Stefan Unnasch
1. 650.461.9048 Direct
unnasch@LifeCycleAssociates.com
884 Portola Road, Suite A11
Portola Valley, CA 94028 USA

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California Air Resources Board
1001 I Street
Sacramento, CA 95814
Rajinder Sahota
Deputy Executive Officer, Climate Change and Research

Dear Officer Sahota and CARB Staff,

Thank you for the opportunity to comment on the development of this important new regulation. Accounting for corporate GHG emissions is a significant step towards developing responsibility for corporate activities and their end use.

Life Cycle Associates is an internationally recognized leader in life cycle GHG modeling of fuels and materials. Most of our recognition comes in the form of public work for the LCFS. We also develop bespoke well to gate analyzes for chemicals and consumer products. Our subsidiary complyCI[1] provides software tools for SB 253 and LCFS compliance tracking. In developing these tools we have identified many reporting challenges and are able to provide significant insights on Scope 3 reporting and the underlying LCA data. We appreciate the opportunity to comment on CARB's questions regarding climate disclosure.

## 1. General Applicability

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.

The first choice of the scope of GHG reporting would correspond to the legislative intent, which may be unclear for entities located outside of California. As a California resident, I would consider the global Scope 1,2,3 emissions for an entity doing business in California to be largely irrelevant. Such a requirement would merely assure that the entity determines its Scope 1,2,3 emissions which are currently required by the SEC though this requirement may change. As most publicly traded companies report such emissions already, this requirement would not provide meaningful information and a requirement to report on global activities not related to California may results in legal challenges.

A more interesting metric would be the Scope 1, 2,3 activities for activities in California and for materials imported into the state. This would include of course include emissions reported under AB32 as well as emissions that fall under the AB32 threshold. Many financial and intellectual property service providers likely have emissions below the AB32 threshold and relatively simple tracking of utility consumption and activity-based energy use would enable their reporting.

Reporting should include Scope 3 emissions for imported materials to provide an incentive to take responsibility for our consumption.

[1] www.complyCI.com

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### 2. Cost Effective Tracking

California has many means at its disposal to track business activity. These include tax filings and sales tax receipts. Reporting on activities such as commodity and futures sales could also correspond to California business activity but these activities generate relatively low emissions. Illegal activities such as drug sales also generate significant Scope 3 emissions due to high levels of fertilizer application and complex transport logistics. Even though these activities are not routinely reported, they should not be excluded from SB 253 requirements.

Several questions regarding the boundaries of Scope 3. Emissions are also of interest. These include exports of products outside of California carbon offsets consistency with California reporting programs and flexibility within reporting.

### 3. Reporting Standards

Reporting standards will continue to evolve including the treatment of offsets, data requirements, verification of databases, etc. Given the vast variability in methods for assessing Scope 3 emissions and their evolution, CARB could follow the approach applied under the EU RED or CORSIA. Note that careful attention must be paid to the reginal specificity of upstream emissions or the entire exercise becomes pointless as discussed in the following Section.

Note the language for ISCC certification below[2]:

> 3. *Alternative values may be used but must be duly justified and flagged in the calculation documentation in order to facilitate verification by auditors. They can be based on Ecoinvent, or individually calculated or measured (e.g. LHV could be measured through laboratory analyses) as long as the methodology for the GHG calculation complies with the methodology set in the RED II and is verifiable during the audit or the supplier of the EF/LHV is ISCC/ISO certified.*
> *4.If not available, other scientifically peer-reviewed literature or official statistical data from government bodies can be used.*
> *All data gathered from databases or literature shall be based on the most recent available sources and shall be updated over time. The source and the date of data collection shall be documented. Emission factors chosen or calculated shall also reflect the specific situation and set-up, e.g. if a process-specific input was produced in Europe then the emission factor for this input shall also reflect the European situation. It is the responsibility of the CB to confirm that alternative sources can be used by the System User.*

### 4. Datasets

Leading datasets for GHG reporting include EcoInvent, GaBi, complyCI, and SimaPro while openLCA, AgriFootprint, GREET, CA_GREET, and others could provide Scope 3 data with some reporting modification. The datasets include very similar upstream life cycle emissions for the production of coal, natural gas, and petroleum with limited regional detail. Upstream life cycle inventory (LCI) data vary considerably depending on regional detail and allocation method. Consider a common example in the production of plastic packaging material and the product is

[2] https://www.iscc-system.org/certification/faq/where-can-up-to-date-emissions-factors-be-found/

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produced from ethylene. Leading LCA software might provide a dataset labeled, "Ethylene under Swiss Conditions, Global", which suggests that that value can be used if nothing else if available. Obviously, the Scope 3 emissions for plastic product are vastly different between plastic produced in the U.S. Gulf Coast (natural gas liquid steam crackers) or from China (Coal gasification). Clearly this level of detail should be picked up in the reporting. Many ESG software suites repackage the underlying datasets for use in corporate ESG reporting. These software packages help companies organize data but tend to not provide significant underlying data and may be vulnerable to regional incompatibility of Scope 3 data.

LCI datasets and calculation tools include some variability in the upstream emissions for basic inputs such as natural gas, diesel, electric power, and other energy carriers. These difference stem from:

- Limited data
- Variability in GWP factors
- Assessment of methane leaks
- Allocation between natural gas, gasoline, diesel, and other products
- Omission of Scope 3 emissions for both fuels and electric power

Ideally, the Global warming potential (GWP) should be aligned with that of other California programs or recognized as not being aligned. AB32 and the LCFS apply the AR4 GWP factors because CARB has not undergone a rulemaking to update these factors. Many corporate ESG reports use AR5 or AR6. The GWP of methane and $N_2O$ is often baked into the carbon intensity of emission factors and reports should identify this issue. Would CARB's acceptance of LCI data from other sources be a defacto acceptance of the AR5 GWP without a rulemaking?

