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Comment Regarding West Biofuels, LLC EPIC 5 application

Attached is a comment submitted on behalf of the Center for Biological Diversity regarding West Biofuels, LLCâ€™s application for funding under the Electric Program Investment Charge 2026â€“2030 Investment Plan (EPIC 5).

Additional submitted attachment is included below.

Nov. 19, 2025

California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Comment Regarding West Biofuels, LLC Electric Program Investment Charge 2026–2030 Investment Plan Application (EPIC 5)

Dear Commissioners and EPIC staff,

This letter is submitted on behalf of the Center for Biological Diversity regarding West Biofuels, LLC's (West Biofuels, or the project) application for funding under the Electric Program Investment Charge 2026–2030 Investment Plan (EPIC 5).[1]

After reviewing both the project's EPIC application and a related California Public Utilities Commission (CPUC) proceeding concerning West Biofuels, we urge the California Energy Commission (CEC) to deny EPIC funding for the project.

On May 21, 2025, the CPUC determined that PG&E, which was asking the CPUC for permission to direct Cap-and-Trade proceeds to West Biofuels, failed to demonstrate that the West Biofuels project in that application would reduce greenhouse gas (GHG) emissions and provide ratepayer benefits. The CPUC denied the project application and directed the return of $16.9 million to ratepayers.[2] The West Biofuels project now proposed for EPIC funding has many of the same core deficiencies as the project denied by the CPUC and adds new risks from the carbon capture and storage (CCS) component, making it a bad fit for California's climate and energy goals.

Further, West Biofuels' project proposed for EPIC is primarily a methane-producing project that is inconsistent with the EPIC program's electrification and decarbonization purpose. For example, of the roughly one dozen biomass projects that have received EPIC funding in the past, *all* produce electricity, and none turn biomass into methane and hydrogen, as the West Biofuels EPIC 5 application is proposing. In addition, this project risks increasing—not reducing—GHG emissions, pushing California into greater reliance on polluting fuels. It is also likely the West Biofuels project proposed here is incompatible with EPIC's Strategic Goals #4

[1] Matt Summers Comments - Carbon Negative Pathways for Production of Green Hydrogen and Renewable Natural Gas from Forest Biomass, TN # 265429 (submitted Aug. 8, 2025) (hereinafter, "West Biofuels EPIC 5 Application").
[2] CPUC Decision 25-05-003 on Application 23-06-023, "DECISION DENYING PG&E'S WOODY BIOMASS PILOT PROJECT APPLICATION" (May 21, 2025), https://apps.cpuc.ca.gov/apex/f?p=401:56::::RP,57,RIR:P5_PROCEEDING_SELECT:A2306023 (hereinafter, "CPUC Decision").

(Achieving 100% Net-Zero Carbon and the Coordinated Role of Gas) and #5 (Climate Adaptation).

I. BACKGROUND

A. West Biofuels Facility's EPIC Application

On August 8, 2025, a representative of West Biofuels, LLC submitted a request asking the CEC to channel EPIC funds to its "novel production pathway to produce green hydrogen (H2) and renewable natural gas (RNG) and carbon dioxide (CO_2) from forest and agricultural biomass."[3] The process would involve biomass gasification with syngas filtration, gas shifting, and separation.[4] The project would also use carbon capture and storage with "sequestration of CO_2" produced.[5] The project asserts that it would reduce California's GHG reduction goals by delivering gas with over "90% emissions reduction compared to fossil natural gas."[6] The application further asserts it will "[e]nhance affordability and reliability"[7] and reduce "wildfire risk through proactive biomass removal."[8]

B. The CPUC Denied Funding to West Biofuels for a Similar Biomass Gasification Project Because It Failed to Demonstrate GHG Emissions Reductions and Benefits to Ratepayers

On May 21, 2025, the CPUC denied an application from PG&E to direct its Cap-and-Trade proceeds to West Biofuels for a biomass gasification project to produce biomethane.[9] This denied project proposed to convert woody forest and agricultural biomass into methane through gasification and direct methanation using "gray" hydrogen made from fossil fuels.[10] PG&E applied to the CPUC pursuant to CPUC Decision 22-02-025, which required PG&E to propose at

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[3] West Biofuels EPIC 5 Application at 3.
[4] *Id.*
[5] *Id.* at 4, 5 (proposing a benefit of greater than 90% reduction in GHGs "with sequestration of CO_2").
[6] *Id.* at 4.
[7] *Id.* at 6.
[8] *Id.* at 7.
[9] CPUC Decision at 1-3.
[10] *Id.* at 3. According to PG&E's CPUC application, West Biofuels would convert woody biomass via gasification and direct methanation at a 1 MW gasification facility ("facility") located in Yolo County and owned by West Biofuels. PG&E-01, PG&E Prepared Testimony at 1-6, lines 23-25, and 1-7, lines 1-14. The facility includes, among other components, a gasifier, an exhaust vent, and open flame stack flare. SCL-001, Attachment 3, PG&E Response to Sierra Club Data Request 2, Question 1, Attachment 2. The vent and the flare emit air pollutants, including GHGs such as CO2 and N2O, criteria pollutants such as particulate matter ("PM"), sulfur dioxide ("SO2"), CO, nitrogen oxides ("NOx"), and numerous toxic air pollutants. SCL-001, Sierra Club Testimony at 13, lines 2-9; SCL-004, PG&E Response to Sierra Club Data Request Set 8, Answer 2, Attachment 3 at pdf 73-895 (showing positive emissions of CO2); SCL-001, Sierra Club Testimony at 13, lines 2-9; SCL-005, Sierra Club Supplemental Testimony at 1, lines 9-10 and at 2, lines 12-14 (citing SCL-004, PG&E Response to Sierra Club Data Request Set 8, Answer 2, Attachment 2 at pdf page 2 (indicating NOx is reported in the first column of emissions data), pdf pages 151-157 and 164-201 (showing levels of NOx exceeding 100ppm)). *See* Sierra Club testimony available at https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2306023/7054/525583319.pdf.

least one woody biomass gasification project focused on converting woody biomass to biomethane by July 1, 2023.[11]

Per Decision 22-02-025, eligible projects were required to meet certain criteria developed by the Commission and comply with all applicable CARB regulations.[12] One such CARB regulation, at 17 CCR section 95893(d)(3), requires that auction proceeds be used to *reduce* GHGs; another requirement at section 95893(d)(5) requires that applicants *demonstrate* GHG emissions reductions.[13]

While PG&E argued that West Biofuels met all of the above requirements, the California Public Advocates Office, Sierra Club, and the Center for Biological Diversity argued that the project did not, for the following reasons, summarized in brief:

- The GHG emissions estimates for the project did not include GHG emissions from methane leakage from the transmission, storage, distribution, or production of biomethane at the facility or biomass storage;[14]
- Enlarging the facility / expanding biomass processing at the facility would increase GHG emissions from the facility's open stack flare and exhaust vent and increase fugitive methane leakage;[15]
- PG&E had yet to conduct a lifecycle assessment for the project to calculate its carbon intensity (CI) score and is instead used a proxy CI score estimate from an unrelated facility;[16] and
- PG&E did not demonstrate that the project would offset emissions from the commercial hydrogen used in the methanation process, 95% of which produced in the United States involves the use of fossil fuels, or the transportation of biomass associated with the Project.[17]

After reviewing extensive briefing, testimony, and exhibits, the CPUC concluded: "We agree with Cal Advocates and Environmental Parties that PG&E has not satisfied the relevant CARB regulation requirements and consequently has not satisfied the requirements of D.22-02-025."[18] In addition to failing to demonstrate GHG emissions reductions, CPUC determined

[11] CPUC Decision 22-02-025 (February 24, 2022) at 67.
[12] CPUC Decision at 6.
[13] *Id.* at 7 (emphasis added).
[14] *Id.* at 11.
[15] *Id.* at 11-12 (quoting Sierra Club and Center for Biological Diversity opening brief, "[u]nless total system leakage is zero, methane intentionally produced from biomass when it would not have otherwise existed (as is the case [with the Project]) is always GHG positive, even if the underlying feedstock is presumed to be from climate-neutral CO2 sources.") (citation omitted).
[16] *Id.* at 10. Cal Advocates estimates that transportation of biomass to the Facility will result in 3.79 to 12.65 metric tons of CO2 per year, which reduces the purported emissions reductions of the Project itself. *Id.* at 10-11 (citation omitted).
[17] *Id.* at 10.
[18] *Id.* at 12.

