

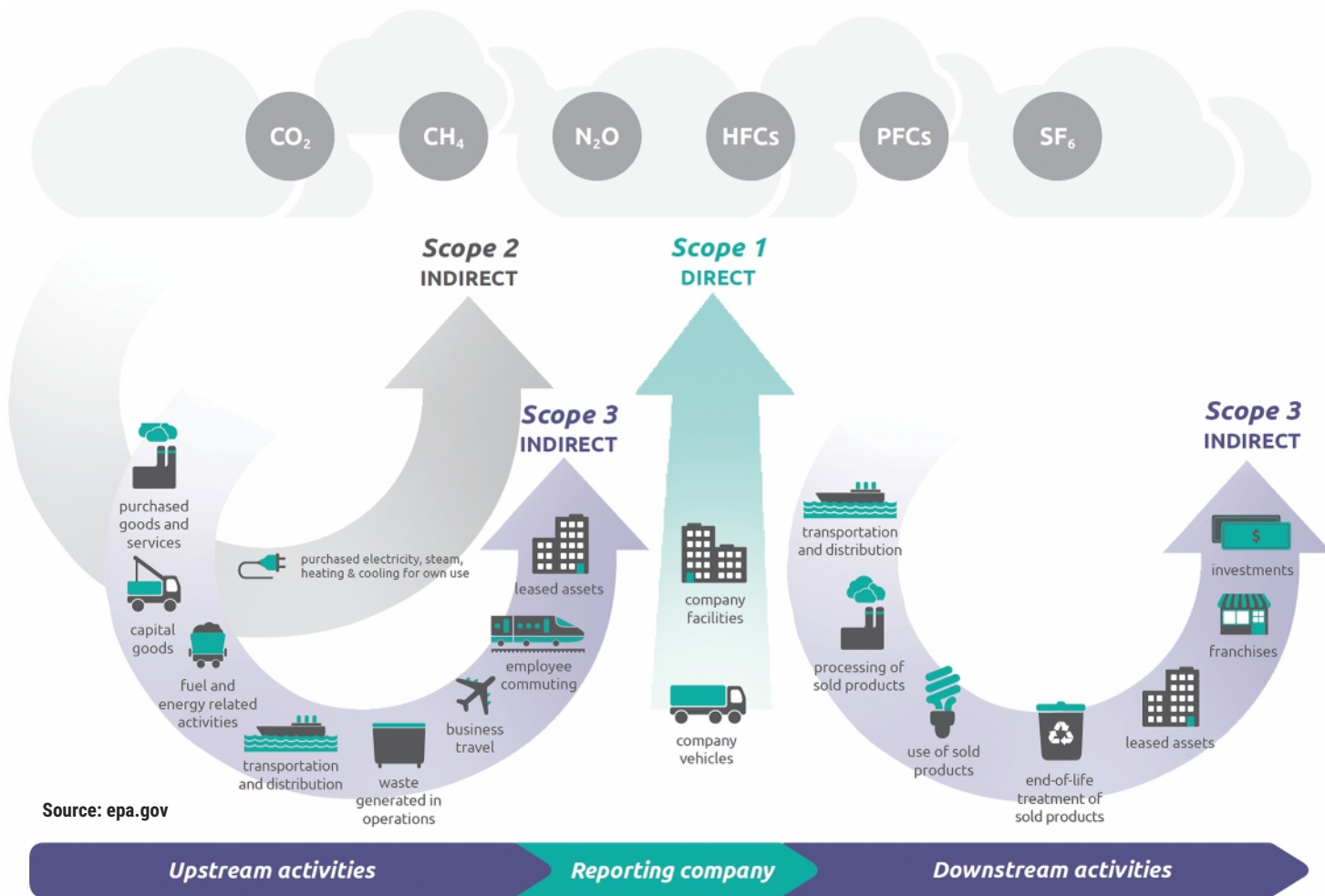
Should the Industry Care About Scope 3?

