The Climate Reality Project
SILICON VALLEY CHAPTER

March 14, 2026

Independent Market Emissions Advisory Committee
California Environmental Protection Agency
1001 I Street
Sacramento, CA 95814

Subject: Comments on the draft 2025 IEMAC Annual Report[1]

To the members of the Independent Emissions Advisory Committee:

Following are my comments and criticisms of the draft annual report, highlighting some significant misstatements and omissions (and a couple of minor clerical/formatting errors). I previously submitted my February 8 ISOR comment letter as a public comment for the IEMAC's February 11 meeting, and my second, March 8 ISOR comment letter[2] quotes Katelyn, Danny, and Meredith and provides some background for my comments herewith.

My comments are organized under the following topic headings corresponding to draft report chapters:

- Environmental Ambition & Integrity
- Cost Containment
- Industrial Competitiveness and Leakage Risk
- Revenue

I do not expect that the IEMAC will be able to address all of the noted concerns and deficiencies in its final report, but I will bring unresolved matters to the attention of CARB and the JLCCCP. Thank you for your attention.

Ken Johnson
Legislation and Policy Committee
Climate Reality Project: Silicon Valley Chapter

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[1] https://calepa.ca.gov/2025-iemac-annual-report/

[2] https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid377/did200184/pid_213315/assets/merged/d00qi5tg298_document.pdf

Comments on "Environmental Ambition & Integrity" (Katelyn Roedner Sutter and Brian Holt)

This chapter proposes an alternative to CARB's allowance budgets, which Katelyn (representing EDF) previously presented in EDF's comment letter[3] for the last Cap-and-Invest Workshop and in her recent testimony to the JLCCCP[4]:

> ... One option to better align the Cap-and-Invest Program ambition with the state's climate targets, as commissioned by the Environmental Defense Fund and modeled by Greenline Insights, is to modestly increase the number of allowances removed from annual budgets pre-2031. (page 6)

"Modestly" does not connote "ambitious." CARB is unlikely to act on this recommendation, other than to perhaps make a token and inconsequential reduction in its allowance budgets. The chapter's "Allowance Budgets" section states that EDF's proposed additional allowance removal "is designed, based on the modeling structure and assumptions, to avoid hitting any price containment points …" (much less the price ceiling), even under the "Higher Ambition scenario." (See Figure 7 on page 7.) But the "Emissions Cap & Price Ceiling" section then goes through five pages of contingency options in the event that allowance prices reach the ceiling. If even Katelyn does not have confidence in Greenline Insights' model projections, neither will CARB.

EDF's proposal is necessarily biased toward "modesty" for the reason (stated on page 7) that "... projecting carbon price responses to potential market design decisions is an uncertain task. ... it is difficult to confidently express a view about likely future market prices" (notwithstanding Greenline Insights' attempt to do just that). But there is no need to rely on such projections. Policy ambition can be increased without risking increased likelihood of traversing the APCR price threshold by simply raising the price floor to a level within the APCR-1 limit.

A higher price floor would not need to be biased toward "modesty" or cost-conservatism to accommodate predictive uncertainty. So why doesn't the IEMAC advise the JLCCCP and CARB of this obvious and straightforward alternative?

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[3] October 29, 2025 Cap-and-Invest Workshop comment letter from NRDC https://ww2.arb.ca.gov/form/public-comments/submissions/54521

[4] February 23, 2026 JLCCCP hearing recording @1:33:12, https://www.assembly.ca.gov/media/joint-legislative-committee-climate-change-policies-20260223

The draft report doesn't say, but Katelyn provided me an explanation in personal correspondence[5]:

> ... I don't disagree that there is value in looking at a higher price floor ... but we didn't ask GLI to model a higher price floor because we were studying the size of allowance budgets. ... a higher price floor hasn't received any traction at CARB or in the Legislature and is a hard sell when all the policy-makers are focused on affordability. …

This rationale is expressly political and not policy-grounded. The IEMAC is merely telling CARB and the JLCCCP what EDF thinks they want to hear.