PG&E also "failed to show a benefit to ratepayers from the [p]roject . . . . No analysis has been provided by PG&E to demonstrate the estimated benefits to ratepayers from the [p]roject in concrete terms."[19]

II. THE CEC SHOULD DENY EPIC FUNDING TO WEST BIOFUELS

After its denial via PG&E's application before the CPUC, West Biofuels is now seeking California funding—this time from the EPIC program—for a similar project without demonstrated climate or ratepayer benefits. Accordingly, the CEC should reach the same conclusion as the CPUC and reject EPIC funding for this project that is similarly deficient.

Even if the CEC were to ignore the CPUC's decision, West Biofuels should not be awarded EPIC funding because the proposed project is inconsistent with EPIC's purpose and the EPIC 5 Investment Plan's governing objectives. The application asserts that the project advances Strategic Goal #4 (Achieving 100% Net-Zero Carbon and the Coordinated Role of Gas) and Strategic Goal #5 (Climate Adaptation), but the evidence does not support these claims. To the contrary, the project could increase GHG emissions, which directly conflicts with the intent of EPIC to fund projects that demonstrably further California's decarbonization and climate adaptation mandates.

A. West Biofuels' Biomass Gasification Project is Similar to the Project Denied by the CPUC and Adds New Risks from CCS

West Biofuels' EPIC application, and its application denied by the CPUC, are both for biomass gasification projects to turn forest and agricultural biomass into methane. Both projects would convert biomass via gasification into "syngas" comprised of CH_4, CO_2, CO, and H_2. The difference is that the denied project proposed to use direct methanation using fossil hydrogen to convert CO_2 and CO into CH_4, without using carbon capture and storage (CCS). The primary product of the denied project was CH_4. West Biofuels' current project does not use methanation but would use gas shifting to convert CO into CO_2 and H_2. The primary products are CH_4 plus more CO_2 and H_2 compared to the denied project. This project also proposes to capture and sequester the CO_2 produced, whereas the denied project did not. The current EPIC proposal then adds new problems and deficiencies through the CCS component.

Accordingly, the CEC should not advance the West Biofuels EPIC application and instead should focus on projects that truly help meet California's climate and wildfire goals.

B. The West Biofuels Project Is Primarily a Gas-Producing Project that Is Not Compatible with the EPIC Program's Purpose

[19] *Id.* at 14.

The CPUC in March 2024 adopted five strategic goals for the EPIC program to provide direction on priorities and project investments.[20] The CPUC made clear that "EPIC's purpose is to focus on the electricity sector."[21] It further clarified that EPIC funds cannot be used to invest in gas projects, including that within Goal #4 (Achieving 100 Percent Net-Zero Carbon and the Coordinated Role of Gas).[22]

West Biofuels' biomass gasification project is primarily a gas-producing project. Its main product is methane which the application states can be directly injected "into existing natural gas infrastructure with minimal modifications."[23] This gas project does not help advance EPIC's electrification mission and instead would prolong use of climate-damaging methane gas which emits CO_2 when burned.

This project would also produce some hydrogen for unspecified purposes. As shown below, hydrogen production from woody biomass gasification is similarly carbon intensive as methane production from biomass gasification and is definitively not "green." Green, electrolytic hydrogen is made by splitting water using truly clean, renewable solar or wind energy. In short, methane and hydrogen production from woody biomass is climate-polluting and counters EPIC's and the state's decarbonization goals.

C. West Biofuels Fails EPIC Strategic Goal #4 (Achieving 100 Percent Net-Zero Carbon and the Coordinated Role of Gas)

The fourth strategic goal of EPIC is to "identify cost-effective opportunities for reaching the 'last 10%' of the state's goal to be carbon neutral by 2045 economy-wide, through investment in California-specific strategies for hard-to-decarbonize energy-consuming sectors that could be decarbonized through electrification and coordination with other California RD&D programs to align investments and activities for emerging strategies, by addressing identified gaps for this goal."[24]

In its EPIC application, West Biofuels claims that the project supports Strategic Goal #4 because it "provides a new pathway to decarbonize California's gas supply using local, carbon-neutral biomass feedstock" and "displaces fossil natural gas with ultra-low-CI renewable natural gas."[25]

There are several reasons why West Biofuels fails Strategic Goal #4. First and foremost, as noted above, EPIC is focused on electrification, whereas West Biofuels' project would

[20] CPUC, Decision Adopting Strategic Goals for the Electric Program Investment Charge Program, Decision 24-03-007 (March 7, 2024).
[21] *Id.* at 23.
[22] *Id.*
[23] West Biofuels EPIC 5 Application at 5.
[24] CPUC, Decision Adopting Strategic Goals for the Electric Program Investment Charge Program, Rulemaking 19-10-005, D.24-03-007 (Mar. 7, 2024).
[25] West Biofuels EPIC 5 Application at 7.

produce methane, hydrogen, and carbon dioxide from biomass—not electricity. In addition, West Biofuels' claims of low-CI methane do not hold up. This project would not decarbonize the gas supply because methane produced from woody biomass is carbon-intensive, as clearly shown by accurate carbon accounting. Methane produced from woody biomass can even be more carbon-intensive than fossil gas due to methane leakage from the system. West Biofuels claims it may use CCS to lower methane CI, but its assumptions regarding CCS are flawed and unsupported. Each of these failures is explained further below.

(1) West Biofuels' project risks significantly increasing net GHG emissions.

West Biofuels' project to create methane from biomass could lead to a significant net increase in GHGs because of several factors: (i) significant upstream emissions; (ii) methane leakage from the system; (iii) significant downstream CO_2 emissions; and (iv) foregone forest carbon sequestration, as detailed below.