Civil engineering and construction companies are increasingly aware of the environmental impact and associated greenhouse gas (GHG) emissions linked to their daily operations and design decisions. Many have already taken significant steps to track and report emissions to better understand their impact on the global carbon footprint. Most generally align accounting practices with the Greenhouse Gas Protocol (GHG Protocol), which has become the most widely adopted international framework to measure and report GHG emissions. The GHG Protocol was developed by the World Resources Institute and the World Business Council for Sustainable

Development and categorizes emissions into three scopes. Scope 1 constitutes direct emissions caused by operating equipment and resources it controls and owns (e.g., fossil fuels to run machinery, vehicles, etc.). Scope 2 incorporates indirect emissions linked to purchased electricity, heat, or energy owned or operated by a third party, but influenced by the individual entity's usage. Scope 3 encompasses all other indirect emissions associated with entity operations. In other words, Scope 3 attempts to put a spotlight on the indirect emissions within an entity's entire value chain that allow the entity to operate and provide a service.

The Scope 3 Dilemma

Scope 1 and 2 emissions are considered relatively easy to track. For example, they could be readily determined based on fuel and energy consumption provided in the form of bills and receipts. Scope 1 and 2 emissions also may be simple to reduce by transitioning to an electric fleet, developing processes that are more efficient and relying on renewable energy sources to power facilities. However, Scope 3 emissions, which often represent a significant source of GHG emissions required for an entity to materially operate, are entangled in the operations and services provided by others and often difficult to track. To do so reliably, transparency is needed.



Source: epa.gov

Comparing GHG Reporting in the E.U. and U.S.

Several policy changes and new regulations concerning GHG emissions reporting were recently implemented. When evaluating these changes, it is worthwhile to consider the cascading and far-reaching effects of the new Scope 3 requirements.

The E.U.'s recent adoption of the Corporate Sustainability Reporting Directive (CSRD) in 2023 will require most companies falling under this directive to disclose Scope 1, 2 and 3 GHG emissions for FY2024 or FY2025. This directive initially applies to "large" companies and E.U. subsidiaries exceeding at least two of the following thresholds – 250 employees, net revenue of €50 million (\$54 million) or balance sheets totaling €25 million (\$27 million) – encompassing some civil engineering and construction firms. Regardless,

Scope 3 reporting obligations will require smaller companies to track GHG emissions and report them to the larger companies in their value chain.

Ultimately, the CSRD is expected to increase transparency to investors and stakeholders, who can use such reported GHG information to evaluate an entity's operational risks in anticipation of stricter climate regulations. While the CSRD does not explicitly mandate GHG reductions, companies also must disclose targets and strategies to reduce GHG emissions with credible transition plans that align with the E.U.'s Green Deal (net zero emissions by 2050). Reporting under this directive is not just a means to grow a "green" reputation that might appeal to consumers, but a substantive consideration for anyone evaluating a company's overall financial health. Aside from providing a measure of the underlying energy sources and costs

needed to operate, GHG emissions reporting will help expose regulatory and compliance risks (or opportunities) as climate-related policies evolve and demand more sustainable practices. Therefore, it will be likely to see companies seek opportunities to decrease emissions throughout their value chain (Scope 3) in order to be more attractive to investors and consumers. This will, in turn, place pressure to reduce GHG emissions on smaller private firms and others critical to a larger company's operations. Therefore, the CSRD strongly incentivizes companies, big and small, to compete and develop strategies that will substantially reduce GHG emissions. Those that do not may fall out of a value chain as better alternatives present themselves due to greater transparency resulting from the CSRD. Mandating emissions reductions, which is expected by many

in the E.U., will only heighten the value of those entities substantively decreasing GHG emissions relative to their competition.

