



**Jessica Spiegel**  
Sr. Director, Northwest Region

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Mr. Joshua Grice  
Air Quality Program  
Department of Ecology  
State of Washington  
P.O. Box 47600  
Olympia, WA 98504-7600

**Re: Western States Petroleum Association's Comments and Recommendations on Chapter WAC 173-446 Rulemaking, Climate Commitment Act (CCA) Program**

Dear Mr. Grice,

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on this important rulemaking to establish Washington's Cap-and-Invest program. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas, and other energy supplies in Washington and across four other western states. Our members are key stakeholders in the program and look forward to working with Ecology to improve upon the May proposal.

WSPA supports well-designed market-based climate programs. Our members and staff have extensive experience with similar programs in other western states and the world. The transportation sector is a critical pillar of Washington's entire economy. Indeed, the federal Energy Information Administration and other analysts have indicated that fuel demand will remain strong into the future. Yet this essential – and largest – sector has been left with limited compliance instruments and few alternative compliance options under the proposed program. Unfortunately, issues raised in our prior comments (**Attachment A**) have not yet been addressed.

Below we summarize our key recommendations and provide further insights into our concerns in the detailed comments that follow.

**Key Recommendations to Address Structural Issues That Could Compromise the Program**

A successful program is important to all covered entities, and future linkage partners. To have the best chance for success, fundamental structural issues must be addressed before the start of the program. We recognize that many of these key issues are interrelated with program stringency, and thus may need to be addressed in legislative efforts moving forward. However, addressing and resolving these three key policy issues became mission-critical in our analysis:

- 1) Biofuels must be supported throughout the regulation.** A key to successfully meeting Washington's climate goals will be embracing the use of a variety of biofuels – feedstocks and products – that are both currently available and will be available as science continues to evolve. Increased production and use of biofuels by both consumers and industry could prove to be one of the largest GHG-reducing actions that Washington can pursue. WSPA is concerned that biofuels, and their tremendous value, are not fully understood in this proposed rulemaking. It is

critical that the Cap-and-Invest program work in tandem with the Clean Fuels Program (173-424 WAC) to encourage the increased use of biofuels in Washington's economy.

WSPA also remains concerned that the biofuels definitions in this rulemaking are inconsistent with other federal and state policies (including WAC 173-441) and that the materials provided in this rulemaking do not apply or describe the differences. Without such clarity, transportation fuel suppliers will be unable to develop a compliance plan. WSPA recognizes that the aggressive timeline to implement the CCA, as determined by the legislature, has put a strain on Ecology to conduct the necessary due diligence to ensure correct regulatory baselining, accurate reporting, and subsequent verification.

*WSPA recommends for the first compliance period that Ecology exclude inclusion of any biofuels, pending further evaluation of applicability in the baseline, until the second compliance period. At that time, it can implement the inclusion of applicable biofuels in a manner that is consistent with the Washington Clean Fuels Program currently in development.*

- 2) **Verify accuracy and adjust program baseline emissions assumptions accordingly.** In our previous letter, we noted concerns regarding the significance of ensuring that Ecology's initial baseline assumptions are accurate. Stakeholders must know that Washington's Cap-and-Invest program rests on a structurally sound foundation.

*WSPA recommends that Ecology publish detailed baseline data for all sectors, as well as model inputs and assumptions, prior to finalizing the CR 102 rule. This is necessary to afford covered entities a reasonable opportunity to identify and correct any errors*

- 3) **Incorporate meaningful cost containment measures.** The criticality of incorporating robust economic guardrails from the outset is acknowledged by Ecology's decision to immediately offer future reserves in the first compliance year. (Reserves that are, by statute, to be used in the event of unanticipated *high costs* for compliance instruments.) We urge Ecology to revisit where additional programmatic flexibilities would help alleviate this pressure and to further incorporate robust cost containment measures to guarantee public and political acceptance for the program.

*WSPA specifically recommends that Ecology develop pre-linkage "reset" mechanisms. We commend Ecology for having the foresight to bringing Allowance Price Containment Reserve (APCR) allowances forward; but we believe a backup plan must be in place if this does not fully address program stability issues. This would include, for example, resetting program stringency measures and/or allowance prices should the APCR be exhausted before linkage is established or when allowance prices are higher than in other markets. Related price adjustments would need to be made proportionally across the reserve tiers and ceiling prices.*

## Detailed Comments

### *Economic Analysis Concerns*

Of particular concern to WSPA is the absence of details for critical inputs to, and outputs from, the Vivid Economics modeling, which is needed to understand and provide thoughtful feedback regarding key assumptions and modeled outcomes. While the Summary of Market Modeling issued by Ecology on July 1 provided marginally greater insight than the Preliminary Regulatory Analysis (PRA), key sector-level data for inputs is not documented and thus limits our ability to provide important feedback on these details.

For example, the rulemaking materials, such as the PRA and Summary of Market Modeling (SMM) documents, show a major reduction of emissions in the transportation sector in 2023, which is not explained in any supporting documents or rule language. Industrial facility emissions show a similar

reduction, without an explanation of the assumptions to help indicate why. The veracity of the assumptions that lead to these outcomes could greatly affect the program impacts analysis across the board, which are key evaluative elements to the program design features. By not providing this information, it is unclear to stakeholders whether Ecology has determined the least burdensome alternative for compliance, as the stakeholders are unable to evaluate the impacts of compliance based on information provided in any of the scenarios.

Ecology's central analysis of emissions by year (Table 88) underscores these significant concerns and their implications. It seems that Ecology has incorporated emissions reductions from the regulatory baseline by assuming implementation of the yet-to-be-authorized Advanced Clean Cars II regulation now pending approval by the California Air Resources Board; however, the SMM states this did not occur. Without such an assumption, we are unable to explain the steep decline reflected in the program's business-as-usual emissions, which differ greatly from that posited just a year ago in the outcome of the CTAM v4.2 model. Further, results indicated in 2023 seem to have been potentially based on 2020 demand<sup>1</sup>, which would be non-sensical given the reality that fuel volumes have recovered from their demand-driven lows due to COVID-19. As a result, emissions in Table 88 begin with a drop in emissions of 18% in 2023, versus the 2015-2019 baseline, with no explanation regarding how this change would occur. Given that current year fuel demand has returned to higher levels, the numbers seem suspect. Using this outcome as an example, if the assumptions modeled by VIVID are incorrect and emissions do not drop as suggested in 2023, it would result in a significant underestimation of allowance volumes forecast in the model, and thus an underestimate of the allowance prices. The overall result would be a significant understatement of the program's economic costs.

What is also left unexplained is whether the state has also modeled and incorporated corresponding allowance revenues from the Cap-and-Invest program, which based on the Vivid Economics model, will be much more than previously projected by the Office of Financial Management. Also unexplained is whether the resulting decrease in fuel tax revenue, which would be indicated by the reduced fuel emissions, is being accounted for to the state. These must be done for the sake of Washington's economic future. Failure to do so would be a major omission.

We note that in Table 53 and Table 54 of the PRA, Ecology has fuel price increases that are very different from methodologies used by other organizations (for example OPIS<sup>2</sup>). Ecology does not explain the methodology so that the difference can be evaluated by other analysts who perform similar calculations. The differences in calculation methodology are substantial enough to warrant peer review, as differences could lead to different economic cost outcomes in the modeling performed by VIVID. Again, if the modeling has incorrect input values, that could lead to a potentially inaccurate determination by Ecology on the cost-benefit analysis. Regarding this particular point, Ecology should publish the methodology used by the agency post haste, to allow a more transparent conversation with the public and stakeholders.

Accurate and complete economic impact analyses are important when implementing a program as comprehensive as Cap-and-Invest is, particularly at a time when the state is also implementing several other interrelated programs, each with potential economic impacts to the businesses of this state. Washington statutes, like the Administrative Procedures Act, Chapter 34.05 RCW, the Regulatory Fairness Act, Chapter 19.85 RCW, and even the State Economic Policy Act, Chapter 43.21H RCW, make it clear that agencies should fully evaluate the economic impact of their rules. These statutes emphasize the need for transparency and consistency in the rulemaking process to better inform key

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<sup>1</sup> In an attempt by WSPA consultants to determine the input assumption for fuel demand, emissions associated with combustion of transportation fuels in 2020 were compared to Table 88 and appeared to match. The year 2020 would not be a good year to use in such a model, as the public was asked to, and generally did, shelter-in-place and significantly reduce travel. These orders significantly reduced driving by the public that year, as well as 2021.

<sup>2</sup> <https://www.opisnet.com/about/methodology/#CCA>

stakeholders and to gather public input. The preliminary regulatory analysis for the Cap-and-Invest rule is missing key information to allow readers to review and analyze the projected assumptions and program costs. Ecology must do a better job explaining its formulation of the regulatory baseline, the assumptions used to calculate the regulatory baseline and the business-as-usual emissions data, and the reliance upon statutory emissions reductions that do not have corresponding rules yet. In keeping with the legislative intent to “provide greater public and legislative access to administrative decision making” and to guarantee that rulemaking entities “adopt methods and procedures which will insure [sic] that economic impacts and values will be given appropriate consideration,” we urge Ecology to reexamine the produced materials and provide more information about methods and data when conducting regulatory analysis.

WSPA is concerned that a potentially wide range of abatement costs could significantly impact covered entities’ ability to meet the emissions reduction timeline envisioned. The limited visibility of inputs and assumptions provided to date could misrepresent the feasibility of the program.

While WSPA recognizes Ecology’s goodwill to use an *international* social cost of carbon mechanism in the regulatory analysis to assess program benefits, the value for the State of Washington is far more likely to be significantly less. We question Ecology’s choice to use a figure that considers benefits far beyond Washington’s borders. In order to accurately assess actual benefits to Washington, Ecology needs to use a figure tailored to Washington.

With all of the above taken into consideration, the Preliminary Regulatory Analysis and summary of VIVID Modeling have not adequately assessed program economic costs, while program benefits have been overvalued. As a result, the agency has not yet demonstrated that that benefits of WAC 173-446 exceed the program economic costs for Washington, nor is it clear that the agency has evaluated the least-burdensome scenarios.

Given these concerns, concerns described in **Attachment B**, and the issues discussed below in more detail, WSPA recommends that Ecology complete modeling that includes a more likely emissions scenario for the state and provides a benefits analysis which focuses on in-jurisdiction benefits.

In addition, WSPA recommends Ecology incorporate a mid-term review within the first compliance period to identify and correct any problematic issues to ensure market stability. We believe that a regulatory assurance where Ecology proactively reviews the program and takes corrective actions would help smooth the pathway to linkage.

#### *Biofuels [WAC 173-446-020, -040]*

Addressing biofuel definitional clarifications remains a very high priority for WSPA. It affects not only the proper development of the program baseline, but also the ability to evaluate biofuel applicability for all parties involved and to ensure programmatic consistency at the regional and national levels. The definitional uncertainties naturally raise questions on what specific sources would be included in the baseline years and how they would be accounted for going forward. Inconsistencies across different fuel types further carries significant compliance implications for future accounting and reporting (see **Attachment C** for more information).

For example, in WAC 173-446-040-3(a)(i)(C), regarding which emissions are covered for facilities, “biogas” has been inappropriately included in the allotment of covered emissions for facilities. We recommend that the draft regulation be corrected to read: “These fuel products may include, but are not limited to: Refinery gas, still gas, fuel gas, and landfill gas, and biogas.” This would clarify regulatory intent and would ensure consistency for compliance purposes.

WSPA also acknowledges the CCA’s statutory definition for biofuels to “have at least 40 percent lower greenhouse gas emissions based on a full life-cycle analysis” is not straightforward to implement and

raises significant program implementation issues. Most notably, there is significant potential that the program baseline could be inaccurate, given the various types of biofuel blends available and the lack of historical data. For example, if Ecology's baseline for the Cap-and-Invest program is not including biomass-related emissions that should be covered, the baseline would need to be increased. Any uncertainty or discrepancy across complementary programs matters here and carries forward for years. Specifically, it is important to note the role of biofuels is currently being evaluated in the implementation of Washington's Clean Fuels Program. But the suggested premises of the two programs are arguably at odds with each other. In the recently published *Clean Fuel Standard Cost Benefit Analysis Report*, the indicated Carbon Intensity (CI) for ethanol is 76.47.<sup>3</sup> Given that unblended gasoline has a CI of about 100, this would suggest that most, if not all, ethanol historically used in the state does not meet the 40% threshold. Reconciling these differences is imperative, and the Cap-and-Invest program should not proceed without an explicit proposal by Ecology to remedy this critical deficiency.

