

GREEN IS GOOD – NOW!

A SHORT PRIMER ON THE COMING GREEN IMPERATIVE FOR PE FUNDS
AND PORTFOLIO COMPANIES

- TJ Sridhar and the Quantum Team

This article is intended to be a primer / 101 on the current global push to measure and reduce GHG emissions, and the implications for PE firms. Exhibits have been sourced from public websites

In recent informal discussions with middle market PE firms, I enquired about how they were thinking about carbon footprint reduction at their portfolio companies. It was apparent from their responses, that Green initiatives are not currently on the radar screen of many PE firms and their portfolio companies. We believe the time to get started on this is now. Significant momentum has built across governments and private industry to commit to carbon reduction and start delivering on those commitments. And investors (e.g., LPs such as CalPERS) have committed to measure and manage decarbonization initiatives in their investments. While this is still an emerging trend, PE funds and Operating Partners will soon be asked to deliver on Green initiatives at their portfolio companies.

The Biden Administration has recommitted the USA to the Paris Climate Accord and set up an ambitious target for reduction in US Greenhouse Gas (GHG) emissions. Regulatory guidelines for new targets have not yet been developed. But companies and investors are rushing to declare their green agenda and position themselves as leaders in this. Actions in the current decade of the 2020s are viewed as critical to restrict the rise in global temperatures to 1.5 degrees Celsius, the goal set by the Paris Agreement.

Background – The 1.5-degree goal

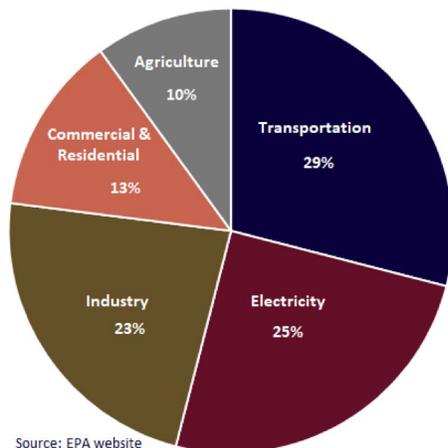
The Paris climate accord’s overarching goal is to limit the rise in global temperature to 2° Celsius, and ideally to 1.5° Celsius. The 1.5-degree pathway as this is called, requires a 50% reduction in global GHG emissions from current levels by 2030, and for the world to become carbon-neutral by 2050. The US GHG emissions peaked in 2007 and has since been declining. As a part of the Paris commitments:

- The US has committed to a 50+% reduction in GHG emissions from 2005 levels by 2030 and to become net-zero in emissions by 2050
- The EU has committed to a 40% reduction in GHG emissions
- China has committed to reducing carbon intensity (not total emissions) by 60% by 2030 and to become net-zero by 2060

Recognizing the challenge, many large companies and investors have stepped up to disclose their carbon footprint and declare their own commitments for emission reduction through various organizations such as The Climate Pledge, Carbon Disclosure Project, Science Based Targets Initiative, and several others.

The Challenge

Exhibit 1: US 2019 Greenhouse Gas emissions by economic sector



- Worldwide emissions of GHG measured as CO₂ equivalents (CO₂e) is over 50 billion Metric Tons annually. Approximately:
 - 76% CO₂, 16% Methane (CH₄)
 - China: 30%, US: 15%, EU: 9%, India: 7%
- Worldwide among industries, Iron & Steel and Cement contribute over 50% of the emissions in the industry sector

Bill Gates has called de-carbonization the most difficult challenge that humanity has attempted to solve. The challenge is to dramatically change underlying infrastructure, processes, products, and consumer behavior in multiple economic sectors in a very short time. Emerging successes in implementing scalable models for GHG reduction in power generation (wind, solar) and in road transport (EVs), have given hope that similar approaches are possible in other hard to change high emission sectors like steel, cement, agriculture, etc. And recent developments in Carbon Capture and Storage may provide mechanisms to capture and reuse the carbon emissions that cannot be reduced by other improvement initiatives. These solutions will require coordinated actions across governments, industry and finance, and companies of all sizes will have a part to play.