The CSRD is also intended to have far-reaching effects beyond the E.U.'s borders. In FY2028, it will require non-E.U. parent companies exceeding €150 million (\$162 million) in annual E.U. revenue, with a branch or subsidiary defined as large or with €50 million (\$50 million) or more in revenue, to disclose non-E.U. parent information outside the E.U. Many U.S. construction and engineering companies, particularly those with E.U. subsidiaries or parent companies, are already conforming to E.U. reporting requirements and the GHG Protocol as a result.

In March, the Securities and Exchange Commission (SEC) released its climate-related disclosure rules (the "Final Rule"), which are currently under a temporary stay imposed by a federal appellate court pending judicial review. If upheld by the court, only the largest U.S. public companies would be required to report GHG emissions. The Final Rule would only require reporting of Scope 1 and 2 emissions material to a large public company's operations. Reporting of Scope 3 emissions was not mandated by the SEC after 24,000 comment letters were received following the release of the "Proposed Rule" in March 2022. The Proposed Rule would have required reporting of Scope 3 emissions. The SEC decision to exclude Scope 3 eliminates the obligation of companies to report emissions from others in their value chain, which, given the complexity of measuring Scope 3 emissions, reduces their reporting burdens in the short-term. In the long-term, however, an argument can be made that excluding Scope 3 reporting in the Final Rule has the potential to make U.S. companies, especially smaller private firms, less

competitive if regulations change in the future. Such companies may not have the infrastructure in place to track GHG emissions and may fall behind competitors. U.S. companies or foreign subsidiaries operating in the U.S., who fall under the CSRD, will likely be better prepared if regulations change and Scope 3 reporting in the U.S. becomes mandatory.

The U.S. is experimenting with policies that incentivize GHG accounting for all scopes at the state level. California passed the Climate Corporate Data Accountability Act (Senate Bill, SB 253) and the Climate-Related Financial Risk Act (Senate Bill, SB 261) in 2023. These laws are expected to be more encompassing than the SEC's Final Rule

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and intended to have impacts more closely aligned with the E.U.'s CSRD. SB 253 will require companies (public or private) operating in California with more than \$1 billion in annual revenue to report Scope 1, 2 and 3 emissions starting in 2027. SB 261 requires U.S. businesses with annual revenues exceeding \$500 million to report on climate-related financial risks and mitigation steps being taken starting in 2026. Together, the California laws are intended to provide transparency regarding GHG emissions and the risks that could impact an entity's financial well-being. Given that California's economy is the largest in the U.S., and by all measures one of the largest in the

world, its new laws will place downward pressure on smaller companies within larger entities' value chains to track and report GHG emissions well beyond California's borders, like the E.U.'s CSRD.

GHG Reporting in This Industry

The laws passed by California and the E.U. will make it challenging for geotechnical consultants and contractors operating internationally and across the U.S. to avoid some level of GHG emissions tracking. Larger entities dependent on these services and obligated to report will expect and require cooperation to stay compliant. Thus, it is evident that Scope 3 has cast a much wider net over this industry as it relates to GHG emissions reporting. Based on these trends, it is likely that state-level regulations similar to California's will expand across the U.S. and encompass more of the geotechnical engineering and contracting industry.

The list of civil engineering and construction companies with dedicated sustainability leads — those tasked with educating their workforce on the environmental and societal impacts associated with operations and seeking pathways to decrease GHG emissions — continues to increase. While in some cases this activity is voluntary, it also is largely motivated by the growing list of industry-relevant standards and regulatory reporting requirements meant to incentivize more sustainable business practices. GHG emissions are no longer a token concern within the construction industry and business practices are beginning to change as a result.

From this perspective, the most broadly applicable and increasingly relevant product stemming from technical committee activity dedicated to this readership is the "carbon calculator" tool developed by DFI and

the European Federation of Foundation Contractors (EFFC) in concert with Carbon 4. The EFFC/DFI Carbon Calculator is guided by the GHG Protocol and provides a tractable, sector-specific means to consistently analyze and compare the carbon footprint for projects in the foundation and ground improvement industries. The creation of the carbon calculator also further reflects that reporting GHG emissions associated with design are material to this industry. If emission reduction mandates follow, which many expect, it will stimulate this industry to also actively seek pathways to reduce GHG emissions to remain competitive within a value chain. However, what these regulations might look like and to what degree they will alter current practices is anyone's guess.

