



Internal Carbon Pricing Primer Case Studies

Companies using Internal carbon pricing to reduce risks and addressing climate change

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The five Indian case studies were composed throughout the development of ***“Reducing Risk, Addressing Climate Change through Internal Carbon Pricing: A Primer for Indian Business”***. In addition, four well documented international companies’ use of internal carbon pricing have been studied. Reflecting a range of organization types, sectors and geographies, these studies address the motivation, risks, opportunities, best practices, and business case for internal carbon price. They shed light on how organizations can integrate the internal carbon pricing into their business strategy.

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Arvind: A focus on energy productivity

A leading Indian denim manufacturer - Arvind - has committed to continually improve energy performance across all business units. To strengthen existing energy productivity initiatives, it made energy purchases the focus of activity (operational boundary) for its internal carbon pricing scheme. Introducing a shadow price has led to approval for more than 30 new energy efficiency projects, helping the company reduce related operational GHG emissions by close to 12 percent between 2013 and 2015.

Background

As a manufacturing company, Arvind's carbon strategy is to reduce its emissions associated with the electricity, heat and steam it generates and purchases (i.e. Scope 1 and 2 emissions). The company therefore looked to design an internal carbon pricing system that would accelerate energy efficiency investments and influence electricity procurement.

Approach

With electricity use accounting for almost half the company's carbon footprint, Arvind focused the scheme's operational boundary on direct emissions and electricity purchases from those units — Scope 1 and Scope 2 in GHG Protocol terminology. In setting up the scheme, the company first conducted an analysis of its manufacturing facilities across India, which revealed a disparity in electricity prices paid by up to 25 percent at any given time. It then set an internal carbon price based on the highest electricity tariff paid by its business units in order to exploit this variation in electricity prices to drive internal investments in renewables-based electricity generation. This internal carbon price is applied to the emissions associated with available electricity procurement options for covered business units as well as direct emissions by onsite facilities.

In setting organizational boundaries, Arvind included in the pricing scheme all business units over which it had direct operational control. The shift in business units' investments driven by the internal carbon price has led to the energy efficiencies described above, reducing climate-related risk for the company.

Dalmia Bharat Cement: Reducing emissions through carbon pricing fund

A leading Indian cement manufacturer, Dalmia introduced a carbon fee in 2015 to raise supplemental funds for low carbon projects. After successfully using these funds to make such projects viable, the company is now re-evaluating its internal carbon price with the goal of scaling up investments in low-carbon technology.

Background

Dalmia has committed to using 100 percent renewable energy for its operations. The company set an interim target of increasing renewables in its electricity mix to 28 percent by 2030 from 7 percent in 2015. It also aims to double the energy productivity of its operations between 2010 and 2030.

Approach

The scope and boundary of the company's carbon fee include direct and indirect emissions/activities within its control across its operations (i.e. Scope 1 and Scope 2 emissions). Having made several investments in energy efficiency, renewable energy, and process upgrades, Dalmia mapped out a range of cost implications for implementing more low carbon technology and projects. Based on this modelling, the company arrived at a price of US \$11 per metric ton of CO₂. For verification, this price was measured against existing carbon regulations in India including taxes on coal consumption, gasoline, and diesel.

Dalmia put this carbon tax into effect in 2015. The company reports that the incentive created by the fee has already begun to help them gradually reduce its use of energy intensive goods and services. In addition, revenue generated from the carbon tax is being deposited in a fund that was created to invest in low-carbon technologies. The fund's investments are guided by Dalmia's targets for renewables and energy productivity.

An example of the scheme's operationalization was the installation of a 10MW waste heat recovery power plant at an integrated cement and captive power plant in Rajgangpur, Odisha, operated by OCL India Limited, a Dalmia subsidiary. Given the low cost of power generation at the captive power plant, the project's feasibility was very low, with a long payback period on investment. Money invested from the carbon pricing fund brought down the payback period, and bridged the viability gap, enabling approval and implementation. The waste heat recovery plant will reduce the site's emissions by nearly 80,000 metric tons of CO₂e annually.

Essar Oil: Future proofing with an effective carbon price

As an oil and gas company, Essar Oil potentially faces significant future risks related to stranded assets in a low-carbon economy. To help mitigate this risk, and encourage renewables investments, the company introduced a carbon price in 2010, which has helped drive more efficient technology use and lower energy use and related GHG emissions. Essar conducted a detailed study to model future prices and arrive at an 'expected' carbon price, by factoring in price per barrel of oil.

Background

Based in India, Essar Oil is a fully integrated oil and gas company with a presence across the hydrocarbon value chain from exploration and production to refining and oil retail. The company's portfolio of onshore and offshore oil and gas blocks includes about 1.7 billion barrels of oil equivalent in reserves and resources. To mitigate its carbon-related risks, Essar seeks to reduce operational emissions by 441,000 tCO₂e by 2021 from 2016 levels and to invest in low-carbon technologies and natural gas as well as explore diversification into new business opportunities.