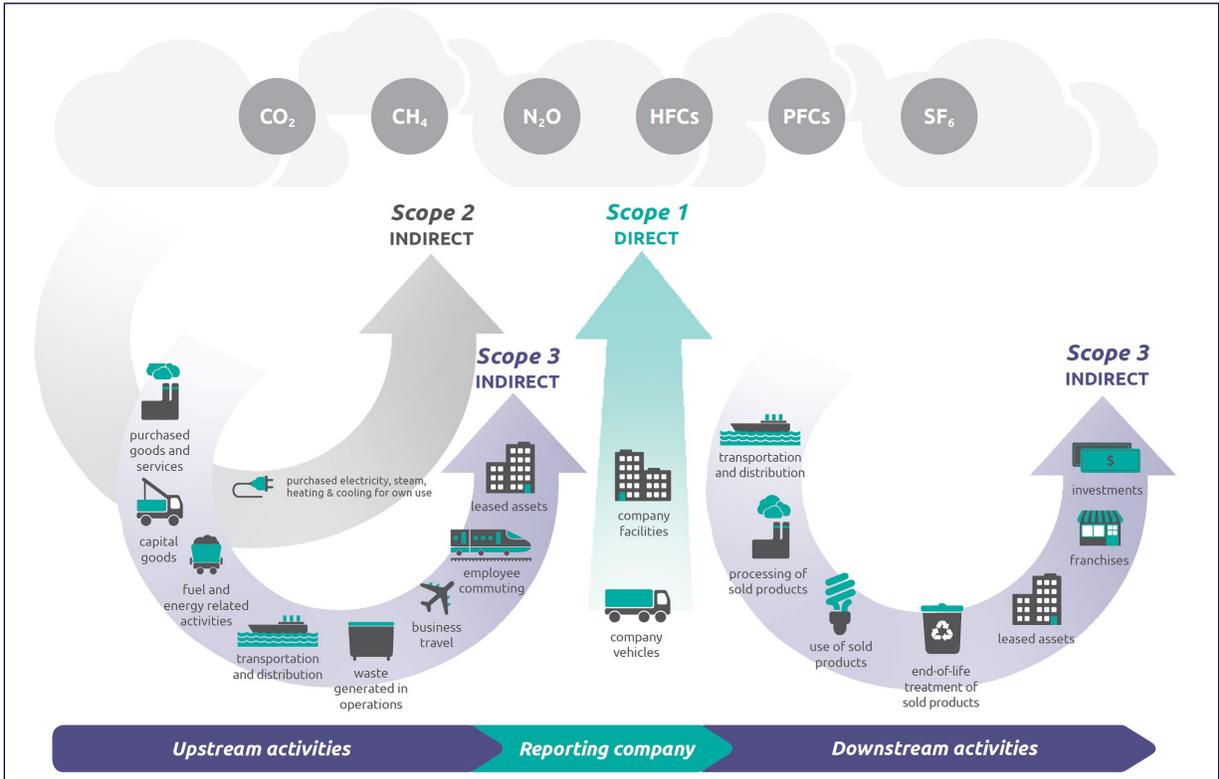
Corporations - The GHG reduction agenda

Over 1,000 companies around the world including financial investors have set targets for reducing their GHG emissions in line with the Paris Agreement goals (Science Based Targets). Many of these companies are customers of PE portfolio companies. Both customer requirements and investor requirements will soon drive PE funds and portfolio companies (including in the mid-market) to measure and pursue emissions reductions. This is not expected to be a one-time initiative, but a transformative journey, that may redefine some companies’ business models and competitive positioning. There are at least 4 steps in the process:

1. Measuring current GHG emissions – Establish a baseline

GHG protocol has developed a widely accepted framework to measure emissions that cover the end-to-end value chain of an organization.

Exhibit 2: Scopes 1, 2, 3 definitions for measuring GHG emissions (source: GHG Protocol)



Emissions are measured in CO₂ equivalents (CO₂e), by converting other GHG emissions based on their global warming potential. Methane (CH₄) for example has 84 times warming potential of CO₂, and hence has a conversion factor of 84. Scopes:

- Scope 1: Direct emissions from an organization's sites and vehicles, e.g., CO₂ emitted from furnaces at a steel producer or a foundry, or methane emitted from a dairy farm, or emissions from a company's fleet of trucks.
- Scope 2: Indirect emissions generated from the use of purchased energy (electricity or other), for the organization. These emissions are from energy generation and distribution.
- Scope 3: Emissions from the extended value chain – the framework lists 15 different buckets to account for such emissions.

Together the 3 scopes can provide a comprehensive measure of a company's GHG footprint.

Measuring Scope 1 and Scope 2 emissions will require collection of operational data at all the company's sites and owned vehicles. Direct emissions from facilities can be obtained through monitoring or estimating by other means. Facilities with annual emissions over 25KMT are subject to the EPA's GHG reporting program. Fleet emissions can be calculated from miles driven or fuel consumption data. Purchased electricity can be converted into CO₂e by using conversion factors specific to the utility that is providing the electricity. While tedious, majority of the data for Scope 1 and 2 can be captured reasonably well and a reliable carbon footprint measurement can be developed.

Measuring Scope 3 emissions is far more complicated and will require working with and collecting data from suppliers, customers, and other channel partners. The data may not be readily available, and even when available, we may need to use industry average emission factors to convert activity data to emissions. Companies may need to focus on the few buckets that contribute the most emissions and develop as precise an estimate as possible, that can not only be used for the baseline, but also to track subsequent emissions reductions. When appropriate, companies may need to develop emission factors specific to their products and processes, rather than use published industry averages.

