Global Compact Network Germany

DISCUSSION PAPER

Internal carbon pricing in companies

Preparing for future regulation and designing the transition to a <2°C economy

More than 50 countries and subnational jurisdictions have already implemented carbon pricing through a carbon tax or an emissions trading system.[1] The greenhouse gas (GHG) emission reduction plans submitted by participating nations to the Paris Climate Agreement indicate that in the future, even more countries intend to introduce a carbon price (from a corporate perspective, an external carbon price). At the same time, an increasing number of companies are introducing an internal carbon price, thus allocating relevant costs to activities associated with GHG emissions. Almost 1,400 companies that report to the CDP stated in 2017 that they already use internal carbon pricing or were planning to introduce it within two years. While about two thirds of these companies see its main purpose in identifying climate risks and opportunities, a third use an internal carbon price as a tool for managing their transformation towards adopting a low-emission corporate strategy.[2]

Following the massive increase in relevance of this topic, the Global Compact Network Germany (DGCN) organised, on July 5th 2018, a multi-stakeholder workshop in Berlin specifically to discuss company policies on carbon pricing. Professional support for the event was provided by sustainable AG. The event was attended by representatives from business, civil society and politics, totalling forty participants. These included corporate representatives from a wide variety of industries, namely, automotive, chemical, service, electrical engineering and electronics, retail, consumer goods, oil and gas, textiles, transport and insurance industries. Input from field specialists was provided by BASF SE, the German Federal Ministry of the Environment, the German Environment Agency and sustainable AG. The event focused on the exchange of experiences, intensive collaboration and developing models for the design and impact of prices on carbon. In three working groups, the participants discussed concrete approaches to internal carbon pricing, taking the following questions into consideration:

1. How to design an internal carbon price that leads to maximum impact?
2. Internal vs. external carbon pricing: which is more effective in mitigating climate change?
3. What can be done to encourage more companies to introduce internal carbon pricing?

This discussion paper summarises the outcomes and main findings from the event, thus making them available to a wider audience. At the same time, this paper invites further stakeholders to take part in a professional exchange of ideas concerning the implementation of effective internal carbon pricing.

PRACTICAL GUIDELINES

1) Internal price on carbon as a management tool: By introducing an internal carbon price, companies can identify climate risks and opportunities and drive their transformation to a low-emission business model. This can also make the company more resilient if a mandatory external carbon pricing scheme comes into force.

2) Individual design of carbon prices: Companies should clearly define the objectives they are pursuing when introducing an internal carbon price. This determines how well internal carbon pricing should be embedded in business decisions, how widely it should be applied across business units and emission scopes, and how high the price level should be set. The introduction of a carbon price can also be structured dynamically, through a gradual increase in coverage or regular price rises.

3) Carbon price levels: When introducing an internal carbon price, practitioners need to clarify whether this should be aligned with an external source (damage costs, or, e.g. a carbon price complying with the Paris Agreement 2°C goal) or an internal pricing mechanism (including mitigation costs in achieving a climate target).

4) Requirements: In addition to the support of the executive management, introducing an internal price on carbon requires a reliable inventory of GHG emissions. The tonnes CO_2 listed in the GHG inventory provide the basis for pricing and thus for the management of emission reductions.

1 Although the term "carbon pricing" has entered common usage, it always refers to CO_2 equivalents (CO_2e), and thus includes other GHGs as well as carbon dioxide.

2 CDP (2017): Putting a price on carbon - Integrating climate risk into business planning. www.bit.ly/CDPCarbonPrice17

1 HOW TO DESIGN AN INTERNAL CARBON PRICE THAT LEADS TO MAXIMUM IMPACT?

The event was guided by best practice principles concerning three key aspects of internal carbon pricing: the level at which carbon pricing is embedded within the company, the scope and the price level.[3]

Depth: How are carbon pricing schemes embedded in companies and what impact do they have on business decisions?

Two main types of internal carbon prices can be distinguished: shadow prices and internal carbon fees. Currently, the more popular of these is carbon shadow pricing, where a company determines the hypothetical costs per metric tonne CO_2 and uses it as a key performance indicator (KPI) in decision-making. It was emphasised in the discussion that shadow pricing can be helpful in effecting early investment in low-emission activities and technologies.

An internal carbon fee is directly charged to individual business units for every emitted tonne CO_2, thus directly affecting the profit and losses of the business unit concerned. This results in enhancing awareness vis-à-vis the impact that business activities have on climate change. Moreover, if applied properly, it can facilitate the implementation of mitigation measures at company sites as well as along the value chain. In addition, employee bonuses can be correlated with their performance in reducing GHG emissions within their own sphere of responsibility.

The discussants emphasised that carbon pricing within a company can only have real impact when it gains genuine recognition in the decision-making process and is integrated into internal structures and processes.

Width: Which GHG emission sources along the entire value chain and which business units and decisions are covered by internal carbon pricing?