Clearly, the resulting "what" and "how" is extremely ambiguous. However, the statute does not mandate *when* Ecology must incorporate biofuels into the baseline, which provides time to do this thoughtfully and in alignment with the Clean Fuels Program. Therefore, the most practical approach would be for Ecology to formally exclude all biofuels, as accounted for in the 2015-2019 baseline period, throughout the first compliance period; then, it can develop appropriate compliance parameters that can become effective during the second compliance period. If Ecology concludes this approach is not possible, then it should explicitly exempt all renewable fuels under the federal Renewable Fuel Standard (RFS) program, at least for the first compliance period. Fuel suppliers are otherwise left in the untenable position of being unsure of which pathway model would be employed, from which programs, while attempting to comply with different state and federal reporting regimes for the same products.

There is similar precedent for such a thoughtful phase-in: California's Cap-and-Trade program delayed transportation fuels compliance for two years to ensure a workable program. Ecology and fuel suppliers would thereby use the first compliance period to work through issues with definitions, pathways and applicability to ensure consistent reporting and prepare for compliance in the subsequent compliance period. This could be done alongside and harmonized with the upcoming Clean Fuels Program. Such an approach would afford Ecology staff the time needed to get the program right, rather than having to make real-time course corrections with retroactive adjustments, followed by the need to reconcile disparate reporting.

### *Baselines [WAC 173-446-200, -220]*

It is imperative that Ecology "baseline" the program correctly from the start. This applies to both the overall program baseline, as well as the methodology to develop an agreed baseline for facilities. Critical concerns are noted above regarding applicability of biofuels in the program baseline, but WSPA has noted that other stakeholders – including those operating stationary source facilities – have also raised concerns regarding their portion of the program baseline in prior workshops. This is indicative of the need by multiple stakeholders to be afforded the opportunity to review the underlying data assumptions and to comment on them prior to finalizing program baselines to ensure accuracy.

For facility baselines, WSPA is surprised by the additional arbitrary constraints, placed by Ecology, used to determine them. There is no statutory direction requiring use of consecutive years (much less use of three full consecutive years) in calculating facility baselines, as Ecology has now proposed. The state legislature had instead recognized the significance of outlier years and how they could dramatically impact baseline inputs. This is why covered entities were to be afforded the opportunity to provide information to inform the development of an accurate benchmark. Flexibility in the regulation is therefore a vital component of the underlying statute – including the refining sector – since the mandated use of three consecutive years appears to be arbitrary, inappropriate, and unjust.

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<sup>3</sup> [Washington Department of Ecology: Clean Fuel Cost Benefit Analysis Report, Table 6 at page 27. Accessed July, 2022.](#)

To accurately account for proportionate shares of total GHG emissions, Ecology must offer the option to exclude outlier years, which, for the refining sector, could account for years with major turnarounds, unplanned incidents or outages, or regulatory-driven standards that may result in increased on-site GHG emissions. Further, WSPA requests that Ecology share details of information being used and the approach it will take to help streamline the process to establish facility baselines – including source and year – so covered entities can work cooperatively and efficiently with staff to help ensure accuracy and integrity of the final baselines.

Under the WAC 173-446-220 (1)(a)(ii) Ecology selects a denominator for the refining industry which only allows input values (crude and intermediate) to determine the facility baseline for the sector. The state legislature clearly directed Ecology to provide **all** industry flexibility; the Climate Commitment Act in RCW 70A.65.070 did not in any way single out refineries to be treated differently when determining emission baselines. This decision offers less flexibility in defining product data metrics versus other industry sectors as Ecology’s regulation has proposed to do. WSPA recommends that Ecology provide refineries with the option to propose an accurate production metric for development of its carbon intensity benchmark.

WSPA further notes that – for a facility that may wish to use that product data metric among others that could be chosen – the definition of “crude oil and intermediate products” as provided in 173-446-220(1)(a)(ii) would need to be amended to include the use of biogenic feedstocks for any refinery that proposed its use. This change is needed to allow refineries to produce greater volumes of biofuels that Washington policies intend to incentivize. For this rulemaking, this proposed requirement, presented as the last full sentence on page 35 of the draft rule, should simply be deleted. If retained nonetheless, WSPA would caution that the term “intermediate products” is vague and should be better defined in 173-441 WAC.

Ecology’s regulation would appear to restrict how baselines are calculated and how the Best Available Technology (BAT) provisions could be used to support the justification of an upwards adjustment to baselines. These restrictive provisions limit which years can be used, what intensity data could be used to determine product rates [see Sec. 220(a)(2)], and significantly constrains BAT to material changes to internal operations or external considerations. This unwarranted stringency effectively precludes an EITE facility from seeking a baseline adjustment even if a material change in production (e.g., shifting from fuels to asphalt) has a material impact on GHG emissions intensity. The rule would also appear to restrict an EITE facility’s ability to use BAT-driven provisions to increase a baseline to only the second and subsequent compliance periods – and then only if there have been material changes in the internal or external environments. This seemingly conflicts with the legislature’s intent to provide *more* flexibility to EITEs and limits how (and when) Ecology would respond to individual requests.

Finally, in addition to recognizing the importance of providing the statutorily intended flexibility to develop carbon intensity benchmarks by not being overly restrictive on the years to use and the production metric to employ, WSPA recommends that Ecology develop protocols regarding how a facility could appeal a benchmark determination that consider ramifications for compliance reporting. Benchmark issues must be reasonably addressed, and facilities deserve an upfront understanding of what protocol would be followed.

### *Cost Containment*

The Cap-and-Invest program is set to begin in just 170 days as a stand-alone program. According to our and Ecology’s commissioned analysis, there is a structural deficiency of available allowances in the first two compliance periods that results from the program’s stringency as defined. This will greatly constrain the reasonable feasibility of covered entities to obtain allowances, particularly after advanced allowances in the APCR are exhausted. WSPA remains concerned that the combination of insufficient allowances and program stringency will result in high allowance prices which could adversely affect program stability.

This becomes more problematic given anticipated linkage with California's and Quebec's Cap-and-Trade program seems unlikely to happen quickly, given the extensive evaluation and rulemaking processes involved by multiple jurisdictions. While this may be partially driven by other structural issues within Washington's program (explained below), Ecology should make every effort now to bolster compliance pathways for covered entities, not to hinder them. Advancing the APCR allowances is a thoughtful start, but not nearly enough. How Washington can independently sustain a program that is structurally deficient in compliance instruments under an overly aggressive emissions cap decline within an unreasonably stringent regulation remains troublingly unknown. The Cap-and-Invest program should demonstrate stability as a stand-alone program by taking immediate steps to moderate costs and ensure market liquidity. An attempt to correct a stressed program after the fact could predictably be difficult.

An inflexible, costly new regulatory program portends not only risks to linkage until addressed but also imperils Washington's economy in the future. We emphasize here that the Climate Commitment Act directed Ecology to design elements to allow for linkage to similar programs in other jurisdictions as much as possible. Several provisions included in the proposed regulation would seemingly jeopardize (at worst) or prolong (at best) the ability to link to California's and Quebec's program.

To incorporate meaningful and differentiated cost containment measures pre- and post-linkage, we urge Ecology to add flexibility and phase-in stringency measures to reduce initial and longer-term market risks:

- 1) **Emissions cap trajectory.** We recommend Ecology reduce stringency in the first compliance period to allow the program the opportunity to develop liquidity, provide time to review program design, and time to stabilize. Additional time would also incentivize critical project development activities. The emissions trajectory could then be modified for future compliance periods, consistent with the long-term goals of Washington.
- 2) **APCR.** Again, WSPA appreciates Ecology's release of APCR allowances early in the program. WSPA would encourage Ecology to consider release of further APCR allowances that could help with program stability, particularly prior to any linkage. Specifically, we recommend that Ecology bring forward all APCR units from the 2030's in any instance when the program is unlinked and the APCR is exhausted. If Ecology believes the results provided by Vivid Economics, there would be ample allowances from the 2030's that could be brought forward for such a purpose.
- 3) **Price ceiling and reserve tier prices.** One key consideration is that Ecology proportionally lower the APCR tiers and auction ceiling / Price Ceiling Unit prices prior to linkage with California and Quebec in WAC 173-446-370 through WAC 173-446-685. Doing so would alleviate risks should stakeholders face high starting prices at the program's outset thereby prompting an early review of core assumptions and a need for course corrections. A lower initial price ceiling could avoid compromising in-state support for the program and from potential out-of-state linkage partners who may be equally unwilling to incur higher program costs for their established programs.
- 4) **ECR.** We recommend that Ecology include a more predictable mechanism for releasing Emissions Containment Reserve allowances. The ECR may become a critical supply of allowances for covered entities given the structural shortcomings, data gaps, and needed corrections described above – especially in the first two compliance periods.
- 5) **Offsets.** We agree with the International Emissions Trading Association that the supply of future offsets appears to be extremely thin. WSPA agrees that Ecology should consider and approve use of a wider range of protocols in WAC 173-446-505 and 173.446.510; improved market functionality while minimizing compliance costs is in the best interest of all parties and would further align Washington's program with California's. For these reasons, we would also support efforts to make statutory changes as needed.
- 6) **Holding limits.** WSPA remains concerned that Washington's holding limits are unnecessarily stringent, particularly given the more restrictive auction purchase limits that have been set in statute

versus other jurisdictions. This stringency is complicated by our confusion regarding language contained in WAC 173-446-150 (2)(a) [the maximum total number of allowances held as determined by a formula – “except as provided in” (2)(a) and (d)] versus 2(c) [what then does not apply to allowances needed to cover estimated GHG emissions for the current year or emissions for preceding years as set in (a) and (b)]. WSPA would appreciate a dialogue with Ecology to develop a clear understanding of regulatory intent in this regard. Additional flexibility by scaling holding limits, which would recognize the need for covered entities with larger obligations to have a higher holding limit, is within Ecology’s authority to implement. As a start, the proposed formula in WAC 173-446-150(2)(a) should simply exclude allowances in an entity’s compliance account from the holding limit and not be restricted to only previous and current compliance years. This approach could be revisited if linkage is established to afford Washington’s covered entities additional compliance flexibility, particularly when considering impacts of relying on APCR auctions so early in the program.

- 7) **Penalties.** Covered entities need assurances that any penalties levied will be reasonable. WSPA recommends that WAC 173-446-610 be simplified, including by inserting a reasonableness test and by requiring the phase-in of stronger penalties after the first compliance period. While WSPA appreciates acknowledgement in provision 173-446-610(8), pertaining to actions Ecology “may” take in the first compliance period to reduce penalty amounts, it is not strong enough for the reasons outlined above. It would not be reasonable to treat all non-compliance actions equally, with no corrective action offered, for minor or administrative errors and for self-identifying errors – especially in the early years. Ecology should also clearly specify in the regulation that any entities subject to an enforcement action be able to submit additional information relevant to the determination of an appropriate penalty.
- 8) **Price Ceiling Units.** WSPA is concerned that the rigorous process outlined in WAC 173-446-385, to obtain needed Price Ceiling Units, lacks timeliness and may prove especially problematic within the fourth quarter of a compliance period deadline. We would encourage Ecology to re-examine the overall timeline to ensure that it works procedurally and that covered entities can access Price Ceiling Units when needed and without the risk of penalties associated with non-compliance.

These structural issues will disproportionately burden Washington’s fuel suppliers the most, and transportation fuel suppliers most of all. Insights will come early and will need to be leveraged. Given this, we reiterate our recommendation that Ecology should perform a mid-term review no later than 2025, well before the second compliance period begins, to identify and develop means to correct structural deficiencies. It will be significantly too late to wait until December 1, 2027, to complete the first such review.

## Conclusion

We would welcome the opportunity to engage in more in-depth dialogue with Ecology staff. Our joint goal is to achieve a stable program that will function well into the future and allow Washington to progress towards meeting its climate goals while minimizing adverse impacts to the state’s economy. A meeting with Ecology staff to discuss different approaches and to correct deficiencies prior to finalization and implementation would be most helpful.

We remain ready to assist staff with the design of workable elements to help ensure the immediate and long-term success and stability of Washington’s program.

WSPA believes that the Cap-and-Invest program would greatly benefit from future legislation to provide Ecology with more programmatic flexibility. As these recommendations cannot seemingly be addressed within this rulemaking, we plan to submit more detailed recommendations in the future and look forward to working with staff on that effort as well.



Thank you for the opportunity to provide this important feedback on development of the Cap-and-Invest program. We look forward to working with Ecology on further refinements and improvements. If you have any questions or need additional information, please do not hesitate to contact me via e-mail at [jspiegel@wspa.org](mailto:jspiegel@wspa.org) or by phone at (360) 918-2178.