(i) Upstream emissions from transport, processing, and storage: Substantial upstream emissions are released during extraction, transport, processing, and storage of woody biomass in preparation for gasification, including:

(a) Emissions from diesel truck trips required to transport biomass feedstocks to the facility and carry away any waste or other co-products. The biomass-to-methane pilot project proposed by PG&E and West Biofuels involved estimated diesel truck deliveries of biomass averaging 2,700 vehicle miles per year and a maximum of 9,000 vehicle miles per year,[26] releasing an estimated 3.79 to 12.65 metric tons of CO_2 per year.[27] The CPUC denied the previous application in part because there was no accounting for the GHG emissions associated with the transportation of biomass to the facility.[28]

(b) Emissions from the processing of biomass, including drying and chipping heterogeneous biomass (e.g. branches, clippings, etc.) into feedstock sizes suitable for gasification.[29]

(c) Methane emissions from wood chip storage piles and log landings. Wood chip storage piles and log landings at biomass facilities release substantial methane emissions that can be large enough to significantly add to the overall climate impact of bioenergy production.[30] One study

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[26] Application 23-06-023, Testimony on Pacific Gas and Electric Company's Application for Approval of the Woody Biomass to Renewable Natural Gas Pilot Project (Feb. 16, 2023), https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M529/K871/529871040.PDF at 4.
[27] *Id.* at 5.
[28] CPUC Decision at 16.
[29] Roder, Mirjam et al., How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues, 79 Biomass and Bioenergy 50 (2015), DOI: 10.1016/j.biombioe.2015.03.030.
[30] Wihersaari, M., Evaluation of greenhouse gas emission risks from storage of wood residue, 28 Biomass and Bioenergy 444 (2005); Whittaker, C. et al., Dry matter losses and methane emissions during wood chip storage: the impacts on full life cycle greenhouse gas savings of short rotation coppice willow for heat, 9 Bioenergy Research 820 (2016); Vantellingen, J. & S.C. Thomas, Log landings are methane emissions hotspots in managed forests, 51 Canadian Journal of Forest Research 1916 (2021).

reported that wood chip piles can cause "remarkable" methane emissions as well as nitrous oxide (N_2O) emissions, and that "greenhouse gas emissions from storage [in wood chip piles] can, in some cases, be much greater than emissions from the rest of the biofuel production and transportation chain."[31]

(d) Emissions embodied in the electricity or heat needed to power the gasification, syngas filtration, gas shifting, and separation processes.[32] To limit additional GHG emissions, all these processes would need to be powered by clean renewable solar or wind energy.[33]

(ii) Methane leakage from the system: Methane is a potent GHG, and leakage is a major risk at the points of transmission, storage, distribution, or production of biomethane, at the pipeline injection point, and through the pipeline itself.[34] Biomass-to-methane gasification projects intentionally manufacture methane where little may have otherwise occurred. Peer-reviewed research has found that "RNG from intentionally produced methane, even from climate-neutral CO_2 sources, has substantial climate impacts at methane leakage levels observed in the existing, mature biogas industry."[35] Unless total system leakage is zero, methane intentionally produced from biomass when it would not otherwise have existed, as is the case here, is always GHG emitting.[36] At leakage rates between 5-6.6% which are common in the biogas industry, biomethane from intentionally produced methane is *more* GHG intensive than fossil gas.[37] Based on recent research and observations of the biogas industry, it is foreseeable that leakage rates for this project could approach or even exceed 5%.[38] A recent review found that biogas and biomethane supply chains leak twice as much methane as current International Energy Agency estimates, and that methane loss rates in biomethane and biogas supply chain "exceed those in oil and natural gas."[39]

(iii) Downstream CO_2 emissions: The gasification of woody biomass releases the carbon stored in trees and other vegetation and converts it into the carbon-based climate pollutants CO_2 and CH_4. In the case of this project, the primary products will be CO_2 as well as CH_4 which will be combusted for fuel, ultimately releasing large amounts of CO_2.

(iv) Foregone forest carbon sequestration: Cutting trees ends their carbon drawdown from the atmosphere. Because a tree's carbon sequestration rate increases with size, large trees

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[31] Wihersaari, M., Evaluation of greenhouse gas emission risks from storage of wood residue, 28 Biomass and Bioenergy 444 (2005).
[32] Adelaide S. Calbry-Muzyka et al, Direct Methanation of Biogas – Technical Challenges and Recent Progress (Dec. 2020) https://doi.org/10.3389/fenrg.2020.570887.
[33] *Id*.
[34] CPUC Decision at 11.
[35] Grubert, Emily, *At Scale Renewable Natural Gas Systems Could be Climate Intensive: The Influence of Methane Feedstock and Leakage Rates*, Envtl. Research Letters (2020), https://doi.org/10.1088/1748-9326/ab9335).
[36] *Id.*
[37] *Id.* at 4.
[38] *Id.*
[39] Semra Bakkaloglu et al., Methane Emissions Along Biomethane and Biogas Supply Chains Are Underestimated (June 2022) https://www.sciencedirect.com/science/article/pii/S2590332222002676.

capture carbon more efficiently than smaller trees.[40] Therefore, it takes many years for trees that grow back after logging/thinning to become large enough to draw down the same amount of carbon as the trees that were cut, resulting in decreased forest carbon sequestration and more CO_2 in the atmosphere.

(2) West Biofuels carbon intensity estimates for RNG are flawed and unsupported.

West Biofuels' "ultra-low" CI estimates for RNG are flawed and unsupported. West Biofuels appears to rely on an industry CI estimate for a separate and different biomass gasification project which uses methanation, unlike this project. This industry CI estimate also incorrectly assumes that woody biomass feedstock is carbon neutral, resulting in an enormous underestimate of carbon intensity.

West Biofuels claims that this project will deliver "ultra-low carbon intensity (CI) gas (5–8 g CO_2e/MJ) with over 90% emissions reduction compared to fossil natural gas" citing "CPUC (2023)."[41] West Biofuels provides no basis for the 5–8 g CO_2e/MJ estimate and provides no link or citation for "CPUC (2023)" to justify this claim. West Biofuels appears to be referring to a 2023 Consultant Report to CEC titled "Renewable Natural Gas in California" which gives a 13 CO_2e/MJ carbon intensity score for RNG produced from biomass (urban/ag/forest).[42] This Consultant Report does not do its own CI calculations but cites an industry report for the CI estimate.[43]

The industry report CI estimate by Gas Technology Institute (GTI) is inapplicable, flawed, and does not provide a reliable basis for estimating CI for West Biofuels Project. First, the industry CI estimate is for an unrelated facility that will use a different process and have different end products. Specifically, GTI does a CI estimate for a hypothetical conversion of the Stockton DTE combustion biomass power plant into a gasification plant that uses methanation to make RNG as an end-product for use as a transportation fuel. In contrast, this project does not use methanation and instead produces a mix of CH_4, CO_2, and H_2 end products.

Second, the industry estimate incorrectly assumes that biomass feedstocks are carbon neutral,[44] which leads to a substantial underestimate of the carbon intensity of RNG made from

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[40] Stephenson, N.L. et al., Rate of tree carbon accumulation increases continuously with tree size; 507 Nature 90 (2014), https://www.nature.com/articles/nature12914; Moomaw, William R. et al., Focus on the role of forests and soils in meeting climate change mitigation goals: summary, 15 Environmental Research Letters 045009 (2020), https://iopscience.iop.org/article/10.1088/1748-9326/ab6b38.

[41] West Biofuels EPIC 5 Application at 4.

[42] *See* CEC Consultant Report, Renewable Natural Gas in California (Aug. 2023), https://www.energy.ca.gov/sites/default/files/2023-08/CEC-200-2023-010.pdf. 2023), https://www.energy.ca.gov/sites/default/files/2023-08/CEC-200-2023-010.pdf at p. 33, Table 2.

[43] Gas Technology Institute, Low-Carbon RNG From Wood Wastes (Feb. 2019), https://www.gti.energy/wp-content/uploads/2019/02/Low-Carbon-Renewable-Natural-Gas-RNG-from-Wood-Wastes-Final-Report-Feb2019.pdf.

