

January 27, 2025

To: California Air Resources Board

From: Muriel Strand, P.E.

Re: Comments on future regulations pursuant to SB253 & SB261

In Section A, I have inserted my comments specifically pertaining to the questions posed by staff.
My comments are in a sans-serif font.

In Section B, I share various more general and contextual information that is not necessarily directly related to these regulations but which is related to the larger situation of fossil fuel addiction and the various associated risks.

In Section C, readers can find various resources.

Section A: Specific Comments

General: Applicability

1. SB 253 and 261 both require an entity that “does business in California” to provide specified information to CARB. This terminology is not defined in the statutes.

a. Should CARB adopt the interpretation of “doing business in California” found in the Revenue and Tax Code section 23101?

No, entities subject to reporting should not be limited to those with simple financial business goals, but any entity which participates in accounted transactions that increase GHG emissions should be subject to regulations pursuant to SB253 & SB261.

b. Should federal and state government entities that generate revenue be included in the definition of a “business entity” that “does business in California?”

c. Should SB 253 and 261 cover entities that are owned in part or wholly owned by a foreign government?

d. Should entities that sell energy, or other goods and services, into California through a separate market, like the energy imbalance market or extended day ahead market, be covered?

Entities whose accounted transactions increase GHG emissions and pertain to the California economy should be covered.

2. What are your recommendations on a cost-effective manner to identify all businesses covered by the laws (i.e., that exceed the annual revenue thresholds in the statutes and do business in California)?

a. For private companies, what databases or datasets should CARB rely on to identify reporting entities? What is the frequency by which these data are updated and how is it verified?

Business licenses, corporate articles of incorporation, emissions inventories, chambers of commerce, members of trade associations, the Panama papers...

b. In what way(s) should CARB track parent/subsidiary relationships to assure companies doing business in California that report under a parent are clearly identified and included in any reporting requirements?

**Require reporting entities to list all parent companies, subsidiaries, and subcontractors.
Should help to avoid double-counting**

General: Standards in Regulation

3. CARB is tasked with implementing both SB 253 and SB 261 in ways that would rely on protocols or standards published by external and potentially non-governmental entities.

a. How do we ensure that CARB's regulations address California-specific needs and are also kept current and stay in alignment with standards incorporated into the statute as these external standards and protocols evolve?

Ask Research Division to identify qualitative and quantitative parameters for specifying robust protocols/standards/baselines. Other departments can track their evolution, and consult with appropriate staff and the public on any proposed changes.

b. How could CARB ensure reporting under the laws minimizes a duplication of effort for entities that are required to report GHG emissions or financial risk under other mandatory programs and under SB 253 or 261 reporting requirements?

Identify the goal/s of existing mandatory programs and evaluate their alignment with the goals of SB 253 and SB 261; differing goals may lead to inconsistencies that make some additional effort unavoidable but point the way to aligning incentives.

Consider and analyze the possibility that a product chain-of-custody structure may offer more efficient data assembly and reporting.

Consider and analyze which situations are appropriate for single-product reporting and which for multiple-product (such as cases or pallets or tons) reporting.

c. To the extent the standards and protocols incorporated into the statute provide flexibility in reporting methods, should reporting entities be required to pick a specific reporting method and consistently use it year-to-year?

Yes. Provide entities with good information on available methods and on what might work best for their industry and size. Include opportunities to switch to better methods when created, with a year or 2 of parallel reporting for better data validity.

General: Data Reporting

4. To inform CARB's regulatory processes, are there any public datasets that identify the costs for voluntary reporting already being submitted by companies? What factors affect the cost or anticipated cost for entities to comply with either legislation? What data should CARB rely on when assessing the fiscal impacts of either regulation?

The costs would arise from reorganizing the data, so much would depend on the specifics.

Would such specifics be consistent within specific industries? Have any previous voluntary reporting efforts led to reliable reports or peer-reviewed papers describing such projects?

CARB analysis of individual GHG emitting processes, and information about related activity factors and emissions factors, would lower costs for reporting entities. Audited and detailed versions of operating statements should provide good data for assessing fiscal effects.

Information about the design and monitoring of manufacturing and business processes, as well as their variation over time, would offer direct and indirect insight into the costs of compliance. It's likely that internal analysis pursuant to reporting would tend to identify opportunities to save energy and/or money which would in turn tend to reduce expenses and offset reporting costs.