Approach

To address the future risk of assets becoming stranded, Essar sought to set up an internal pricing scheme that would drive emission reductions and technology innovation. To establish a price materially high enough to shift internal investments, the company decided to set the carbon price in line with the expected compliance cost of schemes that allow credits under the Kyoto Protocol's Clean Development Mechanism (CDM). To this end, in 2010 it conducted an internal study to model predicted prices of offsets (i.e. certified emission reductions) in 2020 under the CDM. This research revealed an implied cost of carbon of US \$15 per metric ton of CO₂, which translates to US \$5 per barrel of oil. Essar then adopted US \$15 as a shadow carbon price and applied it to investment decisions to drive technology innovation in energy conservation. The internal carbon price is one of a range of tools Essar uses to deliver its sustainability targets and drive diversification activities such as investing in renewables and coal bed methane.

Infosys: Targeting carbon neutrality

A global technology services company with a significant footprint in India, Infosys seeks to become carbon neutral. This business goal drives the company's adoption of internal carbon pricing.

Background

Infosys has a three-pronged approach to reducing its GHG emissions and achieving carbon neutrality. First, they aim to reduce overall electricity requirement by 50 percent (on per capita basis – between 2008 and 2018). Second, they intend to switch to green power for the remaining electricity demand. Third, they intend to invest in offset projects for the GHG footprint that remains.

Approach

As a first step, the company collaborated with WRI India in 2016 as they explored the potential implications of, and approaches for, internal carbon pricing. Given that most of the company's emissions arise from purchased electricity (Scope 2 emissions), the company used the following approach to arrive at an internal carbon price of US \$10.50 per metric ton of CO₂e.

- First, it mapped the cost of procuring electricity across its facilities within India.
- Second, it mapped the cost of energy efficiency and renewable energy measures the company was already implementing and calculated the implicit carbon price associated with these measures.
- Third, it mapped the costs of procuring offsets from existing market mechanisms.

Infosys modeled these identified costs against facility level electricity requirement to screen cost-effective green electricity procurement options. Infosys is now using the pricing mechanism to encourage its business units to make the required shift in energy procurement investments to meet its goal of purchasing 100 percent of electricity from renewable sources. The scheme is too early in its evolution to report outcomes at this stage.

Mahindra & Mahindra: Drives investment with hybrid carbon pricing scheme

This major utility vehicle and farm solutions company determined the implicit internal carbon price commensurate with costs of abating GHGs from initiatives implemented, and then used it to establish a shadow price to reduce its policy exposure and meet energy efficiency and renewable obligations. Set at US \$10 per metric ton of CO₂, the shadow price is high enough to materially affect internal investment decisions, driving investment in low carbon projects.

Background

Mahindra & Mahindra (Mahindra), is the flagship company of the Mahindra Group. The Group's sustainability strategy is driven by a 'Promise Statement 2019', committing to reduce company-wide emission intensity 25 percent by 2019 compared to 2016. Mahindra was also the first Indian company to sign on to the global EP 100 initiative, committing to keep operational energy consumption at its 2009 levels while doubling production by 2030. Carbon pricing is considered a key tool to help meet these commitments and reduce climate-related policy and regulatory risk.

Approach

Mahindra collaborated with WRI India to structure its internal carbon pricing scheme by evaluating the financial implications of carbon emissions. The approach involved estimating the implicit price within the company's existing green investments, and energy efficiency obligations, as well as policy exposure to measures such as India's clean environment tax and excise duties on gasoline and diesel. Combining current green investment costs and the estimated costs to abate GHGs, using a range of levers, led to an internal carbon price of US \$10 per metric ton of CO₂ emitted. After establishing this **implicit price** as a benchmark, Mahindra then adopted it as a shadow price to incorporate into investment decisions—a hybrid approach.

To operationalize its **shadow carbon price**, Mahindra assesses its relevant business operations and associated investment decisions, such as procurement of appliances or equipment or investment in energy projects against the US \$10 per metric ton of CO₂. As a result, new projects that result in significant greenhouse gas emissions look less attractive financially, which can shift investments towards less carbon-intensive alternatives.

Microsoft: Achieving carbon neutrality and driving impact through carbon fee

Microsoft Corporation considers its responsibility, to address the environmental impact of its increasing energy demands, services, and devices, an opportunity to demonstrate how technology can help accelerate transition to low-carbon economy. Its internal policies and targeted initiatives such as carbon fee model fosters the culture of innovation and efficiency.

Background

In 2012, Microsoft, made a companywide commitment to become carbon neutral. Microsoft believes that becoming carbon neutral and implementing a carbon fee will be good for both the environment and its business by making operations more efficient.