[44] *Id.* at 54 ("In very broad terms, the carbon cycle from energy production from biomass goes as follows: plants grow as they take in CO2 from the atmosphere and convert it to carbohydrates. As the plant matter is harvested and converted to fuels and energy, CO2 is returned to the atmosphere, yielding no net carbon emission.").

biomass. As shown in its LCA system boundary in Figure 15, GTI assumes that the CO_2 emissions from RNG combustion in vehicles are taken up by vegetation somewhere ("biogenic CO_2 uptake") and *these significant CO_2 emissions are not counted.* This incorrect claim of carbon neutrality is non-sensical on its face and has been repeatedly debunked by scientific experts and assessments,[45] including the Environmental Protection Agency's Science Advisory Board and Intergovernmental Panel on Climate Change (IPCC).[46]

Bioenergy proponents incorrectly claim that bioenergy production is carbon neutral by claiming credit for future forest growth, ignoring the time lags and uncertainty in that growth. Specifically, bioenergy proponents claim they can offset the immediate, large, certain CO_2 emissions from burning or gasifying trees by taking credit for the CO_2 that will be absorbed by future tree growth somewhere at some point.[47] This is misleading because forest growth takes time and is uncertain—there is no requirement that cut forests will be allowed to grow back rather than being cut again and again, or that forests won't be converted to other land uses. Once trees are cut, numerous studies show it takes many decades to more than a century—if ever—for forests to regrow and drawdown the CO_2 emissions that were released when they were turned into energy or fuels.[48]

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[45] Mackey, B.G. et al., Burning forest biomass is not an effective climate mitigation response and conflicts with biodiversity adaptation, 4 Climate Resilience and Sustainability e70015 (2025), https://doi.org/10.1002/cli2.70015.
[46] Letter from John Beddington, et al. to EU Parliament regarding forest biomass (Jan. 9, 2018), http://empowerplants.files.wordpress.com/2018/01/scientist-letter-on-eu-forest-biomass-796-signatories-as-of-january-16-2018.pdf; Letter from Michael Honeycutt, U.S. EPA Sci. Advisory Bd., to Andrew Wheeler, U.S. EPA Administrator, SAB Review of Framework for Assessing Biogenic CO2 Emissions from Stationary Sources (Mar. 5, 2019), https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=539269&Lab=OAP at 2 ("not all biogenic emissions are carbon neutral nor net additional to the atmosphere, and assuming so is inconsistent with the underlying science"); IPCC, Frequently Asked Questions, Intergovernmental Panel on Climate Change (IPCC) Task Force on National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/faq/faq.html at Q2-10 ("The IPCC Guidelines do not automatically consider biomass used for energy as 'carbon neutral,' even if the biomass is thought to be produced sustainably).
[47] John Sterman et al., Does wood bioenergy help or harm the climate?, 78 Bulletin of the Atomic Scientists 128 (2022), https://doi.org/10.1080/00963402.2022.2062933.
[48] Manomet Ctr. for Conservation Scis., Massachusetts Biomass Sustainability and Carbon Policy Study: Report to the Commonwealth of Massachusetts Department of Energy Resources (2010), https://www.mass.gov/doc/manometbiomassreportfullhirezpdf/download; Hudiburg et al. T.W., Regional carbon dioxide implications of forest bioenergy production, 1 Nature Climate Change 419 (2011), https://doi.org/10.1038/nclimate1264; Law, B.E. & M.E. Harmon, Forest sector carbon management, measurement and verification, and discussion of policy related to climate change, 2 Carbon Mgmt. 73 (2011), https://doi.org/10.4155/cmt.10.40; Mitchell, S.R. et al., Carbon debt and carbon sequestration parity in forest bioenergy production, 4 Global Change Biology Bioenergy 818 (2012), https://doi.org/10.1111/j.1757-1707.2012.01173.x; Schulze, E.D. et al., Large-scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutral, 4 Global Change Biology Bioenergy 611 (2012), DOI:10.1111/j.1757-1707.2012.01169.x; Holtsmark, Bjart, The outcome is in the assumptions: Analyzing the effects on atmospheric CO_2 levels of increased use of bioenergy from forest biomass, 5 GCB Bioenergy 467 (2013), https://doi.org/10.1111/gcbb.12015; Sterman, John et al., Does replacing coal with wood lower CO_2 emissions? Dynamic lifecycle analysis of wood bioenergy, 13 Env't Rsch. Letters 015007 (2018), https://doi.org/10.1088/1748-9326/aaa512.

Importantly, making bioenergy using forest "residues" or "waste" feedstocks—referring to biomass that would otherwise be disposed of—is also not carbon neutral.[49] The combustion or gasification of forest residues leads to a *net increase* of carbon emissions in the atmosphere for decades.[50] One study found that combusting all wood types, including forest residues (defined as branches, tree tops and bark) and fire-killed trees, to generate electricity increases carbon emissions in the atmosphere for more than a century compared to generating that electricity with fossil gas.[51]

As summarized in a recent review by Mackey et al. (2025), "burning forest biomass for energy is not carbon neutral or beneficial":

> We found that models used to evaluate bioenergy rely on key assumptions that are in themselves capable of delivering results supportive of bioenergy as an effective strategy. Yet there is abundant evidence that these assumptions are invalid and that burning forest biomass for energy is not carbon neutral or beneficial. From our assessment, we concluded that burning forest biomass, including logging residues, increases atmospheric CO_2 concentration; land sector reporting using net greenhouse gas inventories obscures the impact of forest harvesting on ecosystem carbon stocks; and biomass energy will most likely displace other renewable energy, rather than fossil fuels.[52]

It is also important to note that the CPUC found West Biofuels' carbon intensity values for the denied project to be unsatisfactory because they were for a separate and unrelated facility.[53] Similarly, there was no evidence that a Life Cycle Assessment (LCA) was performed to determine a CI score for that project.[54]

(3) West Biofuels' assumptions regarding CCS are flawed and unsupported.

West Biofuels vaguely states that its project will have a CCS component (i.e., "potential carbon sequestration of separated CO_2 stream"[55]) but provides virtually no other information. Adding a CCS component would be a major endeavor in terms of permitting, construction, costs and new risks that are now acknowledged in the application. Not only would CCS equipment and

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[49] Mackey, B.G. et al., Burning forest biomass is not an effective climate mitigation response and conflicts with biodiversity adaptation, 4 Climate Resilience and Sustainability e70015 (2025), https://doi.org/10.1002/cli2.70015.
[50] Booth, Mary S. Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy, 13 Env't Rsch. Letters 035001 (2018), https://doi.org/10.1088/1748-9326/aaac88; Sterman, John et al., Does wood bioenergy help or harm the climate?, 78 Bulletin of the Atomic Scientists 128 (2022), https://doi.org/10.1080/00963402.2022.2062933.
[51] Laganiere, Jerome et al., Range and uncertainties in estimating delays in greenhouse gas mitigation potential of forest bioenergy sourced from Canadian forests, 9 GCB Bioenergy 358 (2017), https://doi.org/10.1111/gcbb.12327.
[52] Mackey, B.G. et al., Burning forest biomass is not an effective climate mitigation response and conflicts with biodiversity adaptation, 4 Climate Resilience and Sustainability e70015 (2025), https://doi.org/10.1002/cli2.70015.
[53] CPUC Decision at 16.
[54] *Id.* at 15.
[55] West Biofuels EPIC 5 Application at 5.

a CCS power source need to be added to the facility, compressed CO_2 would need to be transported at high pressure across the state in new CO_2 pipelines and injected underground.