The EFFC/DFI Carbon Calculator can be downloaded at www.dfi.org/communities/effc-dfi-task-groups.

Industry Incentives to Reduce GHG Emissions

Moving forward, the carbon calculator tool will be useful to explore the carbon footprint associated with different foundation alternatives and to value engineer solutions that reduce costs and GHG emissions. While these practices are already largely undertaken, external pressure to report GHG emissions combined with the anticipated risk of stricter climate-related policies could motivate use of more sustainable low carbon solutions that require patient clients (e.g., reliance on preloading to stabilize foundation materials) or construction of lighter weight facilities (e.g., supported on aggregate piers and stone columns). However, it is not envisioned that the industry's current suite of deep foundation and deep stabilization methods used to support heavier loads, which rely on carbon heavy materials like steel and concrete, will become antiquated anytime soon. That said, it is important to recognize that by most estimates, steel and concrete production combined account



for approximately 14% of global carbon dioxide emissions. Thus, manufacturing and transport of these materials are one of the largest Scope 3 emissions attributed to this industry's value chain. In fact, Scope 3 often encompasses 60–90% and more of emissions linked to services rendered in the foundation and ground improvement industry by contractors and engineering consultants. Frameworks like the CSRD and legislation passed in California could help expose what entities are decreasing emissions (or not) as competitors will use GHG accounting to attract clients (even if not publicly) if they believe it provides a competitive advantage. This provides some motivation to reduce GHG emissions, but to what extent is unclear.

In many cases, these low carbon concretes have demonstrated comparable, if not better, performance.

There are additional incentives specific to the construction industry beginning to emerge in the U.S. that aim to promote greater visibility to the issue of material usage. In July, California enacted its new building code (CALGreen) to reduce emissions for new construction and renovations. For nonresidential structures greater than 100,000 sq ft (9,290 m²) or schools larger than 50,000 sq ft (4,645 m²) (housing and health care facilities exempt), a project must either (a) reuse 45% of an existing building structure and exterior,

(b) demonstrate a 10% reduction in embodied carbon compared to a “baseline” project through a whole building lifecycle assessment or (c) use “prescriptive” pathways by documenting environmental product declarations (EPDs) for low-carbon materials. Foundation reuse could be an obvious consideration for item (a). To demonstrate value for new construction, specialty contractors and geotechnical engineers may seek engagement and input earlier on in the conceptual phase of design for item (b). This can provide the opportunity to illustrate the impact of foundation alternatives on material use throughout an entire facility — which may require a heavy carbon foundation but reduce the overall carbon footprint of the built facility. There likely will be more hesitancy, at least initially, to adopt option (c). Carbon heavy materials have proved durable, reliable, and are readily available through existing supply chains and partnerships. Moreover, the alternatives are not readily used and widely available.

If ambitious carbon reduction goals are to be met, like those set by the E.U.'s Green Deal following the Paris Agreement, use of new materials likely will be required for new construction. For example, strides have been made to reduce embodied carbon in concrete by

incorporating supplemental cementitious materials in mix designs, but this is unlikely to be sufficient for the more ambitious reduction targets being discussed. Newer materials aiming to align with more ambitious emission reductions, like “carbon cured” concrete that relies on accelerated carbon mineralization to sequester carbon dioxide in a binder, likely will also need to be part of the solution. This was recently identified as one of the most promising pathways to reduce concrete GHG emissions in a report

released by the National Academies of Engineering, Science, and Medicine in 2024. Several technologies enabling this process for building materials are already being commercialized through startups. In many cases, these low carbon concretes have demonstrated comparable, if not better, performance.