Treatment of biogenic carbon most LCA models struggle with the treatment of biogenic carbon and often apply a true up factor to make sure that incoming biogenic uptake is balanced with processing emissions and carbon embodied in products and co-products. The treatment of biogenic carbon reporting should be addressed in the reporting requirements.

**5. Report to CARB or a Reporting Organization**

Report to CARB or the data will be so scrubbed to make it entirely useless.

**6. Contract reporting Services**

No. Fund CARB reporting with fees. Other reporting entities will have a conflict regarding methods, LCA data sources, or other key factors.

**7. Specifics of Scope 1,2,3**

There are many nuances to consider, and CARB should recognize some limitations and insist on consistency in key areas.

- Scope 1 Emission Factors and GWP
Some inconsistency is likely to slip in. In general Scope 1 emission factors from leading sources are reasonable and the GWP is often baked in. The treatment of CO and VOC emissions may be

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inconsistently applied. Entities with actual $CO_2$ data may not report fully oxidized CO and VOC while emission factors may have these pollutants embedded in the factor. This is a +/- 1% issue.

- Exclusion of electric power Scope 3 from GHG reporting.
This omission is unacceptable for large consumers of electric power such as data centers, bitcoin mines, and AI data processing centers. Upstream life cycle GHG emissions for electric power are 5 to 25% of the Scope 2 emissions.

-Exclusion of fuel production and refining[3] from Scope 3, Category 4 (upstream transport), Category 6 (business travel), Category 7 (employee commuting) and others from GHG reporting. The scope of fuel use is also a significant issue as EPA's own reporting system for different Scope 3 categories only include fuel combustion and not the upstream emissions for fuel production. The point of reporting Scope 3 emissions is to represent activity and emissions that corresponds to an organizations operations participating in business travel. This results in Scope 3 category for GHG emissions for jet fuel use but obviously also requires the production of crude oil and refining of crude oil.

These exclusions are apparently optional. The EPA guidance refers to the Emission Hub which includes only direct emissions. CARB could easily provide guidance on the inclusion of Scope 3 emissions for fuel use with emission factors that align with CARB's own calculations.
-Emission factors for California Fuels
While transportation fuels are subject to the LCFS, consumers of these fuels should not be required to report an artificial gasoline or diesel emission factor. CARB could easily provide emission factors that reflect the average values for gasoline, diesel, and jet fuel based on LCFS data. These emission factors should exclude avoided methane from renewable natural gas as these are essentially compliance offsets whereas the mix of transportation fuels has its own Scope 1 and 3 emissions that are readily calculated.

-Inclusion of materials of construction.
Scope 3 emissions for materials of construction are significant. Leading sources of material emissions include semiconductors, plastics, machinery, and instrumentation. CARB should determine which emissions should be counted. For example, solar panels delivered to California should count their Scope 3 emissions. What about materials delivered to California based on power purchase agreements from solar facilities outside of California? Should an average emission factor be applied to renewable energy or should the Scope 3 obligation only lie with the facility that is in California?

-Biogenic Uptake
Biogenic update is complicated due to inconsistency in its reporting and allocation. Many biomaterials have a negative GHG intensity when including biogenic uptake. What happens if a grocery store purchases carrots which include biogenic update and reports these emissions under SB 253? I buy the carrots and eat them and respire $CO_2$? My annual revenues do not meet the reporting threshold and developing a meaningful biogenic balance will be important in reporting.

[3] https://www.epa.gov/climateleadership/scope-3-inventory-guidance#calculation

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-Regional Detail
Regional detail, especially with regard to feedstock and electric power is essential. Many GHG reporting tools do not pick up on the nuances of materials of construction and CARB should set thresholds where regionally accurate data is required.

When ARB decides to require Scope 3. Reporting must however be done right. Some key issues with scope. 3. Reporting include regional detail and the inclusion of upstream emissions and the treatment of biogenic uptake as well as offsets. Inappropriate regional data is a significant challenge and LCA practitioners. The descriptions in LCA software may not align with users understanding of global supply chains. Obviously, plastic produced in China from coal has a much higher carbon intensity than polyethylene produced from ethylene under Swiss conditions.

**8. Verification**

For practical purposes, CARB should rely on the current ESG verification auditors as well as MRR qualified auditors. Additional CARB requirements could be incorporated into the requirements for verification statements.

**9. Voluntary Credits**

Many corporate entities deploy carbon offsets to reduce their GHG emissions. If these offsets are applied at a corporate level, their use may ideally be allocated to California activities. However, there is much more to be said about offsets first. Do the offsets report in reductions that are reflected in national inventories? If these offsets are not reflected in national inventories, this detail should be noted. Voluntary credits span the range of time horizons, verification, and legitimacy. CARB should require the reporting of:

-The type and vintage of credit
-Verification and registry if applicable or none
-If it is included in a national inventory

CARB should also acknowledge the use of voluntary credits especially for removals such as biochar and CCS. CARB should encourage entities using these credits to have them counted in state and national inventories and develop alignment among all GHG reporting programs in California.

Thank you for your consideration.

Best Regards,

Stefan Unnasch
Managing Director
Life Cycle Associates, LLC