West Biofuels claims that putting CCS equipment on the biomass gasification facility will make methane and hydrogen production "carbon negative," meaning it will lead to a net removal of CO_2 from the atmosphere.[56] This is incorrect on several levels. Because methane and hydrogen production from biomass is not "carbon neutral," adding CCS will not make it "carbon negative."[57] CCS does not capture the extensive upstream emissions from bioenergy production. Further, as detailed below, CCS in practice has proven to be ineffective in capturing downstream emissions from smokestacks, has a high energy penalty, and risks leaks and blowouts.

In short, putting CCS equipment on this gasification facility would still lead to significant CO_2, CH4, and toxic air pollution emissions and add new health and safety risks, endangering communities and the climate.[58]

(i) <u>CCS has proven to be ineffective in capturing smokestack emissions</u>.

Real-world data demonstrates that CCS has proven to be ineffective and inefficient in practice, despite decades of development and billions of dollars of investment. BECCS/BiCRS proponents often assume an idealized 90% to 95% carbon capture rate at the smokestack for CCS projects. However, real-world data shows that CCS projects around the world are not meeting these carbon capture targets, often by large margins. According to one estimate, nearly 90% of proposed CCS capacity in the power sector has either failed during implementation or has otherwise been suspended early.[59] An example is the billion-dollar Petra Nova carbon capture facility in Texas which was shuttered after only 4 years. Though it promised a CO_2 capture rate of 90%, when factoring in emissions from the gas-fired combustion turbine used to power the facility, it substantially underperformed this benchmark.[60] In short, evidence shows that idealized carbon capture rates are not realistic and substantially underestimate the carbon emissions from CCS projects.

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[56] West Biofuels EPIC 5 Application at 4 ("If the pure CO2 stream produced from the process is sequestered, the CI score would be negative") and 5 ("RNG and green H2 ….have the potential to have negative CI scores delivering carbon sequestration during production.").
[57] A Statement by Scientists and Economists on BECCS from Forest Biomass (Feb. 26, 2021), https://www.biofuelwatch.org.uk/wp-content/uploads/BECCS-letter-by-scientists-and-economists-1.pdf. Booth, Mary, Once you see it, you can't unsee it: "negative emissions" from BECCS is a scam, Partnership for Policy Integrity (July 2025), https://www.pfpi.net/2025/07/once-you-see-it-you-cant-unsee-it-negative-emissions-from-beccs-is-a-scam/.
[58] Center for Biological Diversity, Carbon Capture and Storage is a False Solution for the Climate and Our Communities (2022), https://biologicaldiversity.org/campaigns/carbon-capture-and-storage/pdfs/CCS-explainer.pdf.
[59] IEEFA, The carbon capture crux: Lessons learned (Sept. 2022), https://ieefa.org/resources/carbon-capture-crux-lessons-learned.
[60] Mattei, S. and Schlissel, D. The ill-fated Petra Nova CCS project: NRG Energy throws in the towel, IEEFA (October 5, 2022), https://ieefa.org/resources/ill-fated-petra-nova-ccs-project-nrg-energy-throws-towel; IEEFA, The carbon capture crux: Lessons learned (Sept. 2022), https://ieefa.org/resources/carbon-capture-crux-lessons-learned.

(ii) CCS has a high energy penalty.

Studies show that when the lifecycle greenhouse gas emissions of CCS projects are taken into account, the purported climate benefits of CCS evaporate.[61] For one, CCS operations are very energy-intensive given the high energy requirements needed to separate, compress, transport, and inject CO_2—typically requiring at least 15-25% more energy, which results in increased greenhouse gas and air pollution emissions.[62] Analysis from the Institute for Energy Economics and Financial Analysis found that the energy required to capture, transport, and inject carbon underground "materially reduces its net benefit."[63] A lifecycle analysis of the Petra Nova CCS project found that "the [CCS] equipment captured the equivalent of only 10-11% of the emissions they produced, averaged over 20 years."[64]

(iii) CCS risks leaks and blowouts from pipelines and underground storage.

There is also the risk that captured CO_2 transported via pipeline, rail, or truck, and then stored underground, will leak back to the atmosphere. CO_2 pipelines have a history of rupturing which not only releases captured CO_2 to the atmosphere but poses serious public health and safety risks.[65] In 2020, for example, residents of rural Satartia, Mississippi experienced a CO_2 pipeline rupture that resulted in more than 300 residents being evacuated and 46 hospitalized, with victims found gasping for breath, nauseated, foaming at the mouth, and rendered unconscious.[66] Months later, residents continued to suffer from mental fogginess, lung

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[61] Jacobson, M.Z., The health and climate impacts of carbon capture and direct air capture, 12 Energy Environ Sci 3567 (2019), https://web.stanford.edu/group/efmh/jacobson/Articles/Others/19-CCS-DAC.pdf; Howarth, R.W. & M.Z. Jacobson, How green is blue hydrogen? 9 Energy Science & Engineering 1676 (2021), https://doi.org/10.1002/ese3.956; Grubert, E. & F. Sawyer, US power sector carbon capture and storage under the Inflation Reduction Act could be costly with limited or negative abatement potential, 3 Environmental Research: Infrastructure and Sustainability 015008 (2023), https://iopscience.iop.org/article/10.1088/2634-4505/acbed9; Jacobson, M.Z. et al., Energy, health, and climate costs of carbon-capture and direct-air-capture versus 100%-wind-water-solar climate policies in 149 countries, 59 Environ Sci Technol 3034 (2025), https://pubs.acs.org/doi/10.1021/acs.est.4c10686.

[62] Climate Action Network International, Position: Carbon Capture, Storage, and Utilisation (January 2021), https://climatenetwork.org/resource/can-position-carbon-capture-storage-and-utilisation/; IEEFA, The carbon capture crux: Lessons learned (Sept. 2022), https://ieefa.org/resources/carbon-capture-crux-lessons-learned.

[63] Clark Butler, IEEFA, "Carbon Capture and Storage Is About Reputation, Not Economics" at 4 (2020), https://ieefa.org/wp-content/uploads/2020/07/CCS-Is-About-Reputation-Not-Economics_July-2020.pdf.

[64] Jacobson, M.Z, The health and climate impacts of carbon capture and direct air capture, 12 Energy Environ Sci 3567 (2019).

[65] Pipeline Safety Trust, Regulatory and Knowledge Gaps in the Safe Transportation of Carbon Dioxide by Pipeline (2022), https://pstrust.org/wp-content/uploads/2022/10/CO2-Regulatory-and-Knowledge-Gaps-1.pdf; Dan Zegert, Huffington Post, "The Gassing of Satartia" (Aug. 2021), https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f; Sarah Fowler, 'Foaming at the mouth': First responders describe scene after pipeline rupture, gas leak, The Clarion-Ledger (February 27, 2020), https://www.clarionledger.com/story/news/local/2020/02/27/yazoo-county-pipe-rupture-co-2-gas-leak-first-responders-rescues/4871726002/.

[66] Dan Zegert, Huffington Post, "The Gassing of Satartia" (Aug. 2021), https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.

dysfunction, chronic fatigue, and stomach disorders.[67] Such risks are unwarranted for the sake of an unsafe and unproven technology. Carbon capture projects similarly have a history of leakage. For instance, an ethanol CCS project in Decatur, Illinois, run by the Archer Daniels Midland agribusiness company, was found to be leaking because of the monitoring wells' corrosion-prone steel lining.[68] This is on top of the project already proving to be inefficient, only storing half the emissions the company projected,[69] amounting to a mere 10-12% of the facility's annual emissions.[70]

In sum, West Biofuels fails to advance EPIC Strategic Goal #4 and instead would increase GHG emissions and add new climate, health and safety harms from CCS. The project cannot credibly be considered aligned with California's net-zero carbon objectives, and CEC should deny EPIC funding.