While the carbon cured concrete example shows how climate policies are creating new markets, early adopters are always hard to come by. Lack of familiarity with new materials or processes increases risk and cost, thus presenting another barrier to entry. There have been initiatives taken to incentivize application of new materials. Pursuant to the Inflation Reduction Act (IRA), the Federal Highway Administration (FHWA) announced in March the availability of \$2 billion in grants to offset costs associated with application new

materials with “substantially lower” embodied carbon. According to the grants program, the goal is to use materials with embodied carbon levels in the 20th percentile when compared to similar products. By offsetting costs, the program is intended to encourage familiarity with new materials and processes. It is possible this initiative will give way to more widespread acceptance of some low carbon solutions, and maybe, provide a pathway for policy makers to demand greater use through legislation.

Scope 3 Synergies

In theory, tracking Scope 1 and 2 emissions across all entities in a value chain should account for all GHG emissions. Tracking in this manner would ultimately shine the light on high emitters (e.g., material manufacturers), who, without others in their

value chain, would have no value, and therefore not exist. For a contractor, emissions linked to manufacture and transport of cement used to construct a concrete facility it built would constitute part of its Scope 3 emissions, as it could not have performed its service without that material. The cement example also applies to the design engineer, as the design of the concrete facility could not be implemented for the same reason. This extends further up the value chain to an owner or developer reliant on these services to construct a facility. Placing the onus to reduce sources of high GHG emissions across the value chain (i.e., considering Scope 3) increases the likelihood that innovation will be successful. Of course, proper incentives to innovate must be in place for that type of synergistic cooperation envisioned by the GHG Protocol.



Steel and concrete production combined accounts for around 14% of global carbon dioxide emissions

Our Industry and Scope 3

Scope 3 has several implications for our industry, much of which has already begun adopting GHG Protocol accounting practices. The recent laws and directives summarized in this article have included this scope in their frameworks, which partially serves as tentacles that will require smaller entities to begin tracking GHG emissions. While a select few from our industry may be required to report and publicly disclose GHG emissions, it is the Scope 3 requirement that will place downward pressure on our smaller companies to track and report to “large” entities in our value chain so that they remain compliant. The E.U.’s CSRD will already affect a large geographic region. The regulations now established in California encompass a smaller geographic region, but given the size of California’s economic engine, the Scope 3 tentacles will extend far. It’s also not unreasonable to expect that other state-level regulations will soon follow and be modeled after California (and the CSRD). Thus, despite the SEC’s decision not to include Scope 3 in its Final Rule, it’s likely that large swaths of the U.S. will be required to start tracking and reporting, publicly or to larger entities in their value chain, GHG emissions. Therefore, we must be prepared to participate in this activity.

The degree to which companies will feel pressure to reduce GHG emissions will depend on several things. The public disclosure of GHG emissions

required of “large” companies will undoubtedly encourage them to reduce carbon emissions. While smaller entities do not need to publicly disclose GHG emissions, their emissions directly affect the public reporting of larger entities in their value chain. Where it makes sense, smaller entities may also seek ways to reduce GHG

seem largely out of the control of contractors and engineers. However, even in the absence of standards mandating lower emissions, opportunities to apply new solutions or low carbon materials likely will arise more frequently. Some may seek a competitive advantage and choose to be early adopters of newer technologies

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emissions that could add value to those reliant on their services. Understanding where it will make sense in our industry is something yet to be determined. It will be interesting to see if incentives currently in place lead to significant change, or more of the same.

Currently there are no mandates to reduce GHG emissions. However, if governments find, through public disclosures, that there are meaningful ways to reduce emissions, it’s likely that mandates could follow. The pressure to reduce GHG emissions would then increase. For our industry specifically, it is the materials we use daily that constitute a substantial portion of our Scope 3 emissions. Thus, material usage will continue to be at the forefront of discussions within the industry for some time. This issue can

understanding that the benefits may not be fully realized without policy changes that demand lower emissions. This makes the adoption of new practices risky. How our industry will balance the potential risks and rewards in a continuously evolving regulatory landscape is up for debate.

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