For office-based companies (e.g., medical practices, software firms, consulting firms, etc.) and for other service companies (e.g., testing services), majority of their emissions are likely to be captured within Scopes 1 & 2, and Scope 3 measurements can be limited to the most relevant buckets (e.g., employee commuting).

For industrial and product companies, majority of the emissions may be in the extended value chain, and any meaningful measurement would have to capture the key buckets of scope 3 activities.

Given these variabilities, each company must develop its own approach to establishing its baseline GHG measurement. It may be helpful to develop a rough assessment to help identify areas where a deeper dive may be required. For mid-market companies, their approach to the assessment may be influenced by their larger customers, who may view the company as part of their scope 3 emissions and recommend an approach to the baselining.

Baselining needs to be done both at the site level and at the product level. Site level estimates can be allocated to individual products produced at that site. Product level estimates are more useful to customers to enable them to assess their scope 3 emissions for the products that they purchase.

2. Setting GHG Reduction Targets

Once a company understands its GHG baseline measurement and the sources of its emissions, then it should set a goal / target for reduction. Recognizing the stretch targets the world has set for itself, over 200 companies (GSK, HP, IBM, Microsoft, P&G, PepsiCo, Unilever, etc.) have pledged ambitious reduction targets, and goals to become net-zero by 2040. Microsoft in fact has a goal to be carbon negative. Many of these companies do not have detailed plans to achieve their reduction targets, but their declared commitment to achieve them sets the tone for internal initiatives and for their extended value chain.

PE owned companies will need to consider their customers' targets and expectations as they set their own targets. They must consider the competitive impacts of being able to differentiate as a low carbon supplier, just as much as they consider the potential costs of these initiatives. There may be opportunities to redefine their business models and play a broader or more profitable role in their value chains.

3. Implementing improvement initiatives for GHG reduction

Once companies develop a GHG baseline and identify the major buckets of emissions, they can develop an improvement program. This should be a cross-functional effort coordinated at the CXO level. For many companies, scope 1 and scope 2 opportunities may be easier to address. GHG reductions can come from a variety of sources such as:

- Energy efficiencies in operations and back office
- Maximizing use of greener electricity / energy sources and installation of on-premises solar
- Waste reduction
- Fleet electrification
- Logistics optimization
- Footprint consolidation
- Product level engineering changes to use lower carbon materials or lower carbon suppliers, recycled materials, etc.
- Packaging optimization
- Air travel reduction, Work from home
- Etc.

Some efficiency initiatives may be near term. But the green journey will be a longer-term transition and the company should include this in their annual plans and budgets.

The other thing to consider is that progress in green initiatives in the broader economy will naturally contribute to reductions at individual companies. For example, the continuing progress towards low carbon electricity, and the slow but increasing adoption of electric vehicles including trucks, if properly leveraged can help individual companies reduce their own carbon footprint. Green initiatives in industries such as steel, copper and aluminum are in very early stages, but if successful have the potential to have a significant impact on their user industries over the next decade.

Most firms in the US have not been required to pay for their carbon emissions. Cap & Trade mechanisms for carbon emissions exist in the EU and to a limited extent in the US (in California and for

NE utilities). These mechanisms put a market price on carbon emissions, and by doing so, make firms internalize the environmental costs into a company's decision making. While a US Cap & Trade mechanism is not being actively discussed, it is a reasonable expectation that some form of carbon pricing will be introduced in the US in the coming years. Best practice companies are already implementing internal carbon pricing so that business units and sites can be appropriately charged for their carbon emissions. PE owned companies who have made progress in their carbon reduction efforts will be in a better position to absorb such carbon related costs.

4 – Purchasing Offsets

Improvement initiatives alone can contribute to significant carbon footprint reduction but are unlikely to eliminate emissions. For those companies seeking to get to net zero, offsets provide a way to reduce carbon footprint by recapturing emissions from the atmosphere. Such solutions offered by offset providers typically use reforestations to capture carbon. Carbon Capture, Use and Storage (CCUS) technologies are also being pioneered by entrepreneurial companies, and are expected to become more viable over the next decade. It must be noted that there are many measurement issues (including fraud) in offsets, and the industry is still in very early stages.

Considerations for PE firms

PE firms must recognize that de-carbonization / GHG reduction is going to be an important metric by which funds and portfolio companies will be measured by in the next decade. The time to start getting ahead of this is now and it starts with building awareness and developing baseline measurements. We anticipate that in the coming years GHG footprint discussions will become part of pre-acquisition diligence for some companies.

PE firms that are interested in further discussion of the above topics can reach out to us.

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