5. Should the state require reporting directly to CARB or contract out to an “emissions” and/or “climate” reporting organization?

Entities should report directly to a government agency. CARB could coordinate with air districts on this.

6. If contracting out for reporting services, are there non-profits or private companies that already provide these services?

SB 253: Climate Corporate Data Accountability Act

7. Entities must measure and report their emissions of greenhouse gases in conformance with the GHG Protocol,¹ which allows for flexibility in some areas (i.e. boundary setting, apportioning emissions in multiple ownerships, GHGs subject to reporting, reporting by sector vs business unit, or others).

Are there specific aspects of scopes 1, 2, or 3 reporting that CARB should consider standardizing?

Yes. Different definitions of processes included in scopes were found on the websites of USEPA, MIT, and McKinsey; specifically, ambiguity of the locations of emissions, and of the sources of Scope 2 emissions. Everybody should be on the same page.

Scope 3 does appear to be a sticky wicket. USEPA suggests using average emissions factors as a function of expenses, of “dollar spent.” This is a very bad idea. Activity factors and GHG emissions factors should be given in terms of individual GHG per unit of product or service. Emissions factors should be in terms of units of physics and/or chemistry. Monetary measures suffer from inflation, market fluctuations, etc., which sabotage both repeatability and trends analysis.

McKinsey staff estimate that Scope 3 emissions can comprise 90% of an entity’s total emissions, depending on their specific operation/s. The nature and proportion of upstream and downstream Scope 3 emissions can be expected to also vary by SCC code.

8. SB 253 requires that reporting entities obtain “assurance providers.” An assurance provider is required to be third-party, independent, and have significant experience in measuring, analyzing, reporting, or attesting in accordance with professional standards and applicable legal and regulatory requirements.

a. For entities required to report under SB 253, what options exist for third-party verification or assurance for scope 3 emissions?

Reconciliation & cross-checks

Spot-checks between estimates made by a candidate assurance provider and a known and reliable existing assurance provider offer some validation.

Demonstrated ability to perform specified calibrations, and other key measurements in the field and in reports.

“Significant experience” should include knowledge of SCC codes and their correlation with actual emitting processes to be reported.

b. For purposes of implementing SB 253, what standards should be used to define limited assurance and reasonable level of assurance? Should the existing definition for “reasonable assurance” in MRR

[“a high degree of confidence that submitted data and statements are valid.”] be utilized, and if not why?

A ‘high degree of confidence’ should be directly related to measurable indicators that correlate with reliable accuracy and precision of emissions estimates.

9. How should voluntary emissions reporting inform CARB’s approach to implementing SB253 requirements? For those parties currently reporting scopes 1 and 2 emissions on a voluntary basis:

c. What frequency (annual or other) and time period (1 year or more) are currently used for reporting?

d. When are data available from the prior year to support reporting?

e. What software systems are commonly used for voluntary reporting?

e2. What were the motivations for voluntary emissions reporting? What notable technical challenges were encountered and resolved in the development of such reports? Were the results satisfactory in terms of cost, awareness, and transparency? What expenses were associated with such reporting?

SB 261: Climate Related Financial Risk Disclosure

10. For SB 261, if the data needed to develop each biennial report are the prior year’s data, what is the appropriate timeframe within a reporting year to ensure data are available, reporting is complete, and the necessary assurance review is completed?

Four months for each phase, structure the work flow for as much parallel (of the 3 phases) processing as possible, and leave time to write a report to the Board.

11. Should CARB require a standardized reporting year (i.e., 2027, 2029, 2031, etc.), or allow for reporting any time in a two-year period (2026-2027, 2028-2029, etc.)?

Ask the statisticians

12. SB 261 requires entities to prepare a climate-related financial risk report biennially.

What, if any, disclosures should be required by an entity that qualifies as a reporting entity (because it exceeds the revenue threshold) for the first time during the two years before a reporting year?

What disclosures do insurance companies require? Lenders? The SEC? Swiss Re?

Disclosures should be sufficient to assess the nature of their main types of climate-related financial risk with respect to parameters of catastrophe such as duration, intensity, likelihood at a specific place and time, and possible synergies.