D. West Biofuels Fails EPIC Strategic Goal #5

The fifth EPIC strategic goal that West Biofuels incorrectly claims it will advance is Climate Adaptation. Per the EPIC guidelines, this goal is advanced through increasing grid resiliency and stability, particularly for adaptability of and impacts on Environmental and Social Justice (ESJ) and Tribal communities during severe weather events, including preventing and mitigating the effects of wildfires, floods, and other climate-driven events; hardening the grid and improving resiliency especially in the most remote grid edge locations; reducing the number of customers experiencing long-duration outages; and reducing the duration of these outages, by addressing identified gaps for this goal.[71]

West Biofuels states that the proposed project will reduce wildfire risk through biomass removal; protect utility infrastructure; promote rural development; and reduce "greenhouse gas emissions, particularly methane from decomposing biomass, thereby slowing climate change and easing long-term adaptation pressures."[72] These claims are unfounded and are not backed by current research.

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[67] Dan Zegert, Huffington Post, "The Gassing of Satartia" (Aug. 2021), https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.
[68] Annie Snider & Ben Lefebvre, E&E News, "Carbon storage projects hit a hurdle: Corroding steel" (Oct. 2024), https://subscriber.politicopro.com/article/eenews/2024/10/09/carbon-storage-projects-hit-a-hurdle-corroding-steel-ee-00182889.
[69] Jonathan Hettinger, Investigate Midwest, "Despite hundreds of millions in tax dollars, ADM's carbon capture program still hasn't met promised goals (Nov. 2020), https://investigatemidwest.org/2020/11/19/despite-hundreds-of-millions-in-tax-dollars-adms-carbon-capture-program-still-hasnt-met-promised-goals/.
[70] Brendan Gibbons, Oil & Gas Watch, "In Illinois, a massive taxpayer-funded carbon capture project fails to capture about 90 percent of plant's emissions (Apr. 2024), https://news.oilandgaswatch.org/post/in-illinois-a-massive-taxpayer-funded-carbon-capture-project-fails-to-capture-about-90-percent-of-plants-emissions.
[71] D.24-03-007, Cal. Pub. Utils. Comm'n (Mar. 7, 2024). (Note that this citation is to the CPUC rulemaking because the CPUC authorizes and funds the EPIC program, but the CEC administers and oversees the program.)
[72] West Biofuels EPIC 5 Application at 6.

(1) The Project will not reduce wildfire risk.

West Biofuels' Project will not reduce wildfire risk by removing biomass, as claimed. Studies show that forest thinning projects do not stop fires or reduce the amount of area burned.[73] Forest thinning can even increase fire intensity and rate of spread by creating hotter, drier, windier conditions and introducing invasive fire-prone grasses.[74] One comprehensive study covering three decades and 1,500 fires in the western US, including California, found that forests with the most protection from logging/thinning burned with the lowest intensities.[75] Instead, the amount of forest area burned is primarily influenced by weather and climate and has little relationship to the amount of forest area thinned. [76] Regardless of thinning, forests are burning in extreme fire weather conditions—periods of high temperatures, low humidity, and strong winds—which are becoming more prevalent due to anthropogenic climate change. Climate change has been identified as the primary driver of the increases in area burned, extreme fire weather, and community wildfire destruction in California in recent decades.[77]

The most effective way to protect communities from wildfires is to reduce the ignitability of structures themselves through proven "home hardening" retrofits paired with vegetation trimming within 60 to 100 feet of homes and other structures—not logging/thinning forests.[78]

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[73] Schoennagel, Tania et al., Adapt to more wildfire in western North American forests as climate changes, 114 PNAS 4582 (2017), https://doi.org/10.1073/pnas.1617464114; Law, Beverly E. at al., Creating strategic reserves to protect forest carbon and reduce biodiversity losses in the United States, 11 Land 721 (2022), https://doi.org/10.3390/land11050721.

[74] Lesmeister, D.B., et al., Mixed-severity wildfire and habitat of an old-forest obligate, 10 Ecosphere Article e02696 (2019), https://doi.org/10.1002/ecs2.2696; Lesmeister, D.B., et al., Northern spotted owl nesting forests as fire refugia: a 30-year synthesis of large wildfires, 17 Fire Ecology Article 32 (2021), https://doi.org/10.1186/s42408-021-00118-z; DellaSala, D, et al., Have Western USA fire suppression and megafire active management approaches become a contemporary Sisyphus? 268 Biological Conservation 109499 (2022), https://doi.org/10.1016/j.biocon.2022.109499

[75] Bradley, C.M. et al., Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States?, 7 Ecosphere e01492 (2016), https://doi.org/10.1002/ecs2.1492

[76] Schoennagel, Tania et al., Adapt to more wildfire in western North American forests as climate changes, 114 PNAS 4582 (2017); Law, Beverly E. at al., Creating strategic reserves to protect forest carbon and reduce biodiversity losses in the United States, 11 Land 721 (2022), https://doi.org/10.3390/land11050721; Reilly, M.J., et al., Cascadia Burning: The historic, but not historically unprecedented, 2020 wildfires in the Pacific Northwest, USA, 13 Ecosphere e4070 (2022), https://doi.org/10.1002/ecs2.4070

[77] Abatzoglou, J.T. and Williams, A.P., Impact of anthropogenic climate change on wildfire across western US forests, 113 Proceedings of the National Academy of Sciences 11770 (2016), https://doi.org/10.1073/pnas.1607171113; Williams, A., et al., Observed impacts of anthropogenic climate change on wildfire in California, 7 Earth's Future 892 (2019), https://doi.org/10.1029/2019EF001210; Goss, M. et al., Climate change is increasing the likelihood of extreme autumn wildfire conditions across California, 5 Environmental Research Letters 1094016 (2020), https://doi.org/10.1088/1748-9326/ab83a7; Zhuang, Y. et al., Quantifying contributions of anthropogenic forcings on increased fire weather risk over the western United States, 118 PNAS e2111875118 (2021), https://doi.org/10.1073/pnas.2111875118; Hawkins, L.R. et al., Anthropogenic influence on recent severe autumn fire weather in the west coast of the United States, 49 Geophysical Research Letters e2021GL095496 (2022), https://doi.org/10.1029/2021GL095496; Turco, M. et al., Anthropogenic climate change impacts exacerbate summer forest fires in California, 120 PNAS e2213815120 (2023), https://doi.org/10.1073/pnas.2213815120.

[78] Cohen, J.D., Preventing disaster: home ignitability in the Wildland-Urban Interface, 98 Journal of Forestry 15 (2000); Cohen, J.D. and R.D. Stratton, Home destruction examination: Grass Valley Fire, U.S. Forest Service

California-focused studies have found that vegetation management beyond 100 feet from homes and other structures provide *no additional benefit* for protecting those structures from burning.[79] A 2023 study co-authored by U.S. Forest Service scientists concluded that "[t]he best way to make existing wildfire-vulnerable developments ignition resistant is to work within the limited area of the 'home ignition zone'—a home and its surroundings within 100 feet (which may include neighboring homes)."[80] The scientists emphasized that addressing the community wildfire destruction crisis will require changing from a "focus on the wildlands to one centered on the structure and its immediate surroundings," highlighting that the current approach "primarily directed toward fuel treatments in natural areas" is ineffective and insufficient.