EDF's notion of "affordability" in this context is disconnected from any comprehension of tangible consumer impacts. By my estimate (as detailed in my March 8 ISOR comment letter), a price floor increase from $28 to $36 (in 2026) would cover near-term GGRF funding requirements, and the additional GGRF subsidy resulting from this change would, at most, amount to a 0.08 ¢/kWh increase in retail electricity rates and a 3.6 ¢/gal increase in gasoline prices. At allowance prices above $36, there would be zero impact.

At much higher allowance prices, the economic burden on consumers from carbon pricing would be far greater, but Katelyn does not consider the current price ceiling ($103) to be "a hard sell when all the policy-makers are focused on affordability." The "Emissions Cap & Price Ceiling" section assumes that the price ceiling will remain in effect, although HSC §38562(c)(2)(A)(iii)[6] makes it clear that the price ceiling is non-binding. CARB can reduce the price ceiling at will based on political perceptions of "affordability."

Comments on "Cost Containment" (Joe Nation and Katelyn Roedner Sutter)

This chapter's introductory paragraph says "Much of the focus is on the role of cap and trade (now called cap and invest) as the most cost-effective approach to incentivizing emissions reductions." (page 25) Footnote 3 elaborates: "California's cap-and-trade program is designed to be cost effective and delivers greenhouse gas reductions more affordably than other climate and energy policies . See Clean and Prosperous California (2025) Fact Sheet on California's Cap-and-Invest Program for a summary of the academic literature." The footnote is missing a url link to the Fact Sheet: https://www.cleanprosperousca.org/factsheet. (Suggestion: Remove the utm_source extension in the web links in footnotes 5, 7, and 10.)

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[5] 2/26/2026 email from Katelyn to Ken Johnson

[6] AB 1207, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202520260AB1207

It is not clear which of the cited references in the Fact Sheet, if any, support the stated assertion. The footnote should cite an original source. (Meredith Fowlie or Dallas Burtraw could perhaps recommend an appropriate reference.)

CARB and the Legislature have made similar assertions about the cost-effectiveness of cap-and-trade, without evidence or attribution. Last year I submitted a Public Records Act request to CARB for "records and information supporting Rajinder Sahota's representation to the legislature in the February 26, 2025 JLCCCP hearing that 'a cap-and-trade program is more cost-effective, four to six times more cost-effective than those other options of a carbon tax or prescriptive regulations.'" The responsive documents provided by CARB[7] did not provide evidentiary support for CARB's statement.

The academic literature on this topic probably has ambiguous applicability to California's Cap-and-Invest program, which is a hybrid amalgamation of emission caps and tax-like price controls (the floor, ceiling, APCR), which isn't exclusively emissions- or price-regulated.

A seminal reference on this topic is Weitzman's 1974 paper "Prices vs. Quantities," which found that when marginal cost curves are steeper than marginal benefit curves, price mechanisms (taxes) are more efficient; but if marginal benefits are steeper than marginal costs, then quantity mechanisms (caps) are better.[8] If "marginal benefits" are construed to mean the Social Cost of Carbon (e.g., around $200/ton-$CO_2$[9]), then caps might be preferred, but in practice nobody is willing to pay carbon prices at the SCC level. Affordability and "consumer protection" take precedence over all other policy objectives. Price regulation has the advantage of providing more direct control over costs and affordability.

The section "Implement Emissions Containment Reserve (ECR)" (page 27) argues against implementing an ECR, reversing the IEMAC's advocacy in favor of an ECR (or a higher price floor) in the 2024 report.[10] There is some ambiguity in this section. The text says an ECR "reduces allowance supply ... raising near-term prices," but footnote 9

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[7] CARB supplied the following documents in response to the PRA request:
- A copy of a web page dated June 11, 2018" and titled "Cap-and-Trade benefits all Californians"
- The 2022 Scoping Plan with Appendices
- CARB's PowerPoint presentation from the February 26 JLCCCP hearing
- An Excel spreadsheet dated Nov 14, 2022 and titled "CARB Scoping Plan Model Outputs"
[PRA request #080-022825, submitted February 28, 2025]

[8] https://en.wikipedia.org/wiki/Martin_Weitzman

[9] https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf#page=10

[10] IEMAC 2024 Annual Report, pages 43 and 45
https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC-final.pdf#page=43

says “an ECR does not necessarily result in higher prices.” The footnote notes the similarity of an ECR with the price floor, but it is unclear on their distinction.