13. Many entities that are potentially subject to reporting requirements under SB 261 are already providing other types of climate financial risk disclosures.

f. What other types of existing climate financial risk disclosures are entities already preparing?

g. For covered entities that already report climate related financial risk, what approaches do entities use?

h. In what areas, if any, is current reporting typically different than the guidance provided by the Final Report of Recommendations of the Task Force on Climate-related Financial Disclosures?

i. If not consistent with the Final Report of Recommendations of the Task Force on Climate-related Financial Disclosures [<https://www.fsb-tcfd.org/recommendations/>], are there other laws, regulations, or listing requirements issued by any regulated exchange, national government, or other governmental entity that is guiding the development of these reports?

Section B: General Comments

ESG

Environmental, social, and governance indicators seem likely to play a constructive role in meeting the goals of SB253 and SB261. However, it appears that current labels are both diverse and theoretically flawed. Standardization and transparency would help everyone, and all three elements should have their own independent calculation. Since there are trade-offs among these principles of investing, smushing them together obscures more than it clarifies. (I recall that when I worked in emissions inventory, nobody seemed to know the actual algorithm or calculation that USEPA used for its overall air quality indicator. I found this disturbing.)

Financial Risk Assessment & Management

Climate-related financial risk arises from market turbulence due to natural disasters, market bubbles, etc. A book called “Goliath’s Curse,” which will be released mid-July, can be expected to offer useful perspective on such risks. Financial risk will also arise from various economic distortions caused by the problematic relationships between money—M1, M2, M3, Mx (*Mx = money hidden in offshore trust accounts and similar.)—and the causes (primarily due to fossil fuels) of climate change and chaos.

Risks have been analyzed based on various key factors.

- likelihood per unit time
- type of hazard (fire/smoke, flood, storm, sea level rise, drought, earthquake, tsunami, nuclear war)
- duration
- intensity/concentration
- preparedness
- wishful thinking & intellectual conformity

Supply chain risk seems high. When basic essentials are not locally available, market chaos ensues. Shrinking supply chains in length and volume is easier and cheaper than electrifying them, and will reduce more emissions if organized properly. **Rebuilding risk** correlates with people’s inclination to rebuild as things were. In addition to staying in harm’s way, rebuilding anything newer than a century or so is probably a cheap-energy product.

USEPA identifies two types of risk: from the **transition to renewables** and from increasingly **chaotic weather**. With respect to the former, more people need to understand the near-certainty that we will not be able to graft our fossil fuel lifestyles onto PV, windmills, and batteries. Wisdom bids us go back to the drawing board and design the simplest way to meet people’s basic physical needs: clean air and water, healthy food, cooking, comfy shelter, and plenty of sleep and exercise. In Chapter 11 of his recent book, “The Last Drop,” Tim Smedley describes various prehistoric and ancient water management constructions that are relatively simple and durable due to pre-fossil-fuel energy constraints. A more global if simplified analysis of a maximally efficient post-transition future can be found in the paper, “Is It True That ‘Small Is Beautiful’?”

While negawatts and reductions in indirect emissions are harder to measure than watts and direct emissions, they are much cheaper if not free. Perhaps the Rocky Mountain Institute has some ideas about this. This is related to the dilemma that it's very difficult to measure precisely the degree of ecological regeneration of a given acreage, even though regeneration is arguably the best outcome.

Systemic changes like these have not been on the agenda of insurance corporations, who insure individuals and specific aspects of corporations, rather than neighborhoods, cities, or market sectors. Management of systemic risks has barely begun, and all stakeholders, especially insurance companies and the reinsurers, should start thinking about systemic strategies.

In his deeply researched book, "Climate—A New Story," Charles Eisenstein describes the many serious ecological degradations due to not only GHG emissions but also the many ecologically harmful ways we have used fossil fuels. Many of these harms are sadly associated with increased GDP. These degradations are a source of risk.

Outmoded paradigms are another source of risk. For at least a century, most economists have been suffering from 'physics envy,' which has led them to an inaccurate degree of reliance on mathematical equations, and to the delusion that money is the independent variable. Unlike qualitative goods and services, monetary costs and prices are simple numbers that lend themselves to math. This is related to the misinterpretation of GDP as the reliable measure of economic health, and of all GDP growth as necessarily good.

For example, a few years ago, one of the instructors for one of California's two basic real estate classes told students, point blank, that in real estate the 'highest and best use' of any piece of property is defined as whatever makes the most money. This is not the perspective needed to solve homelessness or farmer bankruptcies.

Two books which describe the problematic evolution of property rights are: "The Code of Capital: How the Law Creates Wealth and Inequality," by Columbia law professor Katharina Pistor, and "Seeing Like a State: How Certain Schemes To Improve the Human Condition Have Failed," by James C. Scott.