(2) The Project does not demonstrate that it will reduce greenhouse gas emissions.

West Biofuel claims that it will reduce GHG emissions, including "methane from decomposing biomass" thereby "slowing climate change and easing long-term adaptation pressures are equally."[81] This claim, too, is unfounded.

First, as demonstrated above, the project carries a substantial risk of increasing GHG emissions, directly undermining California's climate adaptation and decarbonization efforts.

Second, regarding "methane from decomposing biomass," the most beneficial management practice for forest biomass residues from thinning is leaving them in the forest to maintain soil organic carbon, retain vital nutrients in the ecosystem, and create wildlife habitat.[82] Forest materials can be broken down into large pieces and scattered in a way that maintains their contact with the forest floor, often called "lop and scatter," or masticated or chipped into smaller pieces and scattered, which does not appear to increase wildfire intensity.[83] When forest residues

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Technical Paper R5-TP-026b (2008); Gibbons, P. et al., Land management practices associated with house loss in wildfires, 7 PLoS ONE e29212 (2012); Scott, J.H. et al., Examining alternative fuel management strategies and the relative contribution of National Forest System land to wildfire risk to adjacent homes – A pilot assessment on the Sierra National Forest, California, USA, 362 Forest Ecology and Management 29 (2016); Knapp, E. et al., Housing arrangement and vegetation factors associated with single-family home survival in the 2018 Camp Fire, 17 Fire Ecology (2021); Calkin, David E. et al., Wildland-urban fire disasters aren't actually a wildfire problem, 120 PNAS e2315797120 (2023).

[79] Syphard, A.D. et al., The role of defensible space for residential structure protection during wildfires, 23 International Journal of Wildland Fire 1165 (2014), https://doi.org/10.1071/WF13158.

[80] Calkin, David E. et al., Wildland-urban fire disasters aren't actually a wildfire problem, 120 PNAS e2315797120 (2023), https://doi.org/10.1073/pnas.2315797120.

[81] West Biofuels EPIC 5 Application at 7.

[82] Walmsley, J.D. et al., Whole tree harvesting can reduce second rotation forest productivity, 257 Forest Ecology and Management 1104 (2009); Buccholz, Thomas et al., Mineral soil carbon fluxes in forests and implications for carbon balance assessments, 6 GCB Bioenergy 305 (2014); Achat, David et al., Forest soil carbon is threatened by intensive biomass harvesting, 5 Scientific Reports 15991 (2015), https://www.nature.com/articles/srep15991; Achat, David et al., Quantifying consequences of removing harvesting residues on forest soils and tree growth – A meta-analysis, 348 Forest Ecology Management 124 (2015).

[83] Jesse K. Kreye et. al., Fire behavior in masticated fuels: a review, 314 Forest Ecology and Mgmt. 193 (2014), http://dx.doi.org/10.1016/j.foreco.2013.11.035; Jacobson, Kyle W. & Christopher A. Dicus, Effects of lop and scatter slash treatment on potential fire behavior and soil erosion following a selection harvest in a coast redwood forest,

are scattered across the forest floor, without creating deep layers or piles of material, they are unlikely to produce methane emissions, in contrast to the significant methane emissions that are released by the log landings and wood chip piles that would be part of West Biofuels' Project.[84]

Third, research shows that thinning does not reduce wildfire emissions. Instead, broad-scale thinning for wildfire management leads to more carbon emissions than it prevents from being released in a wildfire, and results in a net increase of carbon emissions to the atmosphere and net decrease in forest carbon storage.[85] This is primarily because the carbon loss from forest thinning followed by wildfire is greater than the carbon loss from wildfire in un-thinned stands, when cumulative tree mortality is accounted for. In other words, thinning kills more trees than it prevents from being killed in wildfires.[86] In contrast to thinning, wildfire consumes a small percentage of forest carbon while improving availability of key nutrients and stimulating rapid forest regeneration. Research from California shows that even very severe fires combust less than 2% of living tree biomass on average.[87] Most of what is combusted is small material such as needles, twigs and small branches. In short, logging/thinning is the largest cause of carbon loss from California forests—rather than wildfire.[88]

Natural Resources Management (2006), https://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1041&context=nrm_fac.

[84] Research indicates that methane emissions from wood chip piles at biomass facilities can be large enough to significantly add to the overall GHG impact of bioenergy production. See, *e.g.,* Wihersaari, M., Evaluation of greenhouse gas emission risks from storage of wood residue, 28 Biomass and Bioenergy 444 (2005); Whittaker, C. et al., Dry matter losses and methane emissions during wood chip storage: the impacts on full life cycle greenhouse gas savings of short rotation coppice willow for heat, 9 Bioenergy Research 820 (2016); Vantellingen, J. & S.C. Thomas, Log landings are methane emissions hotspots in managed forests, 51 Canadian Journal of Forest Research 1916 (2021).

[85] Mitchell, S.R. et al., Forest fuel reduction alters fire severity and long-term carbon storage in three Pacific Northwest ecosystems, 19 Ecological Applications 643 (2009); Campbell, J.L. et al., Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? 10 Frontiers in Ecology and Environment 83 (2012); Bartowitz, Kristina J. et al., Forest carbon emission sources are not equal: putting fire, harvest, and fossil fuel emissions in context, 5 Frontiers in Forests and Global Change 867112 (2022), https://doi.org/10.3389/ffgc.2022.867112; Law, Beverly E. at al., Creating strategic reserves to protect forest carbon and reduce biodiversity losses in the United States, 11 Land 721 (2022), https://doi.org/10.3390/land11050721.

[86] Hanson, Chad, Cumulative severity of thinned and unthinned forests in a large California wildfire, 11 Land 373 (2022); Baker, B.C. and C.T. Hanson, Cumulative tree mortality from commercial thinning and a large wildfire in the Sierra Nevada, California, 11 Land 995 (2022).

[87] Harmon, M.E. et al., Combustion of aboveground wood from live trees in mega-fires, CA, USA, 13 Forests 391 (2022).

[88] Depro, B.M., et al., Public land, timber harvests, and climate mitigation: Quantifying carbon sequestration potential on U.S. public timberlands, 255 Forest Ecology and Management 1122 (2008); Harris, N.L. et al., Attribution of net carbon change by disturbance type across forest lands of the conterminous United States, 11 Carbon Balance and Management 24 (2016)); Law, B.E. et al., Land use strategies to mitigate climate change in carbon dense temperate forests, 115 Proceedings of the National Academy of Sciences of the United States of America 3663 (2018); Erb, Karl-Heinz et al., Unexpectedly large impact of forest management and grazing on global vegetation biomass, 553 Nature 73 (2018); Hudiburg, Tara W. et al., Meeting GHG reduction targets requires accounting for all forest sector emissions, 14 Environmental Research Letters 095005 (2019); Peng, Liqing et al., The carbon costs of global wood harvests, 620 Nature 110 (2023), https://doi.org/10.1038/s41586-023-06187-1.

(3) Claims that the project will protect utility infrastructure and promote rural development are unsupported.

There is no evidence to show the Project will reduce wildfire risk and thereby protect utility infrastructure from fire. The Project application does not show how it will promote rural development. Instead, new research shows that investing in home hardening is an effective way to promote rural development, while protecting homes and lives.[89]

(4) The Project may worsen outcomes for environmental justice or Tribal communities.