The ECR described by Dallas Burtraw in the 2024 report, applied in 2026, would withhold 10% of the available allowance from sale below $47, and after that 10% is sold, all remaining allowance would be sold at any price down to the current price floor of $28. By contrast, a higher price floor would strengthen environmental ambition by simply withholding all allowances from sale below $47.

The ECR section suggests that linkage with Washington precludes a California ECR. By implication, a higher price floor would also be precluded, but that is not true. Washington’s and California’s price ceilings will need to be harmonized, and the linkage terms should also require a common price floor consistent with joint program policy goals.

California and Washington should not link their programs unless the price floor is increased for the reason stated in the draft report on page 28: “California should link to a broader market only if partners have similar emissions targets, strong standards, similar co-benefit objectives, and governance provisions that provide for smooth exits while protecting the broader market.” The same condition should similarly apply to Washington.

There is an enormous disparity in the stringency of California’s and Washington’s programs as evidenced by allowance prices, which are currently selling at the floor ($28) in California and at $65 in Washington. California’s market is five times larger than Washington’s[11], so linkage could cause carbon prices in Washington to plummet, and Washington’s in-state emissions would increase as the net flow of compliance instruments is directed from Washington to California. The GGRF could get an influx of revenue, at the expense of Washington’s Climate Investment Account (CIA), which would lose much of its funding support due to the lower allowance price and revenue transfers to California.

A characteristic of linked carbon trading markets in which jurisdictional caps are determined by political will and ambition is that the jurisdiction with the weakest and least ambitious emission caps is rewarded with a positive revenue influx from trading and offsets as other jurisdictions effectively pay the laggard to increase its ambition, allowing the others to reduce their ambition. If California is serious about climate action, it would encourage Washington to invest its resources in reducing its own emissions

11 https://www.rff.org/publications/reports/considerations-for-washingtons-linkage-negotiations-with-california-and-quebec/

pursuant to the state's net-zero goal for 2050, and California would not rely on subsidization from Washington to incentivize in-state emissions reductions beyond minimal statutory requirements.

The environmental integrity of Washington's Cap-and-Invest program in a linked system would depend on California enforcing its GHG caps. But if California is unwilling to raise its price floor at least to a level sufficient to fully fund the GGRF, the state probably won't have the political will to enforce caps at significantly higher price levels. The markets have clearly signalled their lack of confidence in the state's ability to keep its climate commitments, and Washington would have no reason to put any more trust in the environmental integrity of California's program if California is unwilling to establish a joint price floor at least sufficient to finance the WCI partners' climate programs.

Comments on "Industrial Competitiveness and Leakage Risk" (Brian Holt and Meredith Fowlie)

The section "Mitigating leakage with output-based allowance allocations" (page 30) states that "Eligible EITE firms receive freely allocated GHG allowances based on past industrial output levels." It is important to note that this is not a "grandfathering" system based on historical output; the allocation is based on contemporary recent output, which is updated annually for each regulated entity.

The draft report perpetuates some misconceptions about the costs of output-based allocation. Quoting from the report,

> **Opportunity costs:** Allowances allocated for free to industrial entities could alternatively be sold at auction to raise GGRF revenues, used to offset utility bill impacts, or put to some other alternative use."
> "**Abatement costs:** Output-based incentives dilute the carbon price signal that is transmitted to industries that receive these free allocations. This shifts more of the GHG emissions abatement obligation onto producers who are ineligible for these subsidies. Output-based allowance allocations will, therefore, increase the abatement costs incurred in-state, putting upward pressure on GHG allowance prices.