Triple-pricing is a creative, consumer-oriented form of carbon pricing which I invented during CARB's recent scoping plan process. Triple-pricing means that all goods and services at the retail level would be labeled with embedded kwhr and embedded GHG emissions, as well as dollars.

Consumers are now mostly unaware of the energy and climate implications of their daily shopping. Triple-pricing would recalibrate their cheap-fossil-fuel habits, and their intuitive understanding of their energy use in their daily lives. While more people in recent decades have come to realize how very much cheaper fossil energy is than human energy, few citizens in the US notice how much our lifestyles are saturated with energy use, much of it unnecessary and thus inefficient.

When I shared with him my idea about triple-pricing, CARB retiree Earl Withycombe agreed with me that entities already have all the information needed to calculate these prices; only rearrangement

is needed. Triple-pricing could substantially fulfill the goals of SB253 and SB261, as these labels would include granular information about the energy and emissions associated with consumer decision-making. The information they would provide is basically what would be included in the reports called for in the legislation.

Recently, a family member asked ChatGPT about my triple-pricing idea. The result was rather amazing and useful, and is included at the end of Section C. Notably, the result contains a buffet of ways to implement the triple-pricing idea, and the general tone is one of proactive and cooperative attitudes among all stakeholders.

This grassroots consumer information via expanded pricing will facilitate the kind of market signals that can lead to widespread and substantial changes such as sustained increases in energy conservation and reductions in GHG emissions, much greater than would be achieved by carbon pricing that directly affects only producers.

In micro-economics at CSUS, I learned that consumer values determine market prices rather than the reverse. Providing consumers with convenient and targeted information about energy and emissions has the potential to affect their values and adjust their choices in ways that would really move the market. Supporting consumers in internalizing this kind of information in the context of regular shopping will tend to reduce the environmental externalities which are major market failures.

Field-testing the triple-pricing concept, with several hundred consumer items that are both frequent purchases and associated with readily available data, would be a relatively modest proof of concept and of techniques.

Section C: Resources

The Last Drop: Solving the World's Water Crisis Ch 11 Simpler Solutions

Tim Smedley

<https://www.timsmedleywriter.com/book-2-the-last-drop/>

Is It True That ‘Small Is Beautiful’?

https://www.researchgate.net/publication/333581837_Is_it_true_that_'Small_Is_Beautiful'

Goliath's Curse: The History and Future of Societal Collapse, by Luke Kemp (July 2025)

<https://www.penguinrandomhouse.com/books/691357/goliaths-curse-by-luke-kemp/>

https://www.youtube.com/watch?v=8E_x4Xe5Eak

Centre for the Study of Existential Risk

<https://www.cser.ac.uk/team/luke-kemp/>

Climate—A New Story, by Charles Eisenstein

<https://charleseisenstein.org/books/climate-a-new-story/>

The Code of Capital: How the Law Creates Wealth and Inequality

Columbia law professor Katharina Pistor's history of property and enclosure of various kinds of property as private capital assets brings to readers a unique and unifying perspective on economics and markets since the first enclosures of medieval commons.

English and then US common-law tenets and traditions proved particularly suited to this process, whereby ambitious lawyers steadily eroded various legal safeguards and cultural discomfort which were supposed to give public property and the public interest their due.

Recent enclosures include substantial portions of the internet, of health care, along with ongoing enclosures of housing. Pistor doesn't focus on what's externalized, such as the environment, the homeless, and the public good. So we should.

<https://press.princeton.edu/books/hardcover/9780691178974/the-code-of-capital>

Seeing Like a State: How Certain Schemes To Improve the Human Condition Have Failed

The late political science professor, James C. Scott, outlines the history of states and real estate, as the governments of city-states extended their reach into the rural and wild lands that surrounded them. Bureaucratic inventions such as land titles and surveying covered the landscape with legal titles and financial taxes.

Cultures which depended on crops such as grains which could be accumulated and stored were more vulnerable to theft or taxes levied by bandits or bureaucrats. Elsewhere, root crops and other food sources more difficult to 'liberate' protected rural villages from 'civilized' depredations. Yet the maps made by states in support of various governmental purposes inevitably simplified the real grassroots ecological and subsistence complexities whence resilience arises.