Approach

To achieve carbon neutrality and catalyze action, Microsoft set up a carbon fee investment fund. The structure of the fund enables Microsoft to direct funds in efficiency investments outside the normal budgeting cycle. Microsoft focused on its data centers, software development labs, offices, and employee air travel under its organizational and operational boundary. Microsoft's internal carbon fee is the cost of its environmental initiatives divide by its total GHG emissions. The cost of environmental initiatives is sum of costs of internal initiatives, green purchases, and procurement costs of offsets.

Microsoft makes each of its business groups financially responsible for cost of reducing or compensating its emissions. The funds collected through the fee go into a central fund that is subsequently invested in internal efficiency initiatives, green power, and carbon offset projects.

During the period FY13 – FY15, the funds accrued under the carbon fee model were used in procuring more than 10 billion kilowatt-hours (kWh) of green power and reduced 7.5 million metric tons of CO₂e. The funds were also used to procure offsets from emerging nations.

Unilever: Internal carbon price to fund renewable energy generation

Unilever, a Dutch-British company with a global footprint and varied portfolio including food, beverages, cleaning agents, and personal care products. Unilever expects increase in the costs due to climate change and related disruptions and aims to reduce its risk exposure.

Background

Unilever has taken up target of becoming “carbon positive” in its operations by 2030 and believes it can help achieve lower operational costs, improved resilience in energy supply, and develop a closer relationship with consumers.

Unilever’s approach to reduce its greenhouse gas emissions is a combination of improved energy efficiency, technology change and the use of renewable energy. Specifically, Unilever’s climate targets include eliminating coal from its energy mix by 2020, sourcing 100 percent of purchased grid electricity from renewables by 2020, source all energy for its operations from renewable sources by 2030.

Approach

Unilever adopted the Implicit Price approach, as defined by the UN Global Compact. Unilever uses implicit pricing to evaluate the business case for newer investments, i.e., new manufacturing facility, plant, or equipment. In 2016, Unilever announced the expansion of its carbon price to its manufacturing network by using a levy to create a Clean Energy Fund for 2017. This fund is planned to be invested in renewable energy at Unilever manufacturing sites. The carbon price program will help the company accelerating the use of renewable energy and move toward its 2030 ambition. By doing so company aims to eliminate coal from its energy mix.

Statoil: Assessing investments for making business resilient

Statoil ASA is a fully integrated multinational petroleum company headquartered in Stavanger, Norway, with operations in thirty-six countries.

Background

The company emphasizes embedding climate risk and performance into decision making. The company aims to reduce annually 3 million tons of CO₂e by 2030, compared to 2017, carbon capture and storage of 23 million ton of CO₂e by 2030, and 25 percent of research funds to be directed towards new energy solutions and energy efficiency by 2020.

Approach

Norway-based Statoil operates in markets around the world where external carbon prices have been in place since the early 1990s. It proactively updates its approach based on the emergence of carbon pricing in new markets. In recent years, the company has simplified its previous approach of building scenarios and using modeling to anticipate prices in various markets.

The company has made it clear that its goal is not only to debate carbon pricing but seen it as foundational in tackling climate change. It hopes that the carbon pricing policy framework will contribute to its businesses and stakeholders by signaling a clear roadmap for future investments. In 2015, it began instead applying a shadow price of US \$50 per metric ton of CO₂e in investment analysis in markets where national or subnational regulations do not impose an equivalent or greater price. It applies the existing carbon price in investment analysis in markets where regulations establish a price higher than US \$50 per metric ton of CO₂e.

Swiss Re: Minimizing business travel emissions through internal levy

Swiss Re group is a wholesale provider of reinsurance, insurance and other-insurance based forms of risk transfer. It caters to global clients including insurance companies, mid-to-large size corporations and public-sector companies.

Background

The company started its Greenhouse neutral program in 2003 to reduce its own CO₂ emissions from power consumption and heating used for its business activities. The company is in the reinsurance business and has significant Scope 3 emissions footprint. Cutting down its own emissions is a key pillar for the company and has been adopted as one of the pillar of its climate change strategy.

Initiative

Under phase 2 of its Greenhouse neutral program, the company expanded the scope of the program to further reduce business activity related emissions. The company aims to maintain the emission reduction it achieved and also, aims for obtaining 100 percent power from renewable sources by 2020. The company will fully offset its remaining emissions.

Following the 'polluter pays' principle, company introduced internal carbon levy on business air travel in 2014. The company centrally monitors and collects all the air travel related information. Then the company collects levy from Global Group functions in proportion to their business air travel. This levy is then used to offset the emissions. In parallel, company is building up an internal network of video conferencing and tele presence facilities. The internal carbon levy has led to increased awareness about travel costs within its staff and creates incentive to reduce the air travel emissions.

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