Despite being considered one of the great achievements of modern science, the Keeling Curve usually means nothing to most supply management professionals. However, many supply management professionals are familiar with its ramifications: the ongoing debate on global warming. In the 1990s, Dr. Charles David Keeling was able, for the first time, to accurately measure the amount of carbon dioxide in the atmosphere: 310 parts per million (ppm) during that time period. The curve that shows these values over time is now known as the Keeling Curve — when measured in December 2010, it read 390 ppm. For most of the planet’s recorded history, Keeling estimated that this value has naturally fluctuated between 200 and 300 ppm. Therefore, we can conclude that a reading of 390 ppm is a significant, noticeable increase. Most scientists agree that for a stable long-term climate, 450 to 500 ppm is the limit for an acceptable scenario; if the amount of carbon dioxide continues to increase at the rate witnessed between 1950 and 2010, the atmosphere will quickly reach and surpass this zone.

And so, according to the Keeling Curve scale, the current atmospheric concentrations of carbon dioxide are already at record levels, and fast approaching zones of potentially irreversible environmental and human harm. Governments, consumers, corporations and society at large have taken notice of this risk and are taking action. And these actions are increasingly entering the supply chain domain.

The Government Policy Considerations

Although there is currently no global policy, voluntary corporate reporting of greenhouse gas (GHG) emissions has been on the rise, led by the GHG Protocol. The GHG Protocol provides a set of standards for corporations and government entities to inventory and report their carbon footprints. The protocol places emissions into three different categories, or "scopes":

- Scope 1 emissions are generated by purchased electricity.
- Scope 2 emissions are produced by purchased electricity.
- Scope 3 is a catch-all category for remaining sources of emissions including, but not limited to, employee travel, waste disposal and sourced materials.

Although other guiding documents are available (for example, ISO 404046), the GHG Protocol is widely regarded as the global corporate standard. Numerous organizations have adopted this in their sustainably programs, including the U.S. EPA Climate Leaders, the Carbon Disclosure Project, the Chicago Climate Exchange and several government organizations. However, almost all of these programs include mandatory attention to Scope 1 and Scope 2 emissions, and currently leave Scope 3 — which includes supply chain emissions — out.

Engaging the Supply Chain

By drawing the system boundary at country or corporate levels, traditional GHG reporting procedures fail to account for the flow of goods across the supply chain. When emissions are measured for the entire supply chain, there are incentives to explore all

There are strong, growing pressures for governments to take action once the economic downturn cycle stabilizes.

1. Keep customer concerns in mind. If your products are end customer-facing (or end consumers can ultimately be end customer-facing products), remember that major retailers are engaged in creating detailed product carbon footprint designs. They will be knocking on your door soon, so you'll need to knock on your supplier's door shortly afterward. Select a few products and go through the exercise of measuring all the supply chain emissions. Consider engaging academia, consultants and other businesses you might benchmark with if you need help.

7. Work on embedding knowledge. GHG management is not something that should only be done once a year to get data for a corporate sustainability report. Include GHG-related metrics with your normal supply chain scorecards and develop your own language.

When it comes to carbon footprint information, it pays to be ahead of the curve — the Keeling Curve. After all, GHG and other environmental drivers will be key competitive areas in the future. There are new markets to be created, and very strong, growing pressures for governments to take action once the economic downturn cycle stabilizes. Our supply chains are in a pivotal position to make a strategic difference. - Edgar Blanco, Ph.D., a research director for the MIT Center for Transportation &Logistics in Cambridge, Massachusetts, for more information, and our email to authorities.