Regarding opportunity costs, there are also opportunity costs of auctioned (not freely-allocated) allowances: Industries operating in competitive markets might be motivated to pass their cost savings from free allocation on to consumers. Or they might be incentivized by the carbon price to invest in emission-reduction technology and infrastructure. At high carbon prices, they would be highly motivated to do so, and the

free allocation would better enable them to respond to the price incentive. New market entrants with zero-emission technology could receive a substantial subsidy from their free allocation. These generic benefits are applicable irrespective of whether the industry is trade-exposed or whether leakage risk is a concern; this is not recognized in the conventional framing of free allocation as merely an EITE/leakage issue.

On the other hand, auctioned allocation could also benefit industry by pooling industry resources, e.g. via GGRF programs, to invest in long-term, foundational decarbonization technology development or infrastructure that no individual entity could tackle on their own. Industry resources could be focused on supporting start-ups commercializing zero-carbon technologies that require initial subsidization levels higher than market carbon prices. For industries that cannot be feasibly decarbonized, auction revenue could be used to subsidize low-carbon substitutes (e.g., EV alternatives to fossil fuels), or to balance emissions with carbon removal.

Free allocation or auctioning can both be used effectively, depending on the circumstances, but auctioning would be problematic at high allowance prices. For example, if allowance prices were to suddenly jump to $100 under current economic conditions, the annual GGRF revenue would increase to over $10 billion, far above the SB 840 budget requirement of a little over $4 billion. Could CARB use the $6 billion GGRF windfall more effectively than industry, which is motivated by a $100/ton-CO2 price incentive? CARB's "market-based compliance mechanism" should not impede the operation of the market or impose an unnecessary economic burden on industry by tying up surplus, unneeded auction revenue in GGRF accounts.

Regarding abatement costs and the statement that "Output-based incentives dilute the carbon price signal that is transmitted to industries that receive these free allocations.": This is a misconception that misses the whole point of making the allowance allocation "output-based."

In the cement industry, for example, a producer would get a free allocation worth some number of dollars for each ton of cement it produces, irrespective of whether it produces high-emission or low-emission cement. At the same time, it must surrender one allowance for each ton of CO2 that it generates from cement production, irrespective of any free allocation that it receives. If the carbon price is $100 per allowance, the producer will save $100 by reducing emissions by 1 ton regardless of how much free allocation the industry gets; the marginal incentive is $100/ton-CO2 with or without free allocation.

(This is strictly true only for producers with small market share. For a producer with large market share, the savings could be somewhat less than $100/ton-CO2 because its reduction in emissions intensity will materially affect the industry's overall average emissions intensity, resulting in an incremental reduction in the "benchmark" allocation rate; see Figure 1 on page 32. But the rate will be equally reduced for the producer's competitors, so the producer's economic competitiveness will not be impacted by the reduced benchmark. With output-based allocation, a monopolistic producer would be incentivized by the carbon price to reduce emissions as a strategy for preserving its monopoly.)

Even with 100% free allocation, producers with emission intensities higher than the benchmark (the industry-average emissions intensity) will incur significant regulatory costs because their need for allowances will exceed their free allocation. Those with lower-than-average emissions intensity (especially zero-C producers) will get a high net subsidy. The carbon price and free allocation, in combination, induce a net cross-subsidy from high-emission producers to low-emission producers.

Regarding the statement that "This shifts more of the GHG emissions abatement obligation onto producers who are ineligible for these subsidies.": The "abatement obligation" is the compliance obligation to surrender one allowance per ton-CO2, irrespective of whether allowances are auctioned or freely-allocated. The marginal incentive to reduce emissions is the same with or without free allocation, but industries that do not receive free allocation would have fewer capital resources to invest in decarbonization. Their continued dependence on emission allowances would tend to maintain high allowance demand and high prices, to the detriment of all market participants. Free allocation would enable industry to invest more in decarbonization, which could reduce allowance demand and lower market prices for all participants.