Types of projects like what West Biofuels is proposing stand to worsen outcomes for vulnerable communities. Biomass gasification produces a wide array of health-harming co-pollutants including fine particulate matter, NOx, SOx, the carcinogen benzene, toluene and xylenes (BTEX), tars and soot, and persistent organic pollutants such as polycyclic aromatic hydrocarbons (PAHs) (e.g., naphthalene).[90] Fine particulate matter (PM 2.5) can penetrate deeply into the lungs, even enter the bloodstream, and cause serious health problems. The formation of liquid tar is an inherent problem in biomass gasification. Tar contains toxic substances such as benzene, toluene, and naphthalene, while tar build-up also lowers energy efficiency, interrupts continuous operation, and increases maintenance costs of gasification processes.[91] Methods to clean tar from equipment would create large amounts of toxic wastewater, with resulting environmental and community harms.[92] Proposals to produce energy from woody biomass frequently target environmental justice communities already overburdened with pollution, and risk harming the health of these communities.

In sum, West Biofuels does not advance EPIC Strategic Goal #5 and, in fact, it undermines its core purpose. The project's claims of wildfire prevention, grid protection, and climate adaptation are not supported by data or current research, and instead all evidence points

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[89] Earth Economics, California's Home Hardening Economy: Investing in a Resilient Future (2025), https://www.eartheconomics.org/news/californias-home-hardening-economy.

[90] Partnership for Policy Integrity, Air pollution from biomass energy, https://www.pfpi.net/air-pollution-2/; Liu, Wu-Jun et al., Fates of chemical elements in biomass during its pyrolysis, 117 Chemical Reviews 6367 (2017), https://pubs.acs.org/doi/10.1021/acs.chemrev.6b00647; Yao, Zhiyi et al., Particulate emissions from the gasification and pyrolysis of biomass: Concentration, size distributions, respiratory deposition-based control measure evaluation, 242 Envtl. Pollution 1108 (2018), https://doi.org/10.1016/j.envpol.2018.07.126; Saxe, Jennie Perey et al., Just or bust? Energy justice and the impacts of siting solar pyrolysis biochar production facilities, 58 Energy Research & Social Sci. 101259 (2019) https://doi.org/10.1016/j.erss.2019.101259; Pang, Yoong Xin et al., Analysis of environmental impacts and energy derivation potential of biomass pyrolysis via piper diagram, 154 J. of Analytical and Applied Pyrolysis 104995 (2021), https://doi.org/10.1016/j.jaap.2020.104995; Li, Simeng, Reviewing Air Pollutants Generated during the Pyrolysis of Solid Waste for Biofuel and Biochar Production: Toward Cleaner Production Practices, 16 Sustainability 1169 (2024), https://doi.org/10.3390/su16031169.

[91] He, Quing et al., Soot formation during biomass gasification: A critical review, 139 Renewable and Sustainable Energy Reviews 110710 (2021), https://doi.org/10.1016/j.rser.2021.110710.

[92] Luo, Xiang et al., "Biomass gasification: an overview of technological barriers and socio-environmental impact" in Gasification for Low-Grade Feedstock 1-15 (2018), https://www.intechopen.com/chapters/59423.

to increased climate and health harms. By failing to demonstrate measurable benefits to resiliency or adaptation, the project stands in direct conflict with the objectives it purports to serve. Accordingly, the CEC should deny EPIC funding and reject West Biofuels' unsupported claims of advancing climate adaptation.

E. While West Biofuels Has Received EPIC Funding Before, the CEC's Goals Have Changed and this Project is Distinct in Ways that Disqualify It from Funding

While West Biofuels received EPIC funding in 2018 for its Mariposa Biomass project,[93] this past funding should not tip the scales in favor of funding West Biofuels again. Since 2018, the CEC's EPIC goals and its focus on justice have advanced, meaning that close scrutiny and application of these new metrics on the current West Biofuels project should eliminate the project from CEC's consideration.

For one, the current Strategic Goals are from March 2024.[94] In 2018, the goals were broadly stated to include only "societal benefits" and GHG "mitigation and adaptation."[95] Under the current (and more precise) goals, as explained above, West Biofuels' proposal before the CEC fails.

It is also notable that the Mariposa facility funded in 2018 is a small-scale biomass gasification project to turn trees into *electricity*, whereas the proposed new gasification project would turn woody biomass into methane and hydrogen with CCS (i.e., producing *no* electricity). As explained earlier in this comment, EPIC funds cannot support such a project.

Finally, the CEC's work to improve outcomes in overburdened communities and advance justice has advanced since 2018. The CEC's Energy Equity Indicators (EEI) includes, for example, "health" as part of the community resilience goals.[96] While the West Biofuels EPIC 5 application does not disclose the proposed project's location, other West Biofuels facilities are located in areas flagged under CalEnviroScreen as having high cumulative impacts and vulnerabilities (including the Mariposa site).[97] While that may not have been a factor in the 2018

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[93] CEC, Mariposa Biomass Project, https://www.energizeinnovation.fund/projects/mariposa-biomass-project#tab-contact ("This project is designing and constructing a thermal oil biomass-to-energy conversion facility for forest wood waste that will have a capacity of 3 MW annually and produce between 15,000 to 18,500 MWh annually of renewable, community-scale, grid-connected electricity.").
[94] CPUC, Decision Adopting Strategic Goals for the Electric Program Investment Charge Program, Rulemaking 19-10-005, D.24-03-007 (Mar. 7, 2024).
[95] CPUC, Order Instituting Rulemaking, R. 19-10-005 at 4 (Oct. 18, 2019), https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M318/K028/318028919.PDF (describing the history of the EPIC program).
[96] CEC, EEI Story Map, https://caenergy.maps.arcgis.com/apps/MapJournal/index.html?appid=d081a369a0044d77ba8e80d2ff671c93 ("Local energy resilience includes energy reliability, energy affordability, health, and safety.").
[97] Cal. OEHHA, CalEnviroScreen 4.0, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40. Results for the West Biofuels Mariposa location (Census Tract: 6043000101) indicate, for example, a cumulative impacts score of 56 and poverty rate of 74. The West Biofuels Yolo County location (Census Tract: 6113011206) has a cumulative impacts score of 55 and pollution burden score of 68.

EPIC decision on the Mariposa project, CEC cannot put EPIC funding towards projects that stand to worsen health outcomes and place dangerous infrastructure (e.g., CCS) in already-burdened areas.

III. CONCLUSION

The CEC should deny West Biofuels' request for EPIC funding. As noted, for one, the CPUC already found that a similar application to support a West Biofuels project failed to demonstrate climate benefits, and the record shows it would instead increase harmful emissions. Second, this project is primarily a gas-producing project (i.e., not electricity) that is not compatible with the EPIC program. Moreover, the project likely does not advance EPIC's Strategic Goals #4 or #5, as claimed, but undermines them by potentially increasing GHG emissions, relying on unsupported wildfire prevention claims, and locking California into greater reliance on polluting fuels. Allocating public funds to this proposal would directly contradict EPIC's mandate to promote clean, sustainable, and equitable energy solutions that benefit ratepayers.

The CEC should therefore reject this application and prioritize investment in projects that truly and demonstrably advance California's climate and public health objectives.

Thank you.

Dr. Shaye Wolf, Ph.D.
Climate Science Director
Center for Biological Diversity, Climate Law Institute
2100 Franklin St., Suite 375
Oakland, CA 94612
tel: (415) 385-5746
swolf@biologicaldiversity.org