Ecology has an opportunity to provide clarity and investment certainty additional updates made to the CFS, leveraging renewable gas production to help reduce methane emissions, improve organic waste management, and decarbonize Washington's transportation sector. We thank the Department for your continued work toward this end and look forward to the conclusion of a robust and effective CFS rulemaking.

[31] Currently only NGV end uses offer full alignment between both programs, which is why that end use has been so popular for RNG thus far.

[32] US EPA, Federal Register, Vol. 87, No. 250, Friday, December 30, 2022, Proposed Rules. See page 80637. https://www.govinfo.gov/content/pkg/FR-2022-12-30/pdf/2022-26499.pdf