GGRF costs should not be conflated with "abatement costs," which they are not. GGRF allocations could nevertheless be more effective than industry allocations in the near term, while allowance prices are low and industry has little incentive to invest in decarbonization, because the GGRF can focus resources on early-stage technology and infrastructure developments that will set the stage for commercial deployment of zero-carbon technologies at scale as allowance budgets tighten and allowance prices rise. But hoarding excess auction revenue in GGRF accounts at high allowance prices will impede industries' ability to invest in those commercial deployments.

Comments on "Revenue" (Danny Cullenward and Joe Nation)

The draft report says "For the purpose of reporting GGRF revenues, the ISOR assumes that auction settlement prices will be halfway between the price floor and Tier 1 of the allowance price containment reserve." (page 43) This refers to CARB's "Price Assumption" for the Proposed Amendments in ISOR Table 21. (Footnote 36 refers to "Table 1" – that should be Table 21.)

I estimate that an allowance price of $36 would suffice to cover SB 840 near-term budgetary appropriations, and that a $47 price (the current Price Assumption level) would provide a $1.3 billion GGRF surplus over SB 840 requirements. (See my March 8 ISOR comment letter for details.) Helen Kerstein (LAO) gave me a "quick back-of-the-envelope calc" of the SB 840 allowance price requirement, which was similarly well below the $47 level. (LAO could provide a more refined estimate at the Legislature's request.) However, the ISOR Table 15 shows projected GGRF revenue of only $4.0 billion in 2027, which seems to be inconsistent with a Price Assumption of $47 in 2026 ($50 in 2027).

The first of three "Findings and recommendations" on page 43 notes, as a finding, that the IEMAC's ability to project auction revenue for the GGRF is impeded by "the limited technical information made available in the Initial Statement of Reasons." The report should perhaps affirmatively recommend, in the Public Interest, that CARB make more complete information available to the Legislature, IEMAC, LAO, and stakeholders. (I have a pending PRA request with CARB for "records and information pertaining to the calculations underlying Table 15 and Table 21 in the January 20, 2026 Cap-and-Invest ISOR," and will forward to the IEMAC any useful information that CARB provides.)

The report should perhaps also recommend that the Legislature ask CARB and LAO to estimate the allowance price requirement for near-term SB 840 budget allocations. The Legislature should also reconcile long-term SB 840 budget allocations with state decarbonization goals and statutes, which aim to eliminate the GHG emissions upon which those allocations depend.

The LAO Report 5096 ("... November 2025 Auction Update …")[12] makes it clear that current auction prices are insufficient to cover near-term GGRF requirements. The obvious and straightforward resolution to the revenue shortfall is to establish a price floor consistent with SB 840 budgetary allocations.

[12] https://lao.ca.gov/Publications/Report/5096

Danny Cullenward was quoted in a recent Politico article[13] as saying “There's no question in my mind that we should be thinking about a higher price floor,” and that the current price floor has “completely controlled the outcome of this program for most of its history.” But the draft report says nothing about a higher price floor.

The IEMAC's primary legislatively assigned task (under HSC §38591.2(c)[14]) is to report to CARB and the JLCCCP on the environmental and economic performance of Cap-and-Invest. The price floor is clearly paramount to the program’s environmental and economic performance, and is currently the primary determinant of revenues for GGRF funding. So why will Danny not tell CARB and the JLCCCP what he told Politico?

A supermajority of the Legislature passed SB 840 with the expectation and intent that CARB would be collecting and spending GGRF funds at a level consistent with SB 840 allocations. Although the Legislature is uninformed of the essential role that the price floor has played in stabilizing allowance markets and sustaining GGRF funding, the SB 840 statute’s clear legislative intent necessitates a price floor sufficient to cover SB 840 budget allocations within limits of cost affordability.

If CARB and the Legislature cannot find the political will to even raise the price floor above its current anemic level, then it is unlikely that they will stay committed to the state’s long-term decarbonization goals. The allowance markets have clearly communicated their lack of confidence in the state’s commitment, and the draft IEMAC report does not seek to change the status quo.

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[13] https://subscriber.politicopro.com/article/eenews/2026/02/27/dismal-california-carbon-auction-sparks-call-for-higher-permit-prices-00802744

[14] AB 398 https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB398