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Corporate Carbon Risk Management A Strategic Framework

Market externality makes most environmental issues socio-political choices. Given the global nature of climate change and close linkage to energy consumption, regulation of carbon by a government authority is inevitable. At the same time, stakeholders continue to exert pressure on corporations through shareholder resolutions and demand for carbon risk disclosure.¹ Corporations, as responsible citizens, have to balance their obligations to multiple stakeholders. Given the increasing drivers to disclose carbon risk, trade carbon credits as a commodity, and meet changing consumer preference, a corporation's carbon footprint—its carbon asset—must be managed in a robust manner.

Market Drivers

Movements and actions are underway across the globe. While it is impractical to document developments everywhere, an overview of a select set is summarized here.

The U.S. Securities and Exchange Commission "guidance" to interpret existing environmental disclosure rules² points to direct impacts of regulations, possible impacts of consumer preferences, and exposure to physical impacts. A company's decision to disclose still hinges on the concept of "materiality"; however, many analysts expect a substantive increase in the depth and breadth of climate change-related disclosures in securities filings.

For example, Wal-Mart's stewardship in tracking and reducing the carbon footprint of its operations and products sold is changing the behavior of the company's suppliers worldwide to meet consumer preferences for greener products and improved energy efficiency. Insurers such as Lloyds and project lenders that are signatory to the "Equator Principles"³ are promoting environmentally responsible actions, especially carbon risk management. Innovators and entrepreneurs like Tesla Motors, BP Tata Solar, and Suzlon Wind Energy are changing the market place with greener products and technologies to meet consumer expectations.

Government Mandates

In recent years, regulation of carbon by government authority, "the inevitable," has begun to mushroom and manifest in many regions in multiple forms. In North America, there are several regional initiatives underway. California's Global Warming Solutions Act of 2006 (AB32⁴) has set the 2020 greenhouse gas (GHG) emissions reduction goal into law. It may be noted that, California Proposition 23 (i.e., to suspend AB 32 until unemployment rate drops below 5.5% for one year) is on the electoral ballot for November. Alberta's Specified Gas Emitters Regulation⁵ requires facilities that emit 100,000 metric tons or more of carbon dioxide-equivalent (CO₂e) per year to submit annual compliance reports and take actions to make mandatory reductions. This program also puts a price on carbon and regulates an Alberta-based carbon offset system.

At the federal level, the U.S. Environmental Protection Agency's (EPA) GHG Mandatory Reporting Rule (MRR) aims to collect data from 2010 onward to inform future policy decisions. The MRR requires certain facilities to report their GHG emissions and fuel producers to report their output equivalent to CO₂ emissions, annually in electronic format with relevant activity data and certification





of correct preparation. Apart from specific listed source categories, the general applicability threshold is 25,000 or more metric tons of CO₂e of total listed GHGs per facility per year. The MRR has no emission reduction requirements; however, EPA has stated its intention to regulate GHG emissions under the U.S. Clean Air Act, starting in 2011.⁶ In addition, there are several so-called cap-and-trade legislations working their way through the U.S. legislature (e.g., Kerry/Lieberman⁷ and Waxman/Markey⁸).

On the global front, besides the decisions adopted by the Conference of the Parties at COP15 in Copenhagen last year,⁹ the European Union has endorsed an aggressive post-2012 plan.¹⁰ China (which recently overtook the United States as the largest GHG emitter in the world) and India are under pressure as well, and are evaluating their options.

Carbon Accounting

Carbon emission credits are financial instrument equivalents and will increasingly be managed in a manner similar to financial accounting. Today, most progressive companies produce corporate citizenship reports that include a scorecard on their sustainability and environmental performance. There are a plethora of sustainability metrics,¹¹ and

carbon emissions are inevitably a dominant component.¹² Organizational carbon accounting must be credible, reliable, and unbiased, and must embrace the principles of transparency, consistency, accuracy, relevance, and completeness. Even the perception of “nontransparency” can kill trust. So it is prudent to define an approach before embarking on data collection to engage stakeholders from the beginning. Consistency allows for meaningful comparisons over time, across operations, and among peers.

In today’s Internet world of blogs and instant information, small errors when made public out of context can destroy a company’s credibility. This behooves corporations to exercise due diligence, and most importantly, watch for inappropriate actions and incentives. Companies should avoid clouding the space with irrelevant data or details. It makes sense to follow the dictum of Albert Einstein: “Not everything that can be counted counts, and not everything that counts can be counted.”

Finally, carbon accounting must be complete and cover all relevant sources and emissions that count. Exclusions, if any, must be explicitly stated and justified. Global standards organizations, such as the International Organization for Standardization

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(ISO)¹² and industry groups such as the American Petroleum Institute (API),¹³ have developed specific guidelines to promote consistent and credible GHG accounting and reporting practices for their constituents.

Defining the Boundaries

Science and society define what GHG emissions need to be accounted for and managed. The candidate GHGs are selected based on their abundance and global warming potential (GWP; i.e., a measure of how much a given mass of GHG is estimated to contribute to global warming). CO₂, methane (CH₄), and nitrous oxide (N₂O) head the line-up, followed by several fluorinated gases. Non-CO₂ gases are weighted by GWP and the total GHG emissions are aggregated and reported in metric tons of CO₂e.

The next logical step involves defining the protocols¹⁴ to follow. A critical objective is to draw the bounds within which the GHG emissions get accounted (i.e., who owns what?). These should meet organizational objectives, as well as stakeholder needs. System design and data collection should reckon the need for slicing and dicing now and for several years ahead. Boundaries for GHG accounting might be geographical, organizational, and/or operational.

Geographical boundaries may be driven by regulatory environment and organizational structure, and must include near-term acquisition and divestment plans. Ownership structure may often dictate organizational boundaries. Also, equity share, management control, parent-subsidiary relationship, and joint venture contractual terms may define the lines. While either control or equity may be legally tenable, it is prudent to build flexibility to meet potential changes, such as acquisitions and divestments.

Operational boundaries are typically categorized as direct emissions from sources that are controlled or owned (Scope 1), indirect emissions driven by the need to serve company activities from sources controlled or owned by another entity (Scope 2), or other indirect emissions resulting from product use or outsourced activities (Scope 3; see Leering page 16).

Baseline and Beyond

Corporations must establish a GHG emissions baseline, similar in concept to that developed for conducting an environmental impact assessment for any proposed project. Its purpose is to serve as a reference to show changes over time. Typically, any year from 1990 with adequate data is acceptable. Base-year data should be modified only to account for structural changes, such as divestment or acquisition. Organic growth or shrinkage, or outsourcing does not warrant a change in the baseline. Changes in corporate-level GHG accounting are based on comparing them to actual GHG emissions in a historical base year. However, in project-based GHG accounting, the comparison is with a forward-looking baseline scenario and has its nuances.¹⁵

Another important concept in GHG accounting is footprinting the carbon impact of each step in the life cycle of goods and services. Catalyzed by Wal-Mart's efforts to green its supply chain, some corporations are beginning to account for their Scope 3 GHG emissions. Sponsored by Defra and the Carbon Trust, the Publicly Available Specification (PAS) 2050 provides one methodology for the assessment of the life cycle GHG emissions of goods and services.¹⁶

Credible Strategy

In a carbon-constrained world, corporations have to strategize. The first step is to assess their current profile. Often data exist, somewhere in the corporation, but corraling them and aggregating them into meaningful information involves the use of data management systems. These systems can range anywhere from low-tech spreadsheet programs to multifaceted enterprise-wide software solutions. Companies may choose to leverage or repurpose an existing asset or implement an entirely new system. Alternatively, the system can be outsourced as a hosted "software-as-a-service" (SaaS) solution.

Today's Environmental Management Information System (EMIS) software market is extremely dynamic¹⁷ and the selection process requires a rigorous approach. The data collection system and procedure must meet the accounting principles mentioned earlier. They have to be verifiable and



should have an audit trail. Because of the integral connection between energy use and carbon emissions, it is prudent to cross link the relevant data and track them concomitantly.

Carbon offers both liability risk and market opportunity. The term “risk” reflects either incurring a carbon emission liability or losing a carbon-driven market opportunity. These risks are ranked, based on potential consequence and the likelihood of that happening. Corporations typically use a simple screening matrix and categorize the risks into high, medium, and low buckets for consequences, as well as probabilities. These risks are then prioritized from high-high to low-low and addressed in that rank order. Mitigation options are developed for each significant risk, and prioritized based on benefits to cost ratio. Unfortunately, carbon risk strategy evaluations face many uncertainties in policy, technology, and markets.

The next step is to conduct scenario analysis under a range of values of these uncertainties, and determine the optimal compliance plan. Scenario analysis provides a good static assessment of optimal strategy. For those extraordinary risks, one may need to develop probability distributions of the outcomes for alternative compliance strategies, and make choices consistent with corporate risk profile. Larger corporations are best served by a well developed decision analysis framework or “options analysis” that adapts to new information and resolved uncertainties.

Effective Program

More strategies fail because of poor implementation than due to inherent flaws. Targets have to be realistic and clearly measurable. One must recognize the success components of any implementation program—the triumvirate of business processes, enabling technology, and human interaction. Clearly, a critical success factor is the engagement and buy-in of the relevant stakeholders. Finally, communicating goals and accomplishments and establishing appropriate incentives for all participants is crucial.

Summary

“Carbon-share,” given its market externality, is a socio-political choice where science and society provide direction, and government regulation is inevitable. In a carbon-constrained world, carbon offers both liability risk and market opportunity and has to be managed as an asset. Corporations have to balance their obligations to comply with regulatory dictum cost-effectively and meet consumer need for carbon products, as well as preferences for greener products and energy efficiency. They have to mitigate emission risk and partake in carbon markets and this requires a robust strategic framework. In addition, successful implementation entails setting realistic targets, getting stakeholder buy-in, establishing appropriate incentives, and communicating strategically. **em**

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