## ATTACHMENT A

**Jessica Spiegel**

Sr. Director, Northwest Region

January 26, 2022

Sent via upload to <https://aq.ecology.commentinput.com/?id=mgir9>

Mr. Cooper Garbe  
Rulemaking Lead, Policy and Planning Section  
Washington State Department of Ecology  
300 Desmond Drive SE  
Lacey, WA 98503

Re: Further WSPA Comments on Washington Dept of Ecology Rulemaking for Chapter WAC 173-446, Climate Commitment Act ("CCA") Program

Dear Cooper Garbe:

Western States Petroleum Association (WSPA) is a trade association that represents companies which provide diverse sources of transportation energy throughout the west, including Washington. The way the world produces and consumes energy is evolving. And the members of WSPA are on the cutting edge of those changes, investing in and developing the affordable, reliable, and ever cleaner energy sources and technologies of the future. We believe that, working together, we can rise to the challenge of a changing climate.

We appreciate the opportunity to provide further informal comments to the Washington State Department of Ecology ("ECY") that highlight additional observations regarding Chapter 173-446 WAC for Climate Commitment Act Program, and its supporting stakeholder meetings. Given the very tight turnaround, even with the one-week extension that was provided, WSPA may choose to submit supplementary comments at a later date. Given that this program will significantly impact the State of Washington, we trust that ECY will be receptive to such information that intends to ensure the state can progress its climate goals while minimizing adverse impacts.

### **Important Program Parameters, Critical to Program Success, Are Unavailable**

WSPA continues to applaud ECY for its stakeholder engagement and public comment process for WAC 173-446. The most recent stakeholder meeting/webinar demonstrates ECY's intent to be transparent. Unfortunately, however, critical information was missing from the January 11 webinar. As such, stakeholders find themselves lacking insight with respect to program details even as we find ourselves at the end of the informal public comment period. While WSPA members appreciated the sharing of details regarding the auction process and implementation timeline, essential price / cost information was missing, including:

- Auction floor price,
- Auction ceiling price,
- Emissions containment reserve ("ECR") trigger price, and
- Allowance Price Containment Reserve ("APCR") tier prices.

Given the aggressive cap decline rate proposed in WAC 173-446, clarity with respect to these critical program elements is of utmost importance to compliance entities that must prepare for the program. It is now, during the informal comment period, that such important parameters should be shared with stakeholders. Many of these will serve as guardrails for Washington's economy as well as serve as foundational inputs to the compliance plans for covered entities.

The third-party modeling that ECY indicated is being procured during the January 11 stakeholder webinar, which ECY anticipates will inform market prices, is welcomed. Unfortunately, it is being implemented late in this rulemaking process. **ECY needs to hold additional workshops and extend the informal comment period to allow sufficient public debate on these critical parameters before the rule is adopted this fall.**

Finally, once these prices are finally established, WSPA, along with many other stakeholders, would strongly recommend that rule language provide specific assurance that ECY would not make changes to these without undertaking a full rulemaking process.

### **Unprecedented Program Stringency Is Reckless**

Ideally, Washington's CCA will support existing and emerging greenhouse gas ("GHG") reduction technologies in a way that is sustainable for state residents. As noted in our previous letter, Washington's proposed 7% annual cap reduction – which results in a 28% decline in the first compliance period – is an unprecedented departure compared to the implementation of other cap decline programs. After a significant scoping exercise, California established annual cap reductions of under 2% in the 2010s, and 3.4% for the 2020s. In neighboring Oregon, its newly effective Climate Protection Program progresses with an annual cap decline of 3.8%.

Moreover, that this cap decline begins in 2023 with an immediate 7% decline versus its baseline is reckless. For foundational reductions in GHGs, industries and the consuming public need time to discern and implement the dramatic changes necessary to attempt to meet such an aggressive target. But basis ECY's schedule, the rule governing this program won't even be finalized until late in the year. In California, the regulation for its cap-and-trade program was approved in 2011. Auctions began the following year, and stationary sources – the first obligated parties – came into the program in 2013. Fuels were not brought under the cap until 2015. Oregon, which also developed an expedited rule on an aggressive schedule, set the first year of its program in 2022 equal to its baseline, with its annual cap decline to begin a year later.

**The feasibility study that ECY is procuring to inform the various pricing points related to the auction of allowances should also include an assessment on phasing in the stringency of the program during its early compliance periods.** A moderated start to the program would allow covered entities to phase in GHG reduction projects and reduces the risks that the program could be immediately infeasible. An aggressive cap decline that cannot be met with existing technologies would require the sale of significant volumes of price ceiling units, which could increase the financial burden on the residents of Washington.

## **Consideration / Timing of Linkage Is Critical for Cap and Invest**

WSPA recognizes the importance of developing a stable market trading system such as the CCA's Cap and Invest program. The legislature, basis the language in HB 5126, anticipates linkage between Washington and the Western Climate Initiative ("WCI"). The WCI, which includes California's Cap-and-Trade program, helps provide a more level playing field for similarly situated resources and avoid market distortions. Linking Washington with allowance trading programs in other jurisdictions can result in major benefits:

- lower overall costs due to the ability to reduce emissions across a wider geographic region,
- minimize leakage as more jurisdictions are linked, and
- provide liquidity for the allowance market.

The provision of linkage to WCI will prove particularly critical for Washington's Cap and Invest program, as the immediately aggressive cap decline as outlined in the above section will likely not permit any opportunity for market liquidity to develop if the program remains unlinked. The WCI, as an established market with liquidity, can mitigate this concern and is a vital consideration. Without such linkage, the program again is at significant risk of immediate instability and early collapse.

**Given that ECY must complete a notice and comment process before Washington can link with another jurisdiction, WSPA recommends this process begin as soon as possible, with a goal to provide such linkage before the first auction in 2023.** Establishing such linkage with WCI from the onset of the Cap and Invest program will allow covered entities to better plan their compliance strategies and greatly increase the likelihood of its success.

Bottom line – linkage of the Cap and Invest program as developed will result in a better outcome for the state, its residents, and the parties subject to its obligations. ECY needs to remain transparent and swift with its planning to provide for linkage to the WCI as soon as possible.

## **Emissions Containment Reserve ("ECR") Mechanism and Auction Concerns**

WSPA urges ECY to take prompt action engaging with stakeholders to develop a proposal for the important market-defining details for the ECR, to allow for public review and participation in the process before the formal rule proposal is released. As ECY are aware, an ECR mechanism was conceived by the Regional Greenhouse Gas Initiative ("RGGI") to create a second "pseudo-floor" price signal that is set above the program floor price. It was created after a RGGI program review that was conducted in 2016 recommended participating states to include an ECR mechanism to increase the price of allowances in the program<sup>1</sup>, which chronically had remained at the floor for many years. Resources for the Future in 2017 drafted a report<sup>2</sup> detailing the role an ECR would play in RGGI, which interestingly found that an ECR increases the risk of "incremental leakage as a consequence of introducing an ECR on the order of 30 percent".

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<sup>1</sup> [https://www.rggi.org/sites/default/files/Uploads/Program-Review/12-19-2017/Principles\\_Accompanying\\_Model\\_Rule.pdf](https://www.rggi.org/sites/default/files/Uploads/Program-Review/12-19-2017/Principles_Accompanying_Model_Rule.pdf)

<sup>2</sup> [https://media.rff.org/documents/RFF-Rpt-RGGI\\_ECR.pdf](https://media.rff.org/documents/RFF-Rpt-RGGI_ECR.pdf)

While ECY is given authority under HB 5126 to establish an ECR price and the quantity of allowances removed from the budget in the event the auction clearing price falls below the ECR price, **ECY should not exercise this option with the onset of the program.** Given the desire to link, implementing such a feature only to have to rescind it upon such linkage makes little sense. Further, there is no basis to presume that the Cap and Invest program will have challenges like those experienced by RGGI; it would therefore be more sensible for ECY to set the ECR trigger price at or near the floor initially and only increase it above the floor if actual experience indicates this is necessary. WSPA members are eager to discuss establishment of an appropriate ECR trigger price and understand how it reflects awareness of existing carbon compliance markets.

Finally, the mechanism to populate allowances into the ECR and distribute or auction these allowances is also concerning. Given the numerous means by which allowances are placed in this reserve, a significant quantity of compliance instruments could accumulate; there must be means to release them into the market to ensure this doesn't occur. The proposal for a "special auction" when there is a new entity is inadequate, as this provides an uncertain timeline for release of these allowances into a market that may urgently need them. Rather, **there should be multiple ECR auctions each year, held in advance of APCR auctions.** To provide assurance for any new covered entities, they could be given priority access to a quantity of compliance instruments needed to ensure they could meet their compliance obligations.

### **Enforcement Provisions Need Significant Revision**

The current draft rule for the administration of penalties is incomplete and not consistent with the requirements of HB 5126. As highlighted under the above discussion regarding program stringency, there is a significant likelihood that there will be a shortage of available compliance instruments. The timeline for covered entities to procure needed compliance instruments is unclear, particularly given the lack of clarity around the timing and administration of an additional Allowance Price Containment Reserve ("APCR") auction after the regular auction, which was noted in the January 11 webinar but for which no rule language is available. We appreciate the apparent intent of this additional APCR auction; but, given the severity of the proposed penalty structure, **it is imperative that the rule language for the additional APCR auction be developed and shared with stakeholders during the informal comment period.**

It also remains unclear how the sale of price ceiling units will be managed within the administrative construct that has been suggested, which seems to be:

- A final "regular" auction in the fourth quarter of the year – ostensibly early October
- Management of the fourth quarter auction and dissemination of results – with indeterminate timing for this step basis the draft regulation
- A covered entity who doesn't succeed in the regular auction process to obtain allowances would then need the opportunity to enter the additional APCR auction
- The APCR auction is held later in October, after the final regular auction
- Management of the additional APCR auction and dissemination of results – again with an indeterminate timing for this step basis the draft regulation

- A covered entity who has bid in this auction must bid at one of two tier prices and has no assurance that their bid request will be filled as there may not be adequate allowances in the APCR
- A covered entity who cannot obtain compliance instruments from an APCR auction would then have to **request** ECY to sell price ceiling units
- ECY would have to agree to this and administer the process to sell the required number of price ceiling units to the covered entity to meet the required compliance obligation

Bottom line, it is hard to conceive how all the above steps could be completed in less than a month. **ECY needs to carefully consider the timeline of activities and adjust dates to allow all steps above to be completed and ensure a covered entity has a fair chance to comply with their obligation.**

Further to the above, the suggestion that in the draft rule that ECY would evaluate the “worthiness” of a covered entity to be sold price ceiling units is extremely flawed. This contradicts the requirements of HB 5126 Sec 18(2), which dictates that “the department **must** issue the number of price ceiling units for sale sufficient to provide cost protection.” ECY suggesting that it will establish for itself arbitrary authority to assess a covered entities’ efforts to obtain compliance instruments contravenes legislative direction. It is shocking to see an agency propose itself the authority to force a covered entity into a penalty status, for which there would be no remedy in a structurally short market without access to an adequate volume of compliance instruments. **ECY must reconsider its approach on this topic before issuing a formal proposed rule.**

Finally, ECY is given greater latitude in the first compliance period to adjust the number of penalty allowances and/or monetary amount of any penalties. **It would be instructive for ECY to provide some guidance in the regulation as to how they will apply this latitude.**

## **DETAILED COMMENTS**

### **WAC 173-446-020 Definitions**

We note with concern the following definitions:

- (n): “Biomass” means nonfossilized and biodegradable organic material originating from plants, animals, and microorganisms, including products, by-products, residues, and waste from agriculture, forestry, and related industries as well as nonfossilized and biodegradable organic fractions of industrial wastes, includes gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material.
- (o): “Biomass-derived fuels,” “biomass fuels,” or “biofuels” means fuels derived from biomass that have at least 40 percent lower GHG emissions based on a full life-cycle analysis when compared to petroleum fuels for which biofuels are capable as serving as a substitute.

WSPA is concerned that the lower life cycle GHG threshold definition above, as provided in HB 5126 Section 2(10), is not consistent with Federal guidelines. WSPA would like to understand the following critical points with respect to this definition of biofuel:

- Has ECY assessed if there are certain biofuels (particularly being consumed in Washington today) that would not be considered as a biofuel basis this definition?
- If ECY concludes that this definition may indeed preclude the use of some biofuels (particularly corn-based ethanol), how is it going to track which biofuels are or are not exempt from the program? From WSPA's perspective, ECY does not have a system in place to do this.
- If certain biofuels are NOT excluded from the program, then they equally would NOT be excluded from the baseline. Our understanding is that the baseline as developed is excluding all biofuels used in Washington, based on the December 16 workshop.