<https://yalebooks.yale.edu/book/9780300078152/seeing-like-a-state/>

ChatGPT Response re Triple-Pricing

We suggested:

Recalibrate consumers to understand their effect of their choice with relation to climate impact.

Triple carbon pricing 1. imbedded kilowatt hours 2. embedded Green House Gas emissions 3.

Currency (\$) consumers.

ChatGPT responded: (emphasis added)

Recalibrating consumer behavior to recognize the climate impact of their choices through a **Triple Carbon Pricing Model** can be an effective strategy to bridge the gap between consumption and environmental responsibility. The model integrates three dimensions of carbon pricing to educate and influence consumer decisions:

1. Embedded Kilowatt Hours (kWh)

This metric quantifies the energy required to produce, transport, and dispose of a product or service.

Implementation:

- Energy Labels: Display the total embedded energy (kWh) on product packaging or during online purchases.

- **Sector-Specific Benchmarks:** Develop benchmarks for energy use in key industries, such as manufacturing, food, and technology.
- **Energy Efficiency Rewards:** Provide discounts or tax benefits for choosing energy-efficient products.

Consumer Impact:

- **Understanding Energy Footprint:** Encourages consumers to select products with lower energy inputs, promoting energy efficiency across the supply chain.
- **Behavioral Shift:** Drives demand for locally sourced goods, products made using renewable energy, and energy-saving devices.

2. Embedded Greenhouse Gas (GHG) Emissions

This metric represents the total CO₂ equivalent emissions across a product's lifecycle.

Implementation:

- **Carbon Score Labels:** Add standardized labels showing the carbon footprint (e.g., CO₂e per unit) of products.
- **GHG Surcharges:** Apply an emissions-based fee to high-carbon products, making environmentally friendly alternatives more competitive. option
- **Carbon Offset Integrations:** Offer consumers an option to offset emissions during checkout, with transparency on how the funds are used.

Consumer Impact:

- **Awareness of GHG Contributions:** Highlights the environmental cost of choices, fostering accountability.
- **Incentivizing Low-Carbon Goods:** Encourages market shifts toward sustainable practices and reduces demand for carbon-intensive products.

3. Currency (\$)

This dimension integrates the financial implications of carbon pricing into consumer decisions.

Implementation:

- **Triple Pricing Display:** Show product prices with a breakdown of embedded energy (kWh), GHG emissions (CO₂e), and monetary costs side by side.
- **Example:** Product A: \$10 (50 kWh, 30 kg CO₂e) vs. Product B: \$12 (20 kWh, 10 kg CO₂e).
- **Progressive Carbon Taxes:** Adjust product prices based on carbon intensity, increasing the cost of environmentally harmful goods.
- **Consumer Tax Credits:** Reward consumers who choose low-carbon options through rebates or credits.

Consumer Impact:

- **Cost Awareness:** By linking environmental impact directly to price, consumers are nudged toward sustainable choices.
- **Economic Equity:** Introduces subsidies or incentives to ensure affordability of low-carbon options for all income levels.

Implementation Strategy:

- **Education and Awareness Campaigns:**

- Partner with governments, NGOs, and companies to educate consumers on the embedded kWh, GHG, and cost of their choices.
- Use social media, apps, and retail displays to simplify complex data into digestible visuals.
- Standardization and Transparency:
 - Develop universally accepted standards for calculating and displaying kWh and GHG emissions.
 - Ensure transparency in carbon pricing mechanisms to build trust and engagement.
- Legislative Support:
 - Governments can mandate triple pricing disclosures and regulate carbon taxation.
 - Subsidize innovations that lower the embedded kWh and GHG of products.
- Corporate Adoption:
 - Collaborate with businesses to implement the triple pricing model in their supply chains and consumer-facing platforms.
 - Encourage industry leaders to act as role models by adopting the model voluntarily.
- Technology Integration:
 - Develop apps or online tools that allow consumers to compare products based on embedded kWh, GHG, and cost.
 - Introduce QR codes linking consumers to detailed product lifecycle analyses.

Expected Outcomes

- Empowered Consumers: People understand the real impact of their choices and make decisions aligned with climate goals.
 - Market Transformation: Shifts demand toward sustainable products, pressuring companies to innovate and reduce their carbon footprint.
 - Global Climate Progress: The cumulative effect of informed decisions helps nations meet international climate targets like the Paris Agreement.
- This model reframes consumer behavior as a powerful lever for driving systemic change in favor of sustainability.