This is an important topic that ECY and WSPA should further discuss. Bottom line, if there is not the capability to make this assessment, the workable approach would be to exempt all biofuels that meet the RFS guidelines except for compressed natural gas, which seems potentially to be the basis for the insertion of this language into HB5126 in the first place.

Again, as the baseline inventory is finalized, it will be imperative that ECY provide a reconciliation of the baseline to what is exempted from the Cap and Invest program per this definition. Transparency on this point will be vitally important to all fuel suppliers.

WSPA recommends adding this sentence to the end of -020(o): *“the applicable metric for comparison of life cycle GHG emissions will be the carbon intensity of fuels approved by Ecology, which could include carbon intensities of Washington fuels approved under WAC 173-424 (Clean Fuels Program).”* WSPA also recommends that ECY illustrates, without limitation on future new technology fuels, the types of fuel existing today that ECY anticipates would qualify as biofuel.

### **WAC 173-446-030 Applicability**

Petroleum products not combusted: Section 173-030(1)(d) describes when fossil fuel suppliers other than natural gas are covered under the program but does not clarify that petroleum products not combusted should be exempt from obligation as they have no carbon dioxide emissions. This section should be expanded to state the following:

- *“Covered emissions exclude petroleum-based or fossil-based products that are not combusted where the product supplier can demonstrate that the product is not combusted”.* Examples of products typically not combusted could include asphalt and petrochemical feedstock.

Natural Gas: Section 173-030(1)(e) addresses suppliers of natural gas. The final line states “Covered emissions do not include emissions from **fuel products**”. We think this could be more direct to read: “*Covered emissions do not include emissions from **supplied natural gas**.*”

Landfills: Section 173-030(3)(b) exempts all city and county landfills in the first and second compliance periods, and permanently exempts landfills that capture at least 75% of landfill gas and generate renewable natural gas or electricity from landfill gas. However, this suggests that up to 25% of landfill gas methane could be exempt from obligation. WSPA questions this permanent exemption for landfill methane and recommends that ECY share data that estimates the expected emissions under this exemption.

### **WAC 173-446-040 Covered emissions**

Petroleum products not combusted: Section 173-040(1)(b) states that covered emissions include all emissions reported under WAC 173-441, with certain exemptions clarified in 040(2). Section (1) or (2) should be revised to also state the following:

- “*Covered emissions exclude petroleum-based or fossil-based products that are not combusted where the product supplier can demonstrate that the product is not combusted*”. Examples of products typically not combusted include asphalt and petrochemical feedstock.

Biofuel emissions: Section 173-040(2)(a)(i) clarifies that carbon dioxide emissions from the combustion of biomass or biofuels are exempt. Does this therefore suggest that all other GHG emissions from combustion of biofuels (e.g., N<sub>2</sub>O, CH<sub>4</sub>) are obligated? If so, this should be made clear in the regulation.

Aviation fuel: Section 173-040(2)(b)(i) states that jet fuel and aviation gasoline are exempt “if demonstrated to Ecology’s satisfaction that they are used for aviation purposes, and further cross-references WAC 173-441.” This language suggests that the fuel supplier may need to make a proactive demonstration to ECY that confirms aviation use before excluding the fuel from obligation. No proactive demonstration is required in HB 5126. We recommend that the language be simplified to read: “*fuel supplier emissions are not covered emissions if the fuels are used for aviation purposes.*”

Watercraft fuels: Section 173-040(2)(b)(ii) exempts “watercraft fuels supplied in Washington that are combusted outside of Washington.” We recommend that a definition of “outside of Washington” be added (i.e., combusted in waters not under the jurisdiction of Washington government).

Section 173-040(2)(b)(ii)(A) correctly exempts Residual Fuel No. 5 and Residual Fuel No. 6 from obligation since these fuels are typically used in large ocean-going vessels. Section 173-040(2)(b)(ii)(B) correctly exempts distillate No. 2 and distillate No. 4 used in watercraft outside Washington, but states that “suppliers must demonstrate to Ecology’s satisfaction both use in watercraft and combustion outside of Washington.”



Again, as noted in the aviation section above, this language suggests that a fuel supplier may need to make a proactive demonstration of these facts to ECY before excluding the fuel from obligation. No proactive demonstration is required in HB 5126. We recommend that the rule language be simplified to read: *“fuel supplier emissions are not covered emissions if the fuels are used by watercraft outside of Washington”*. If necessary, language could be added saying that *“fuel suppliers must retain records that demonstrate that the fuels are combusted by watercraft and combusted outside of Washington.”*

Allotment of Covered Emissions: WSPA generally finds Section 173-040(3) to be confusing and not structured well. The use of the word “allotment” is ambiguous as this word is often used in multiple contexts throughout this section. Second, it is titled “Allotment of Covered Emissions” but much of 040(3) discusses both covered and not-covered emissions. Third, it is confusing when 040(2) is titled “Exemptions”, but other exemptions (not covered) are included in 040(3). We recommend that ECY restructure sections 040(2) and 040(3) to clarify concepts and eliminate this confusion.

Collection of carbon dioxide for geologic sequestration: WSPA supports 173-040(3)(a)(ii)(B)(I) stating that carbon dioxide collected from a facility is not a covered emission when it is permanently removed from the atmosphere either through long-term geologic sequestration or by conversion into long lived mineral form. This action is identified by many national and international researchers as core to achieving large carbon reductions towards the goal of carbon neutrality. Carbon sequestration may prove useful within Washington, offshore in favorable geology and/or in adjacent states or Canada with favorable geology.

We have these recommendations for this section:

- Clarify that the geologic sequestration could be inside Washington or outside Washington. Carbon dioxide collected from facilities in Washington could be transported to sequestration sites in other states, Canada, or offshore.
- Delete “and supplied offsite.” It is theoretically possible that sequestration could be “onsite.”
- Provide a new section for Direct Air Capture (“DAC”). Entities that operate DAC in Washington should receive negative carbon emission credits under WAC 173-441 and WAC 173-446. There could be entities with covered emissions (e.g., Washington facilities, Washington fuel suppliers) that could choose to build and operate DAC. The regulation should allow them to reduce their reported and covered emissions by the volume of carbon dioxide collected by DAC. Similarly, there could be new entities without obligated emissions in Washington that could choose to build and operate DAC in Washington. The regulation should allow them to report these negative emissions under WAC 173-441 and receive negative carbon emissions credit for same under WAC 173-446.

Covered Emissions for suppliers of fossil fuel other than natural gas: Section 173-040(3)(c) discusses “fossil fuel” and “petroleum products”. This section should be clarified to state that:

- *“Covered emissions exclude petroleum-based or fossil-based products that are not combusted where the product supplier can demonstrate that the product is not combusted”.*

### **WAC 173-446-150 Accounts for registered entities**

The holding limits in 150(3)(a) and (b) are inadequate for larger transportation fuel suppliers and stationary sources, particularly since these limits are inclusive of the compliance account when it is holding future vintage allowances. While the formula copies that used in the California Cap-and-Trade program, it is inappropriate to use this formula for the Cap and Invest program. There will be fewer overall participants in Washington’s program and, given the state has a much smaller allowance budget versus that for California, will result in a prohibitively tight limit that will constrain compliance options for large, covered entities.

ECY suggesting in 150(3)(d) that it has the right to request that a covered entity explain its strategy when it reaches one half of its holding limit is inappropriate. This is confidential business information that ECY is overstepping authority to ask for. This language needs to be struck from the proposed rule.

The suggestion in 150(4) to post “information about the contents of **each** holding account” is hopefully in error. While providing aggregated/masked information can be helpful for market transparency, publicly providing such information by entity would breach market confidentiality and it is imperative that ECY not do this.

### **WAC 173-446-240 Distribution of allowances to natural gas utilities**

This section should clarify that renewable natural gas (“RNG”) is exempt from the program and no allowances will therefore be provided for RNG, nor will it incur any obligation.

### **WAC 173-446-250 Adjustments to allowance budget**

While it is understood that there are situations where ECY may be required to remove allowances, the suggestion in 250(2) that ECY can “elect” to remove allowances without a specific trigger to do so seems arbitrary and should not be authorized by the rule. Given that this concept has been suggested, WSPA would be grateful for an explanation regarding when ECY may elect to remove allowances.

### **WAC 173-446-300 Auctions of current and prior year allowances**

The concept that ECY would submit “the percentage of current and prior vintage allowances that Ecology considers appropriate” seems arbitrary. Specific parameters should be provided that would direct how ECY would make such a specification.

### **WAC 173-446-330 Purchase limits**

The draft regulation proposes purchasing limits for covered and opt-in covered entities. For covered entities, those which are not part of a direct corporate association may only purchase up to 10% of the allowances made available in an auction. If any entity is one part of a direct corporate association, the 10% purchase limit is applied to all members within a direct corporate association. This maximum is much lower than California's purchase limit of up to 25% of available allowances, per auction. This limit only serves to reduce the number of allowances any covered entity may purchase and use for compliance with the program. ECY must recognize that as the number of EITE allowances decrease an entity may need to purchase a larger share of allowances from the state over time. The proposed purchase limit of 10% reduces the number of allowances that can be sold to a single direct corporate association, potentially resulting in an increased number of unsold allowances over time.

Washington should allow the Cap and Invest market to function without artificial restrictions and allow businesses to choose compliance routes that are most cost effective. This is especially important in a program that covers 27 years. As California's program has shown, demand for allowances will vary over time, as part of a natural economic cycle that will increase and decrease a covered entity's compliance obligation. Therefore, the number of allowances purchased during an auction may vary. No entity should be penalized for periods of economic slowdown that reduces the need for allowances and/or reduces a company's cash availability used to purchase allowances. WSPA urges ECY to seek amendments in agency request legislation to increase the auction purchase limit for covered entities to 25% of allowances offered for sale in an auction, consistent with the limit in California. This will allow for regulated companies to manage compliance more cost-effectively without overly restrictive barriers that may unnecessarily compromise a compliance entity's ability to comply with the program.

### **WAC 173-446 335 Auction floor price and Auction ceiling price**

In the January 11 webinar, ECY noted that the ceiling price is a feature that is designed to "*keep auction prices from going too high.*" (Slide 59) Given this stated intent to be a mechanism to protect covered entities and consumers, it is inappropriate to escalate this price above inflation, as it would lead to real cost increases when allowances are selling at the ceiling price, or price ceiling units that are being sold due to a shortage of available allowances.

### **WAC 173-446-370 Allowance Price Containment Reserve Account**

In 370(2), ECY indicates that it will "by January 15 of each year of subsequent compliance periods, ... determine the number of allowances to be placed in the allowance price containment reserve account." This is a substantial choice with potential significant impact on covered entities. The percentage of allowances to divert to the APCR should be established for the second and future compliance periods with a formal rulemaking process. WSPA opposes such an open-ended determination that doesn't require stakeholder input.

During the January 11 webinar, ECY asserted that the proposed regulation addresses the manner by which an oversubscribed APCR auction would be rationed, but 370(5)(d) offers no such guidance. Rather, it simply says that Tier 1 allowances would be sold first, followed by Tier 2, without any further clarification. This is a significant oversight that needs to be remedied.

### **WAC 173-446-385 Price Ceiling Unit Sales**

Please see our specific concerns about price ceiling unit sales as a main topic of this comment letter.

### **WAC 173-446-400 Compliance instruments transactions – general information**

WSPA assumes that the contract announced with WCI will provide for an electronic system to be in place from the onset for the Cap and Invest program. ECY shouldn't initiate auctions until such a capability is in place.

### **WAC 173-446-600 Compliance obligations**

The proposed rule aggressively reduces the allowable use of offsets on an absolute basis, given a reduction in utilization from 5% to 4%, which is then amplified by the rapid cap decline of the program. The resulting quantity of offsets allowed at the onset of the second compliance period is 40% less than what is permitted at the onset of the first compliance period. The rapidly declining market for offsets may be a major deterrent for the development of any offset projects – particularly if approval of offset protocols is protracted. Given the aggressiveness of the program, this is very concerning.

In 600(6)(c), the proposed mechanism by which a covered entity could have its allowable use of offsets reduced is problematic and doesn't provide for due process. This needs to be amended to provide for a fair, reasonable appeal process for any proposed reductions. Further, it should be made clear that the intent of this section is with regards to the use of offsets by covered entities that are stationary sources.

### **WAC 173-446-610 Enforcement**

The enforcement provisions in the proposed rule are egregious, particularly with ECY asserting an interpretation in the January 11 stakeholder meeting that each ton (i.e., allowance unit) would constitute a separate daily violation should a covered entity not be able to supply penalty allowances. This is particularly problematic for a program that will have limited initial liquidity, particularly if it is not linked, and could be structurally short of allowances given its steep cap decline.

In California's Cap-and-Trade program, a violation is defined as a 45-day period. While even this basis arguably creates a disproportionate penalty, it is significantly less than what is proposed by the draft rule in 610(3) and illuminates just how grossly excessive the proposed structure is.

Otherwise, there are further details in this section that are confusing. In 610(1), there is a clear direction for ECY to assess penalty allowances if a transfer is not met by the transfer date, with a requirement to provide the penalty allowances in 6 months. Immediately following in 610(2), the draft rule directs an entity that “*believes it will be unable to meet a compliance obligation....to immediately notify Ecology.*” This is confusing, unless 610(2) is intending to provide a lesser penalty allowance provision for early notification. Otherwise, there is no basis for a covered entity to do this, as it would be in their economic interest to continue to seek allowances in the market up to the required transfer date versus take an immediate penalty. This language should either be struck or amended to better communicate ECY’s desired intent.

## Conclusion

We appreciate the progress that ECY has made developing WAC 173-446 and acknowledge the significant effort this represents. While progress has been made, there are several notable deficiencies in the current version of the proposed rule, and the informal comment period should not be closed until these issues are addressed. This program is too important to Washington for ECY not to get it right, and several of the current program gaps if not addressed thoughtfully could imperil the economy of the State of Washington and not deliver the intended benefits of the program. We look forward to continuing to work with you to avoid such deleterious outcomes.

If you have any questions or comments about the information presented in this letter, please do not hesitate to contact me via e-mail at [jspiegel@wspa.org](mailto:jspiegel@wspa.org) or by phone at (360) 918-2178.

Sincerely,



CC: Luke Martland, Climate Commitment Act Implementation Manager

**Considerations and Questions  
Regarding the Preliminary  
Regulatory Analysis Supporting  
WAC 173-446, Climate  
Commitment Act Program**

*Including Further Limited Insights from the “Summary  
of market modeling and analysis of the proposed  
Cap-and-Invest Program”*

*July 2022*

By Carr Bon-Neutral Consulting

Prepared with the support of Western States Petroleum Association

## **Disclaimer**

*These insights reflect the independent research, opinions, and conclusions of the author (Michael Carr) and do not necessarily reflect those of Western States Petroleum Association or its members. Carr Bon-Neutral Consulting does not warrant the contents of the information presented and assumes no liability or responsibility for any error or omission. The critique is provided on an “information only” basis and does not constitute legal opinion or advice to whomever this report is made available.*

## **Introduction**

In support of its rulemaking for Chapter 173-446 WAC, known as the Climate Commitment Act Program, the Washington Department of Ecology (“ECY”) developed a Preliminary Regulatory Analysis (“PRA”), which it initially published<sup>1</sup> and then revised<sup>2</sup> in May 2022. This was followed up with a “*Summary of market modeling and analysis of the proposed Cap and Invest Program*”<sup>3</sup> (“SMM”), which was published in July. These analyses are helpful to provide further insights into the basis for development of this program, also known and sometimes referred to as the “Cap-and-Invest” program.

This rule has been developed with a stringency – and on a timeline – that is much more aggressive than any such market-based program has ever been devised. There is significant potential given this that the program will run into a number of challenges, and a review of the PRA and SMM flags a number of considerations and questions regarding how the program will actually work. This critique highlights a number of these; the earlier they can be considered, the better chance that any necessary updates to the program can be made and their consequences understood.

This review summarizes key findings below, with further development of the findings following. For the sake of consistency, all references will be to the updated PRA unless explicitly noted otherwise.

## **Summary of key findings**

- The Business As Usual (“BAU”) emission values, as explained in the analysis narrative, attempt to incorporate a mélange of impacts from multiple policy objectives being developed in parallel to the Washington Climate Commitment Act Program. The BAU emission values that exclude the Cap-and-Invest program independently posit an aggressive reduction in emissions, equating to reductions of ~86% from 2023-2050. The resulting assessment of costs and associated benefits for the Cap-and-Invest program is thus diminished, as it has a smaller gap to close as a result of the starting point defined by the BAU, which it is compared against. What this approach hides, though, is the costs for activities baked into the BAU – such as Washington’s planned adoption of California’s Advanced Clean Cars II regulation via an update to its Clean Vehicles Program – which could be exorbitant. It calls into question the whole basis by which this suite of programs that are being developed in parallel is being assessed.
- There are notable changes in the placeholder values for the emissions baseline for the program. Since this will serve as the starting point for the program, it is critical to get this right. Original placeholder values for the baseline emissions have dropped from 71 million to about 68 million. While not explained in either document, these appear likely to be due to differences in actual emissions associated with electricity imports versus initial expectations.
- The cost / benefit analysis in the preliminary regulatory analysis is suspect. While moderately beneficial per the PRA (benefits are posited at ~17% above costs), the significant likelihood that Price Ceiling Units (“PCUs”) will need to be sold will increase costs of the program. Further, the

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<sup>1</sup> <https://apps.ecology.wa.gov/publications/documents/2202015.pdf>

<sup>2</sup> <https://apps.ecology.wa.gov/publications/documents/2202019.pdf>

<sup>3</sup> <https://ecology.wa.gov/DOE/files/4a/4ab74e30-d365-40f5-9e8f-528caa8610dc.pdf>



assumptions for abatement costs have the potential to significantly underestimate these costs. It's also important to note that costs for abatement are often underestimated. It is imperative that the detailed model itself (or at least all of its inputs and assumptions) and the full suite of results be provided with such an analysis, rather than a delayed manner, to allow analysts to better understand the basis for generating these abatement costs.

- It is also important to note that social cost of carbon (“SCC”) values are utilized on a *global* basis; the social cost of carbon values for Washington State are significantly less. While such an approach is admittedly noble, it may not actually be legal for a state agency to consider benefits outside the state in its cost-benefit analysis unless given specific legislative direction to do so.
- The rule design to make available the entire volume of Allowance Price Containment Reserve (“APCR”) allowances from 2023-2030 is a good tactic to provide early liquidity for the Cap-and-Invest market. But the PRA reinforces the reality that – barring a structural change to the program or linkage with another jurisdiction – the program will be even more structurally short of allowances in the second compliance period from 2027-2030. The utilized approach is well-characterized when described as “squeezing a balloon.”
- The sale of Price Ceiling Units (PCUs) appears likely based on the PRA, at the conclusion of compliance periods. While economic model results embedded in the report do not premise any are sold, they would almost certainly be needed since there will likely be market participants who purchase allowances and hold them for future use, leaving other covered entities (particularly fuel suppliers who are constrained by auction purchase limits) with a lack of allowances available for compliance.
- Sector emission values are difficult to understand without further details regarding model assumptions; but those indicated for industry, natural gas and transport may all be significantly underestimated by the model and/or have significant implications to the sector. To the extent they are underestimated, it will further increase the likelihood that PCUs would need to be sold to covered entities for compliance.
- Emissions associated with the generation of electricity suggest that 2023 emissions are already approximately one-third below the 2015-2019 baseline. This is not surprising, as costs of abatement in the electricity sector are less than others. There is, however, a further vulnerability for the program during years of drought that would require higher levels of electricity GHG emissions to provide the power required by Washingtonians. Given that the program provides 100% no cost allowances for this sector, regardless of actual emission levels, years in drought would further reduce the availability of allowances at auction and put even greater pressure on other covered entities in the program.
- Costs for allowances in the program are displayed in 2021 dollars. So, the actual allowance costs in “money of the day” dollars in 2030 will be higher. If inflation persists at its higher than historical level, these actual costs will be significantly higher. Two alternative scenarios for inflation result in actual costs for PCUs basis model results of \$130-140/t in 2030. If wages for the average Washingtonian do not keep up with these increases over the decade, the impact of program costs will be more acutely felt.

## Discussion

### Program Initialization Concerns

Programs that have a high potential for significant economic impacts must define a robust starting point, both in terms of the program’s regulatory and emissions baselines. There are concerns with both of these starting points for this program.

The program emissions baseline is still not defined. The draft rule has been issued with a “temporary placeholder value” of just over 68 million tons<sup>4</sup>. This is a notable reduction of over 4% versus a previously advised placeholder value of 71 million tons in an informal draft rule issued earlier in 2022<sup>5</sup>. It is reasonable to speculate that the difference lies in imported electricity emissions, for which ECY has only been recently collecting the data they will utilize to establish the emissions baseline for this sector of the program. What is arguably more concerning, though, is the absence of explanation in the PRA for such large change at this late juncture in the rulemaking.

Further confusing this issue is the reality that the implied baseline used in the model outcomes in Appendix H is yet a different number. This figure must be gleaned from tables in the analysis, as it is not overtly provided with model PRA documentation. Consider the following, constructed from data provided in Table 88:

Year	Cap excluding reserves (A)	Cap including reserves (B) [=A/.9267] <sup>6</sup>	% Reduction versus baseline (C) [=7%/yr reduction]	Calculated baseline (D) [=B/C]
2023	58,501,299	63,128,627	0.93	67,880,245
2025	49,694,652	53,625,393	0.79	67,880,245
2027	40,888,005	44,122,159	0.65	67,880,245
2029	32,081,358	34,618,925	0.51	67,880,246

This approach reliably indicates that the baseline figure used in the central assumption model runs is not the temporary placeholder value, but rather a figure of 67.88 million tons – which is about 0.4% less. Interestingly, this is the value indicated in the SMM, with no acknowledgement of the disparity between it and the PRA. Of further interest, footnote 49 on page 121 of the PRA indicates that “*Due to the necessity of modeling based on a selected Total Program Baseline while GHG emissions reporting was ongoing, Vivid Economics modeling forecasts were based on a Total Program Baseline approximately 3% lower than the Total Program Baseline in the proposed rule.*” This may be attempting to acknowledge this difference but, given the calculated baseline above, actually creates greater uncertainty in the documentation – as the difference between the modeling and the most recent placeholder value is much less than this. This footnote itself also acknowledges that the pace at which ECY is attempting to promulgate this rule is resulting in compromises in data quality from this rulemaking process.

<sup>4</sup> <https://ecology.wa.gov/DOE/files/4f/4ffb375b-2bec-4b66-afb3-9b613645896e.pdf>, Table 200-1 at page 33.

<sup>5</sup> <https://ecology.wa.gov/DOE/files/ad/add4891c-0c4e-4253-a784-d02051c77633.pdf>, Table 200-1 at page 42.

<sup>6</sup> The .9267 figure is derived from diversion of 5% to APCR, 2% to ECR and 0.33% to VREBA. See section 2.5.2.5 on pages 104-105 of the PRA.

Another issue flagged by this uncertainty between the PRA, its model results, the SMM and the draft rule itself is the unavailability of the actual model and its detailed inputs and outputs. Given the significance of this rulemaking to Washington and its economy, it is imperative that a model of this nature be released concurrently with the PRA, and that ECY give stakeholders adequate time to review the model for further insights and feedback during the rulemaking process that is being executed in a tight time frame.

Concerns with the program emissions baseline, while significant, are overshadowed by the opacity of the regulatory baseline against which the impact of this rulemaking, including its costs and benefits, will be assessed. Given this, it is important that this regulatory baseline be defined correctly. The regulatory baseline, as noted in Section 2.2 of the PRA narrative on page 28, attempts to incorporate a mélange of impacts from multiple policy objectives that are being developed in parallel to the Washington Climate Commitment Act Program. These include notable rules including:

- Clean Fuels Program (WAC 173-424), for which its CR-102 has yet to even be issued, and
- Clean Vehicle Program (WAC 173-423). This rule intends to adopt California's Advanced Clean Cars II regulation, which itself is still in active rulemaking in California.

To establish a regulatory baseline for such a consequential rule with such significant moving parts is an approach that creates significant potential to underestimate the impact of the rule, and either over- or understates its costs and / or benefits. It results in a tremendous loss of transparency for all of these rulemaking processes being run in parallel. It is important to recognize that this program is now anticipated to impose costs that are about 4x higher than those originally estimated in the Office of Financial Management analysis<sup>7 8</sup>, equating to over \$2 billion/yr. To have such an opaque basis for developing the cost / benefit analysis for this rule should be deeply concerning to everyone who strives for good governance in rulemaking processes.

The consequences of this can again be seen in the Table 88 model output summary that utilized central assumptions. This table indicates that the BAU emissions will be reduced by ~86% by 2050 without the contribution of the Climate Commitment Act Program. The resulting assessment of the costs for this program is thus diminished, as it has a smaller gap to close – and thus a lower cost of compliance – because of the starting point defined by the BAU for it to be compared against. This begs further questions, such as what the presumed cost / benefit of these other programs are, and what the impact on this program will be if the assumptions around them as baked into the BAU prove incorrect. At a minimum, such uncertainty begs that sensitivity analyses be undertaken to indicate costs / benefits for varying outcomes of these other rules that are in development.

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<sup>7</sup> *New forecasts of E2SSB 5126, WAC 173-446 allowance prices and revenues*, Washington Research Council, memorandum dated June 6, 2022

<sup>8</sup> <https://fnspublic.ofm.wa.gov/FNSPublicSearch/GetPDF?packageID=63362>, page 121

## Concerns with Cost / Benefit Analysis

ECY has attempted to demonstrate that the benefits of the Climate Commitment Act Program exceed its costs. The report quantifies present value benefits of approximately \$39 billion and present value costs of \$33 billion. With maximum offsets, the costs and benefits are equally increased by about \$2.5 billion. Digging into the numbers deeper, though, leads to significant concerns regarding the robustness of this assertion.

The costs of the program are likely understated. The ability to test this is limited, as ECY has not provided the detailed model, or even its inputs and assumptions, with regards to costs for abatement. There is a troublesome narrative in Chapter 3 describing costs, where an assumption is made that “abatement calculations assume a unit cost equivalent to the allowance market price.”<sup>9</sup> If in reality abatement costs are higher, it will adversely affect the costs for the program as the higher costs of abatement options that drive a higher allowance price will increase net costs. In practice, projects typically cost more than are originally anticipated – and the cost of abatement will increase if this proves true. In the current environment, which is suffering from greater levels of scarcity that is increasing the cost of raw materials<sup>10</sup>, this is a significant risk.

Further, the appropriateness of using a global SCC for this analysis can be called into question. The PRA goes to great lengths to justify the use of SCC on a global basis. Many of the points made are legitimate. Nonetheless, this is a state program, and it must be acknowledged the SCC for Washington would be much less. Utilizing a SCC based on damages in the United States, the costs are about 15% of the global costs at the same discount rate<sup>11</sup>. Adjusting the value of avoided SCC in the benefits proportionately would reduce this figure to under \$3bln, which would clearly tilt the outcome of this program to not being cost-effective. Again, this is not to assert that making an assessment using a global SCC isn’t without merit. However, without explicit authority to use such a global value by the legislature, as was explicitly provided for in the “Clean Buildings” bill<sup>12</sup>, the legality of this approach in a cost / benefit analysis can be called into question.

## Changes to Deployment of APCR Allowances

The most substantive change in the draft rule for 173-446 WAC from its informal version is the intention to pull forward and make immediately available at auction the full volume of APCR allowances for the first two compliance periods from 2023-2030. This injection provides a total of 18.6 million allowances that can be purchased by covered entities for compliance beginning in 2023. Further, these allowances would be “vintageless,” allowing them to be immediately used for compliance by a covered entity if necessary. Given the extreme initial stringency of the program, which is unprecedented, a rule feature that injects needed allowances for compliance into the program is a positive development.

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<sup>9</sup> <https://apps.ecology.wa.gov/publications/documents/2202019.pdf>, page 130

<sup>10</sup> As an example, see <https://tradingeconomics.com/commodity/lithium>, accessed Jun 15, 2022. Commodity lithium prices have increased 5-fold in the last 12 months, which will increase the costs of battery storage projects.

<sup>11</sup> <https://www.gao.gov/assets/gao-20-254.pdf>, figure 1 comparisons at 3% discount rate.

<sup>12</sup> <https://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/House/1257-S3.SL.pdf?q=20220615093709>, Section 15, pages 20-21.

Based on the baseline derived in the section above, the total allowance budget for the first compliance period (“CP1”)<sup>13</sup> will be 224 million allowances. The availability of 7.4 million additional APCR allowances from CP2 for compliance in CP1 reduces the potential stringency for CP1 by as much as 2.7%/yr. While this could prove to be a critical benefit for early program stability, it would still represent a net reduction of 4.3%/yr, which is still greater than that programmed for California in the 2020s<sup>14</sup> – where its cap-and-trade program has been operational since 2013.

Unfortunately, though, the effect of this early benefit – which is accomplished by “squeezing the balloon of allowances” from CP2 to CP1 – will only provide temporary relief. Unless there are further program changes that are effective before CP2 begins in 2027, the benefits in the first years of the program will be equally offset by a greater level of compliance difficulty in CP2. For CP2, the absence of 7.4 million allowances in this period will increase its potential stringency by an equivalent amount. So, the net stringency in CP2 could be as high as 9.7%/yr. This is infeasible, and the PRA suggests as much. Consider in the central assumptions model results in Table 88 that project total emissions in CP2 of 150.6 million t, with only 137.1 million t of allowances available.

In conclusion, if the plan is to create a bit of breathing room prior to linkage or structural changes to the program, it is a good tactic. But, to ensure covered entities and market participants have confidence in the program, either or both of these necessary interventions need to be in hand well before CP2 begins. While it is encouraging that the SMM expresses more confidence with linkage by pivoting it to being the “central scenario” versus the PRA, it seems a bit premature to make such a pivot when rulemaking has not commenced for such linkage in either Washington nor any of the jurisdictions with which it has an ambition to link.

#### Price Ceiling Units (PCUs) Will Likely Need to be Utilized

PCUs are a key feature of a well-designed market program, as they help prevent price shocks in a strong economy with higher emissions and provide a certain – albeit expensive – option for compliance for covered entities. It is interesting to note that the model output for the central assumptions does not indicate PCU sales. Theoretically, such an outcome could be true in a scenario where there was almost no banked allowances remaining after the end of a compliance period. But the program provides for and anticipates banking, as this provides liquidity and is necessary to allow trading and price discovery between participants in the program. It also allows covered entities to plan their allowance purchases as they evaluate and implement their compliance strategy. Banking is an essential feature of market-based programs.

Trying to predict banking behavior by program participants is extremely difficult, so it is understandable that ECY didn’t attempt to assess this, other than some assessment of market participants only, based on the contents of Table 3 in the SMM. But the likelihood of banking, and the possibility that it could result in the need for PCU sales, must be acknowledged. This is particularly so when one considers that

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<sup>13</sup> References to CP1, CP2 and CP3 throughout the document will refer to the first, second and third compliance periods, respectively.

<sup>14</sup> Beginning in 2021, California’s program reduces 4%/yr from the baseline at the end of 2020. This baseline at the end of 2020 is 85% of the original baseline at the start of the program, so the comparative baseline reduction versus Washington’s is 3.4%/yr (i.e., 4% of 85%).

covered entities may choose to hold some excess of allowances, given the quite aggressive penalty structure that the rule stipulates. Rather than attempt to predict behavior, an assessment is made in Appendix 1 to ascertain what percentage of the theoretical holding limits would have to be banked to trigger the need for PCU sales at the end of a compliance period, when the preponderance of allowances must be surrendered. The result is that even at a level of less than 10% of what covered entities could theoretically hold, the program would have to sell PCUs. Note that this doesn't include additional banking that would be expected by market participants who are not covered entities, and for which the SMM suggests could be in the order of 30 million allowances.<sup>15</sup>

If the program progresses through CP2 and CP3 without linkage or structural changes, the likelihood of PCU sales further increases. It is during these periods that the model outcomes indicate there will be many consecutive years with a shortage of allowances. By the end of CP3, even if only 5% of the theoretical holding limit for covered entities is utilized for banking, PCU sales will be required.

It is important to remember that program participants are under no obligation to sell banked allowances in their account, assuming they have respected the prescribed account holding limit. A party that is holding allowances cannot be compelled to liquidate their allowance bank on behalf of another program participant and quite likely would be disinclined to do so when the market is short of allowances, so they themselves can avoid having to purchase PCUs in future.

Further, it is also important to note that constraints placed on the purchase of allowances at regular auctions, along with holding account limit rules that have been established at the same level regardless of entity size, will create inefficiencies for larger covered entities, particularly fuel suppliers. For the largest fuel suppliers, it will be impossible to accumulate the required volume of allowances for compliance at auction, even if they successfully obtain allowances up to their 10% limit. When APCR allowances are available, there is the possibility for large fuel suppliers to obtain additional allowances; but, these can be oversubscribed and based on Appendix H model results would not be available some years – including the entirety of CP2. These realities of program design may also force the sale of PCUs.

#### Sector Emission Estimates Raise Significant Concerns

It is important to better understand how the model is assessing its impact on the emissions in specific sectors, and how these emissions are initially tracking from the 2015-2019 baseline. For many sectors, the reductions being estimated by the model seem unlikely to be achieved, unless there are factors in play that are not apparent with the explanation in the PRA. Again, it is vitally important for ECY to issue the full model for concerned stakeholders to better understand important details regarding its inputs and outcomes.

In Table 88 of the PRA, which summarizes model outputs with central assumptions, it is notable to see that it premises emission reductions in the industry sector of 8-10%/yr through 2034 – representing a cumulative decrease in emissions of 60% through the first three compliance periods. Such a steep,

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<sup>15</sup> <https://ecology.wa.gov/DOE/files/4a/4ab74e30-d365-40f5-9e8f-528caa8610dc.pdf>. See section 4.2.2.5, where it says “The maximum limit was assumed to be 60 million allowances in 2023” and “in practice, modeled allowance holdings for non-covered entities typically fluctuate at around half of the upper limit.”

ratable decline is not likely with existing manufacturing facilities over such a limited period of time and is particularly the case in the early years of the program. It takes years to develop, permit and implement the large investments that would be required to deliver such reductions. Given this, the model results based on these central assumptions could even suggest that much of Washington industry may simply cease to continue operating. It will be imperative to review the detailed model assumptions for abatement costs to understand this peculiar outcome.

Natural gas emissions are not well-explained in the PRA model data tables, but it appears that the “building emissions” sector represents the combined volume of natural gas utilized by residential and commercial customers and subject to a compliance obligation placed on the natural gas utilities. These emissions show modest reductions of ~3%/yr through 2025, and then begin declining at 6-10%/year-on-year beginning in 2026. Again, as with industry emissions, such dramatic declines will not occur without significant investment. While timelines for implementation of these kinds of investment is shorter, their costs remain significant. Switching gas appliances to electric can be very costly, particularly if upgrades to the electrical infrastructure are required<sup>16</sup>. The pace of change suggested would likely equate to annual costs of at least one billion dollars per year on households and businesses<sup>17</sup>. Of further concern is a review of EIA natural gas consumption data for the state, which suggests that natural gas usage in Washington has increased versus the 2015-2019 baseline. See Appendix 2 for an analysis that leads to this conclusion. Unlike the electricity sector – whose total emissions are fully covered – if residential and commercial natural gas consumption is greater versus this aggressive trajectory, it will require a greater volume of allowances for which it will have to compete with other sectors that will also struggle to obtain scarce allowances.

The model outcomes for transportation emissions are also challenging to comprehend. Table 88 results indicate that these emissions will be just over 25 million tons in 2023, which is about 20% below 2015-2019 baseline emissions. While COVID19 has had a significant impact on emissions in this sector, EIA data suggests that use of transportation fuels recovered to a significant extent in 2021 from the lows of 2020 when much of the economy was shut down. Based on this EIA data, summarized in Appendix 3, it appears that the more “durable” reduction of transportation emissions resulting from COVID19 is less than 10%. One possibility is that the model was initialized using 2020 consumption information; if the case, these will likely be understated for 2023. Again, release of detailed model information would be helpful for stakeholders to better understand this question.

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<sup>16</sup> Per the National Association of Homebuilders, the additional costs for electric appliances in new construction are \$3,000-13,000 higher versus natural gas (see <https://www.nahb.org/blog/2021/03/how-much-does-whole-home-electrification-cost/>; the costs for electric charging for vehicles is excluded). Retrofit costs are usually higher, so a reasonable (potentially low) assumption is that costs to convert an existing residence from natural gas to electricity would be in the vicinity of \$10,000.

<sup>17</sup> Consider that there are 3.25 million households in Washington per the US Census Bureau (accessed at: <https://www.census.gov/quickfacts/WA>, June 2022), and about 34% currently utilize gas for heating (per Statista, accessed at: <https://www.statista.com/statistics/1231931/residential-heating-fuel-distribution-in-washington/>). If 7% of households are assumed to convert from gas to electricity each year, at an estimated retrofit costs of \$10,000 per household conversion (see footnote 16), costs for residential conversions would be approximately \$770 million/year. Residential consumption is 60% of the total gas consumption ostensibly attributed to “buildings”, with 40% consumed for commercial purposes. If commercial conversion costs are comparable on a per unit of natural gas consumption basis, this would suggest conversion costs in the order of \$1.3 bln/year.

Of further note for transportation emissions is that the primary tactic for their reduction, which is the transition away from internal combustion engines by electrification of transport emissions, will not deliver most of its benefits until the 2030s, given the pace at which vehicles are replaced. The PRA acknowledges this in its sensitivity analysis for technical assumptions when it notes that (emphasis added) *“after 2028, slower decarbonization in the transportation sector puts significant upward pressure on prices relative to other scenarios until the 2040s.”*<sup>18</sup>

There are other variables that can impact transportation emissions, some of which are not possible to assess based on the level of detail presented and unavailability of the model. These include inputs / assumptions for Vehicle Miles Traveled (“VMT”), which has a direct impact on these emissions. Finally, recent geopolitical events – notably the Ukraine-Russia conflict that has raised global energy prices – has the potential to reduce VMT and create demand destruction for motor fuels. If higher costs for energy persists, there will be downward pressure on emissions from all sectors and on transportation emissions in particular. It is too early, though, to confidently assess if this is occurring and the extent of its impact.

For the electricity sector, emissions reported by Table 88 in the PRA suggest that 2023 emissions would be approximately one-third below the 2015-2019 baseline. This is not surprising, as the costs of abatement in the electricity sector are less than others and these emission reductions are therefore already being realized. A similar phenomenon has been seen in California. This does, though, highlight a significant vulnerability for the program, which is the risk that – during years of drought when the hydropower that provides the majority of the state’s electrical generation is reduced – emissions from electricity that is sourced to replace it will increase sector emissions. Given that this sector is provided no-cost allowances for 100% of its emissions regardless of their actual volume, such years would result in even greater pressure on other sectors by reducing the volume of allowances available for them to procure. Indeed, such an increase in electricity sector emissions is anticipated in California in 2022, due to the drought currently taking place in the state at this time.<sup>19</sup> The impact of such a phenomenon in Washington would be even greater, given the extent to which the state already relies on hydropower for generation of electricity.

In conclusion, there are notable concerns identified in the sector emissions outcomes, with a majority of these concerns creating further pressure on the limited number of allowances available. Even if only a portion of these concerns play out, total emissions based on the model outputs will be understated. Such an outcome would further increase the likelihood that PCUs would need to be sold to covered entities.

#### Use of “Present Value” Costs for Allowances Reduces the Actual Cost Figure in Future

Costs for allowances in the program, following the revision of the PRA, seem to match with values that can be calculated from model data provided in Table 87 for allowance costs, after manipulation of data in Table 88 to derive allowances at auction. Costs in the PRA are given as 2021 dollars; while it is understandable why ECY would do this given the uncertainty regarding the intensity and duration of

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<sup>18</sup> <https://apps.ecology.wa.gov/publications/documents/2202019.pdf>, page 186.

<sup>19</sup> <https://www.reuters.com/world/us/california-drought-could-nearly-halve-hydropower-output-boost-electricity-prices-2022-05-26/>



inflation in the current economic environment, this will disguise actual costs in the future. If inflation persists, even if only for a couple of years, the change in actual allowance prices will be notable. As an example, even if the current rate of inflation of ~8% persists for only two years before returning to 2%/yr for the remainder of the 2020s, the difference for the projected price of allowances at auction in 2030 based on model results in Table 87 increases from ~\$120/t to ~\$134/t. This results in a difference between the present value and “money of the day” figures that is nearly double. In an alternative scenario, where the average rate of inflation for the decade is 4% (note that it averaged ~4%/yr across the first two years of the decade and is currently much higher), the actual price at auction in 2030 as projected by the model would be ~\$143/t. If wages for the average Washingtonian do not keep up with these increases over the decade, the impact of program costs may be more acutely felt.

## Appendix 1: Estimated Extent of Banking That Would Result in the Sale of PCUs

Using Table 88 model outcomes, the following table was generated to show the volume of allowances that would be distributed or sold at auctions by year, the predicted emissions by year, and the resulting surplus or deficit for that year. A running balance of allowances was then derived, and an assessment of what percentage of the theoretical combined holding limits for covered entities that would be in force at that time this represented<sup>20</sup>.

*Table 1-1: Derivation of the Estimation of the Extent of Allowance Banking to Trigger the Necessity to Sell PCUs to Compliance Entities*

YEAR	ALLOWANCES EXCLUDING RESERVES (PER MODEL) (in 000s)	APCR1 ALLOWANCE SALES (PER MODEL) (in 000s)	APCR2 ALLOWANCE SALES (PER MODEL) (in 000s)	ECR ALLOWANCES - ASSUME OR SOLD (in 000s)	TOTAL ALLOWANCES SOLD OR DISTRIBUTED IN CALENDAR YEAR (in 000s)	EMISSIONS (PER MODEL) (in 000s)	CALENDAR YEAR SURPLUS / (-) DEFICIT (in 000s)	RUNNING BALANCE OF SURPLUS DEFICITS (in 000s)	% OF COVERED ENTITY HOLDING LIMITS USED FOR BANKING THAT WOULD REQUIRE SALE OF PCUS	END OF
2023	58,501	9,300	1,043	1,263	70,107	56,945	13,162	13,162		
2024	54,098		693	1,168	55,959	52,905	3,054	16,215		
2025	49,695		7,563	1,073	58,331	48,306	10,025	26,240		
2026	45,291			977	46,268	44,062	2,206	28,446	9.19%	CP1
2027	40,888			882	41,770	41,442	328	28,775		
2028	36,485			787	37,272	38,894	-1,622	27,153		
2029	32,081			692	32,773	36,492	-3,719	23,434		
2030	27,678			597	28,275	33,801	-5,526	17,909	6.83%	CP2
2031	26,483	714	714	572	28,483	31,231	-2,748	15,160		
2032	25,288	682	683	546	27,199	28,842	-1,643	13,517		
2033	24,092	650	650	520	25,912	26,668	-756	12,761		
2034	22,897	618	269	494	24,278	24,524	-246	12,515	5.02%	CP3

The column of importance is the indicated percent usage of the overall holding limits of all covered entities accounts for banking, which would result in a volume of allowances not available to other parties needed for their compliance obligation, and thus triggering the need to sell PCUs. This figure was derived using an estimate of 100 covered entity accounts, which is a reduction of the estimated 130-135 covered entities in the program, per Table 18 of the PRA. Based on a review of “Reporters” in the GHG Reporting Program Publication at data.wa.gov<sup>21</sup>, there are approximately 30 covered entities who will be required to be combined under a single holding account per requirements regarding corporate associations found in section WAC 173-446-105 through -120 of the draft rule. So, the number of holding accounts was rounded to 100, and used for generating the percentage.

<sup>20</sup> The theoretical holding limit is calculated based on the formula in WAC 173-446-150(2)(a), utilizing the annual cap for the year from Table 88 in the PRA, assuming 100 unique covered entities as further described in the narrative of this appendix.

<sup>21</sup> <https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/data>

## Appendix 2: Indications of Natural Gas Consumption Trends

A specific figure for emissions associated with natural gas not used by covered entities is not explicitly provided in the PRA. There is, however, a total figure indicated for the “Fuel Supplier” sector, which is inclusive of transportation fuels as well as natural gas. Total emissions of 38.9 million tons are reported for this sector in Table 19.

Reviewing the total non-biogenic emissions for the transportation fuel suppliers at data.wa.gov<sup>22</sup>, by filtering by “transportation fuel suppliers” for years 2015-2019, yields annual emissions of 32 million tons. By difference, this would suggest about 7 million tons of natural gas emissions.

Data sourced from the Energy Information Administration<sup>23</sup> provides a similar, but somewhat higher figure of 7.6 million tons. The following tables demonstrate how this figure was derived:

Table 2-1: Annual Natural Gas Consumption by Category in Washington

Date	Washington Natural Gas Total Consumption (MMcf)	Washington Natural Gas Lease and Plant Fuel Consumption (MMcf)	Washington Natural Gas Pipeline and Distribution Use (MMcf)	Natural Gas Delivered to Consumers in Washington (Including Vehicle Fuel) (MMcf)	Washington Natural Gas Residential Consumption (MMcf)	Natural Gas Deliveries to Commercial Consumers (Including Vehicle Fuel through 1996) in Washington (MMcf)	Washington Natural Gas Industrial Consumption (MMcf)	Washington Natural Gas Vehicle Fuel Consumption (MMcf)	Washington Natural Gas Deliveries to Electric Power Consumers (MMcf)	Consumption excluding electricity generation	Consumption excluding electricity, industry and vehicle fuel
2001	312114		9053	303060	84416	57160	75017	283	86184		
2002	233716		6356	227360	73347	46455	67717	288	39552		
2003	249699		6527	243072	71110	47845	65884	352	57880		
2004	262485		8822	253663	70932	48455	67812	395	66068		
2005	264754		8174	256580	73626	49745	66874	526	65809		
2006	263395		6554	256842	75491	51292	70758	501	58800		
2007	272613		7402	265211	80152	53689	73572	505	57294		
2008	298140		6605	291535	84509	56205	75748	493	74580		
2009	310428		7497	302930	84143	55697	71271	510	91308		
2010	285726		7587	278139	76554	51335	71280	436	79535		
2011	264589		6644	257945	85393	56487	76289	510	39265		
2012	264540		9184	255356	79892	53420	78196	512	43336		
2013	318292		10144	308148	83365	55805	80889	418	87671		
2014	306675		9015	297659	78750	54457	79439	482	84531		
2015	307735		12020	295715	71907	49939	76527	445	96897	210838	133866
2016	301418		11965	289453	76321	51634	79275	495	81728	219690	139920
2017	324882		12311	312571	91028	60096	80656	202	80589	244293	163435
2018	307985		13372	294613	83567	57014	77303	180	76549	231436	153953
2019	348265		12797	335468	89967	61010	78490	169	105832	242433	163774
2020	328688		11591	317096	87194	55548	78130	123	96101	232587	154334
2021	346961		12493	334468	88815	57135	80002	131	108383	238578	158445

Conversion = 0.0551 t/Mcf

Average	12493	305564	82558	55938.6	78450.2	298.2	88319	229738	150989.6
Estimated emissions	688364.3	16836576.4	4548945.8	3082216.86	4322606.02	16430.82	4866376.9	12658563.8	8319526.96
Ratio 2021 / (2015-2019 average)		1.095	1.076	1.021	1.020	0.439	1.227	1.038	1.049

Note that natural gas consumption volumes excluding power plants, industry and vehicle fuel (i.e., the far right column) are about 5% higher in 2021 versus the 2015-2019 average. Again, it is not possible to definitively conclude the natural gas utility emission trends from the level of detail that is provided in Table 88 of the PRA, but indications are that they have likely increased.

<sup>22</sup> <https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/data>

<sup>23</sup> [https://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_SWA\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SWA_a.htm), accessed June 16, 2022

For completeness, note that emissions for 2021 were not reported in the annual EIA report as there are five missing data fields in the monthly entries. To address this, estimates have been inserted based on typical values for the type of consumer in the given month from previous years data. The below chart shows how the annual figure was derived using these estimated figures, which are shown in *red italics*:

Table 2-2: 2021 Monthly Natural Gas Consumption by Category in Washington

Date	Natural Gas Delivered to Consumers in Washington (Including Vehicle Fuel) (MMcf)	Washington Natural Gas Residential Consumption (MMcf)	Natural Gas Deliveries to Commercial Consumers (Including Vehicle Fuel through 1996) in Washington (MMcf)	Washington Natural Gas Industrial Consumption (MMcf)	Washington Natural Gas Vehicle Fuel Consumption (MMcf)	Washington Natural Gas Deliveries to Electric Power Consumers (MMcf)
Jan-2021	<i>35629</i>	13050	<i>7500</i>	<i>7200</i>	11	7868
Feb-2021	35059	13287	7747	6881	10	7134
Mar-2021	34905	10770	6489	7815	11	9820
Apr-2021	26173	6397	4289	6776	11	8700
May-2021	<i>16277</i>	<i>3600</i>	<i>2800</i>	<i>6000</i>	11	3866
Jun-2021	18960	2480	2378	6028	11	8062
Jul-2021	21715	1992	2207	5719	11	11786
Aug-2021	22167	1888	2204	5741	11	12323
Sep-2021	22532	2665	2580	6221	11	11055
Oct-2021	28136	6971	4341	6978	11	9836
Nov-2021	31242	9679	6033	6826	11	8693
Dec-2021	41673	16036	8567	7817	11	9241
Jan-2022	39781	14648	8846	7959	11	8316
Feb-2022	33923	12196	7539	6927	10	7251
<i>Estimated 2021</i>	<i>334468</i> ✓	<i>88815</i> ✓	<i>57135</i> ✓	<i>80002</i> ✓	<i>131</i> ✓	<i>108384</i>

Any error resulting from these estimates will be small, as the sum of fields that are estimated equates to less than 8% of annual consumption. The likelihood of all errors being in the same direction would be statistically unlikely, and even if in the unlikely scenario that all of the above estimated values were either over- or understated by 10% would result in an error of under 1%. So, the assertion that natural gas consumption is above the baseline value would remain valid.

**Appendix 3: Assessment of “Durable” Reduction in Transportation Emissions Resulting from Changes in Driving Behavior following the COVID19 Pandemic**

COVID19 has had a significant impact on society, including significant disruptions in the pattern of work. This resulted in significant changes in transportation fuel consumption, particularly in the earlier phase of the pandemic in 2020. For this calendar year, transportation fuel supplier emissions were just under 25 million tons<sup>24</sup>. This is significantly below the 2015-2019 baseline. Interestingly, a similar value for 2023 transportation sector emissions is reported in Table 88 of the PRA. The basis for the initialization of transport emissions is not clear and leads to important questions that need to be addressed.

If the initialization of emissions is driven by assumptions around longer-term COVID19 impacts, it appears they may be overly optimistic. Consider the following information sourced from the EIA<sup>25</sup>:

*Table 3-1: Gasoline Annual Sales Trends 2011-2021*

<b>Year</b>	<b>Washington Total Gasoline All Sales/Deliveries by Prime Supplier (Thousand Gallons per Day)</b>
2011	7396.4
2012	7399.2
2013	7485.7
2014	7408.3
2015	7427.7
2016	7584.8
2017	7603.4
2018	7878.0
2019	7867.4
2020	6449.9
2021	6990.3

Average 2015-2019 = 7672.3

Ratio 2021 / 2015-2019 average = 0.911

Note that, per this information, gasoline sales in 2021 were about 9% less versus the level of sales during the 2015-2019 baseline years.

To get further insights based on already published information for the first quarter of 2022, consider the following monthly information:

<sup>24</sup> <https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/data>, filtered for transportation fuel supplier emissions in 2020.

<sup>25</sup> [https://www.eia.gov/dnav/pet/pet\\_sum\\_mkt\\_dcu\\_SWA\\_m.htm](https://www.eia.gov/dnav/pet/pet_sum_mkt_dcu_SWA_m.htm), accessed June 16, 2022.

Table 3-2: Gasoline First Quarter Trends To Assess Recent Consumption Versus 2015-2019 Baseline

Washington Total Gasoline All Sales/Deliveries by Prime Supplier		
Month-Year	(Thousand Gallons per Day)	Average for Jan-Mar
Jan-2015	7013.0	
Feb-2015	7222.9	
Mar-2015	7378.1	7205
Jan-2016	6976.7	
Feb-2016	7266.6	
Mar-2016	7505.6	7250
Jan-2017	6902.4	
Feb-2017	7004.9	
Mar-2017	7439.0	7115
Jan-2018	7093.0	
Feb-2018	7528.0	
Mar-2018	7753.6	7458
Jan-2019	7473.7	
Feb-2019	7017.4	
Mar-2019	7882.0	7458
Jan-2020	7128.2	
Feb-2020	7425.6	
Mar-2020	6263.4	6939
Jan-2021	6066.9	
Feb-2021	5989.8	
Mar-2021	6744.4	6267
Jan-2022	6260.3	
Feb-2022	6893.0	
Mar-2022	6740.5	6631

Ratio Jan-Mar 2022/(Jan-Mar 2015-2019) = 0.909

Again, assessment of the data suggests that gasoline sales in the first quarter of 2022 were about 9% less than those in the first quarter of the 2015-2019 baseline years. In this assessment, one can observe the decline that began in March 2020, upon the start of lockdowns due to COVID19; one can further observe how these continued for the entirety of the first quarter of 2021. Figures in 2022 are also down, but as with annual figures were recovering from 2020-2021 lows.

The analysis for diesel is not as straightforward, as there are a number of data points missing in the EIA monthly information for diesel sales. For annual sales history, the following information that can be accessed at the EIA website is helpful to assess the trend through 2021.

Table 3-3: Annual sales of Diesel in Washington State Basis EIA data

Year	Washington No 2 Distillate All Sales/Deliveries by Prime Supplier (Thousand Gallons per Day)
2011	2839.8
2012	2709.8
2013	2740.2
2014	2758.5
2015	3137.5
2016	3181.8
2017	3204.1
2018	3347
2019	3514.4
2020	3339.4
2021	3109.9

Average 2015-2019 = 3277

Ratio 2021 / 2015-2019 average = 0.949

The ratio of 2021 diesel sales versus the 2015-2019 baseline is about 95%, suggesting a slight reduction in last year's demand versus the baseline.

Again, attempts to glean further insights from monthly data to ascertain potential trends in 2022 is more problematic – given that there are several missing entries in the EIA monthly dataset. This is seen in the following table that provides all available information for 2015-2022:

Table 3-4: Diesel First Quarter Trends To Assess Recent Consumption Versus 2015-2019 Baseline

<b>Month-Year</b>	<b>Washington No 2 Distillate All Sales/Deliveries by Prime Supplier (Thousand Gallons per Day)</b>	<b>Average for year of First Quarter Daily Volumes</b>
Jan-2015	2904	
Feb-2015	2897.3	
Mar-2015	2821.5	2874.3
Jan-2016	2788.2	
Feb-2016	3051.4	
Mar-2016	3037.3	2959.0
Jan-2017		
Feb-2017	2805.1	
Mar-2017		2805.1
Jan-2018	2746.2	
Feb-2018	2852.9	
Mar-2018		2799.6
Jan-2019	3326.1	
Feb-2019	3422.6	
Mar-2019	3567.9	3438.9
Jan-2020	3636	
Feb-2020	3549.1	
Mar-2020	3257.3	3480.8
Jan-2021		
Feb-2021		
Mar-2021	3140.4	3140.4
Jan-2022		
Feb-2022	3175.4	
Mar-2022	2997.3	3086.4
Average of daily volumes for First Quarter 2015-2019 =		2975
Ratio of First Quarter 2022 versus 2015-2019 =		1.055
Average of daily volumes in February (only) 2015-2019 =		3006
Ratio February 2022 versus 2015-2019 =		1.056
Average of daily volumes in March (only) 2015-2019 =		3142
Ratio March 2022 versus 2015-2019 =		0.954

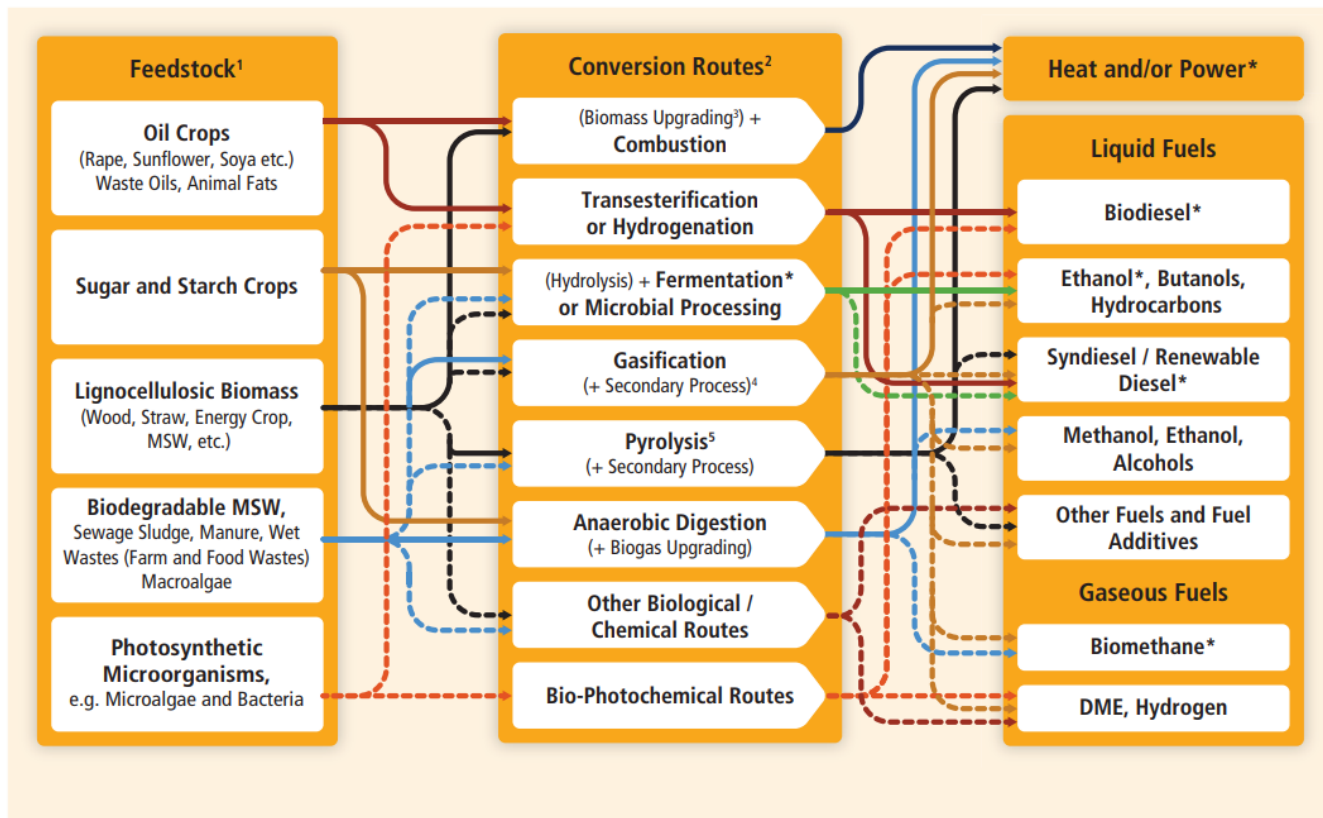
One cannot confidently glean any trends from this information. Based on March data alone, the 5% reduction that is suggested for 2021 by the EIA annual data would seem to be continuing. But data for the full quarter or the month of February suggests that sales may have been up as much as 5% versus the 2015-2019 baseline. What seems safe to conclude is that sales volumes per this first quarter EIA information suggest that demand for diesel was likely down no more than 5% versus the 2015-2019 baseline, and perhaps had fully recovered. Actual trends can be better characterized as the year progresses, by monitoring data at the EIA website as it is updated.

When historical gasoline and diesel volumes are considered together as a proxy for transportation emissions, recent overall emissions would have been anticipated to decline by ~8%. Model results that suggests a reduction of ~20% versus the 2015-2019 baseline therefore seem optimistically low.



## Attachment C

From the United Nations Intergovernmental Panel on Climate Change (IPCC) [special report](#) on Renewable Energy Sources and Climate Change Mitigation, bioenergy chapter.



**Figure 2.2 |** Schematic view of the variety of commercial (solid lines, see Figure 2.6) and developing bioenergy routes (dotted lines) from biomass feedstocks through thermochemical, chemical, biochemical and biological conversion routes to heat, power, CHP and liquid or gaseous fuels (modified from IEA Bioenergy, 2009). Commercial products are marked with an asterisk.

### IPCC definitions:

**Bioenergy:** Energy derived from any form of *biomass* or its metabolic by-products.

**Biofuel:** A fuel, generally in liquid form, produced from *biomass*. Biofuels currently include bioethanol from sugarcane or maize, biodiesel from canola or soybeans, and black liquor from the paper-manufacturing process.

**Biomass:** Living or recently dead organic material.

Traditional biofuels: ethanol, butanol, propanol and biodiesel

- Biodiesel byproducts: glycerol, biodiesel washing wastewaters, methanol, and solid residues
- Pyrolysis oil
- Biomolecules: biopigments, biopolymers, biosurfactants, and nutritional yeast

Advanced biofuels

- Distillates: Renewable diesel, Biodiesel, Renewable heating oil, Sustainable aviation fuel
- Ethanol: Cellulosic and sugarcane ethanol
- Specialty fuels: Isobutanol, Dimethyl Ether, Naphtha

Renewable hydrocarbon biofuels: renewable diesel, sustainable aviation fuels, renewable gasoline  
Renewable/Green Hydrogen

EIA Form EIA-819 collects data on biofuel production and fuel type:

[https://www.eia.gov/survey/form/eia\\_819/form.xlsx](https://www.eia.gov/survey/form/eia_819/form.xlsx)