The wider the scope of internal carbon pricing, the greater its impact. Ideally, the carbon price should cover all direct and indirect company emission sources (scope 1 to 3). In practice, however, it is possible to correlate the width of coverage and the extent to which individual emission sources can be influenced.

As a rule, carbon pricing's initial focus is on the company's scope 1 and scope 2 emissions, which can be directly influenced. These carbon prices can impact investment, operational energy procurement decisions, as well as influence reductions in energy consumption.

If high levels of emissions are found in the upstream and downstream value chain, an internal carbon price should also be applied to the company's scope 3 emissions, which includes emissions from purchased goods and services, the product's use phase, or the disposing of goods at the end of their life cycle. Here, emission pricing can influence purchasing decisions, product design or product development.

Height: How high is the internal carbon price level set at and how is it determined?

The key question in the design of internal carbon pricing is which mechanism to use to determine the price level. In the following, two key principles that help to define an internal carbon price are presented: damage costs and mitigation costs.

Damage costs

A carbon price based on damage costs should account for the tangible and intangible costs or damages that a company causes to society with each emitted tonne of CO_2. The underlying logic here is the internalisation of external costs. Those costs factor in the damage to the environment and society caused by climate change. This includes threats to the lives and well-being of both humans and animals, agricultural profit losses due to heatwaves, storms, flooding or drought as well as damage caused by storms and floods to buildings, infrastructure or forestry and the shift of vegetation and cultivated farmland.[4] It is estimated in the literature that the so-called "social cost of carbon" ranges from US$25 to more than US$200 per metric ton of carbon, depending on the types of damage considered.

Based on its "Methodological Convention 2.0 for Estimates of Environmental Costs" (2012), the German Environment Agency recommends a carbon price of 159 € per metric ton of GHG emissions[5] (2016 prices; inflation-adjusted), which reflects the damages caused by climate change. A new "Methodological Convention 3.0" will be published in September 2018.

Mitigation costs

If the company's goal is to prepare for future regulation such as external carbon pricing or mandatory sectoral targets, then mitigation costs offer a highly suitable approach. A carbon price based on mitigation costs indicates the average costs a company would accrue to achieve a particular carbon emission reduction target. To this end, the first step is to determine which measures are suitable and effective for reducing GHG emissions and to assess their cost-effectiveness. In a next step, the identified measures are ranked according to their cost-effectiveness and thus prioritized for implementation. Typically, the range would extend from clearly negative mitigation costs to very high mitigation costs. The higher the company's target for car-

3 Based on Ecofys, The Generation Foundation and CDP (2017): How-to Guide to Corporate Internal Carbon Pricing - Four Dimensions to Best Practice Approaches. www.bit.ly/HowToGuideCarbonPrice

4 See IPCC (2014): Climate Change 2014 – Impacts, Adaptation, Vulnerability. www.bit.ly/IPPC_AR5_WG2

5 See Umweltbundesamt (2012): Methodological Convention 2.0 for Estimates of Environmental Costs. www.bit.ly/UBA_convention_env_costs_2

bon emission reductions, the more measures with relatively higher mitigation costs will need to be considered.

A carbon price based on mitigation costs provides the company with transparency as to what one tonne of CO_2 costs the company on average – assuming that individually set climate targets are to be achieved. The calculation of the average mitigation cost is governed by basic corporate policy decisions concerning potential technologies and solutions for carbon emission reductions. Here, the discussants argued in favour of openness towards new technologies to be able to achieve the required carbon reduction targets as cost-efficiently as possible.

Other options for determining an internal carbon price

In many companies, carbon pricing is guided by politically implemented carbon prices or market analyses. Even for a country or industry sector that is not (yet) affected by external carbon prices, current international carbon prices from existing emission trading systems or carbon taxes can be used as a point of reference. Further guidance can be gleaned from competitive benchmarking. For example, the CDP Carbon Pricing Report provides an annual survey of currently applied carbon prices across businesses in different economies.[6] In many companies, defining an internal carbon price is also a strategic decision which results from internal considerations as well as scenario and risk analyses. In some cases, it can be helpful to apply different carbon prices to different business units.

The carbon price required to successfully comply with the 2°C threshold represents a further relevant external point of reference. The High-Level Commission on Carbon Prices, a think tank made up of economists and headed by Lord Nicholas Stern and Joseph E. Stiglitz, estimates the carbon price consistent with achieving the Paris <2°C temperature target to be at least US$40–80/t CO_2 up to 2020 and US$50–100/t CO_2 to 2030.[7] However, to be in line with the 2°C limit, this carbon price level would have to be adopted world-wide and requires a supportive policy framework.

Considerations from current practice

The discussions during the DGCN multi-stakeholder workshop indicate that the participating companies currently tend to favour internal carbon pricing based on the mitigation costs. A carbon price modelled on the reduction measures necessary for an emission trajectory compatible with the 2°C threshold is considered to be highly effective within a company, despite the fact that the price level is generally lower than externally determined damage costs.

Alternatively, if the goal is to raise awareness among employees and other stakeholders about the negative externalities of economic activity on the environment and society, then a carbon price based on damage costs presents a suitable approach. The undisputed assumption is that a carbon price can only have a genuine impact in a company when set at an appropriate level. At present, however, CDP data for 2017 reveal that the highest internal price on carbon is 30 €/t CO_2.

Case Study:

INTERNAL CARBON PRICING AT BASF

BASF SE uses two variants of internal carbon pricing: A regionally differentiated carbon shadow price is used as a KPI when conducting economic efficiency assessments of existing facilities and investment projects. This price is determined by an internal group of experts with temporal differentiation up to 2035 and is reviewed on an annual basis. It models the direct and indirect carbon cost burden of energy procurement.

Alongside this, BASF calculates, based on the "social cost of carbon" principle, the damage costs for commercial activities along the entire value chain – from the supply chain via the company sites and up to the customer industries. In 2015 this was based on an assumed global unit price of 70€ per metric tonne CO_2e, with an annual increase of 3%. As part of their "Value-to-Society" approach, BASF offsets these and other damage costs against the positive contributions the company makes to the economy and society, including net profit, taxation, wages, health and safety, in order to demonstrate the overall positive contribution their economic activity makes to society.

6 CDP (2017): Putting a price on carbon - Integrating climate risk into business planning. www.bit.ly/CDPCarbonPrice17

7 Carbon Pricing Leadership Coalition (2017): Report of the High-Level Commission on Carbon Prices. www.bit.ly/CPLC_Report_2017

2. INTERNAL VS. EXTERNAL CARBON PRICING: WHICH IS MORE EFFECTIVE IN MITIGATING CLIMATE CHANGE?

At the international level, we are witnessing an increasing number of nations introducing mandatory carbon pricing as well as a rise in existing carbon prices. At the same time, motivated by a range of factors, a growing number of companies are introducing internal prices on carbon. The majority of discussants agreed with the hypothesis that a politically implemented global carbon price would have the greatest impact in mitigating climate change. This holds particularly true when the price is based on actual damage costs of climate change and on the <2°C target and thereby effectively internalises external costs. According to the participants, such a price would have the added advantages of creating standardised economic parameters, ensuring the equal treatment of all stakeholders, and facilitating the global management of carbon emission reductions. However, the discussion revealed that the introduction of a global carbon price based on damage costs is politically not realistic.

This notwithstanding, an internal price on carbon is considered highly influential in mitigating climate change on the corporate level, especially in the absence of a correspondingly high political carbon price – provided that the height, width and depth are designed suitably. A company that voluntarily introduces an internal price on carbon signals that it is motivated to manage climate risks and opportunities and reduce emissions, as opposed to merely complying with regulations. In contrast to external pricing, companies that implement internal carbon fees can also decide on how the money raised is spent, the ideal scenario being to earmark it for measures targeting reductions in GHG emissions.

3. WHAT CAN BE DONE TO ENCOURAGE MORE COMPANIES TO INTRODUCE INTERNAL CARBON PRICING?

Initially, the introduction of an internal carbon price depends on the management's assessment of its relevance. Commitment of the board of directors can play a key role in this respect. It is essential to clearly outline the arguments in favour of implementing carbon pricing within the company and to rally supporters. Successful implementation requires an appropriate level of "climate expertise" within the company and reliable data sets. As the company's carbon footprint is the basis for the calculation of the internal carbon price, it must be equally valid and reliable.

Various stakeholders can act as external drivers to promote the introduction of internal carbon pricing: the financial market can adopt a proactive approach and make increasing demands for internal carbon prices. Civil society can also make demands to a company and challenge the efficacy of existing internal carbon prices. Furthermore, policymakers can prepare companies for future regulations on carbon emissions through issuing recommendations for an early voluntary introduction of carbon pricing and a stronger incorporation of climate change impacts in corporate processes. Further exchanges of expertise, examples of best practice, and a clear outlining of the benefits of implementation will ultimately promote the uptake of internal carbon pricing.

4. CONCLUSION

The DGCN multi-stakeholder workshop clearly demonstrated that internal carbon pricing can significantly support proactive climate management, provided it is structured appropriately. In practice, most companies currently use carbon shadow prices of up to 30 € with a limited coverage of emission scopes and business units. Based on their initial experiences with internal carbon pricing, the numerous companies that have already introduced carbon prices should examine opportunities for extending their coverage, further embedding them within business decisions, and raising the price level.

Only then can an internal price on carbon have true impact on the management of climate risks and opportunities and the transformation towards a <2°C economy. At the same time, sharing experiences through business networks such as the UN Global Compact can make an important contribution to persuading other companies to introduce an internal carbon price.

FURTHER READING

Carbon Pricing Leadership Coalition (2017):
Report of the High-Level Commission on Carbon Prices.
www.bit.ly/CPLC_Report_2017

CDP (2017):
Putting a price on carbon - Integrating climate risk into business planning.
www.bit.ly/CDPCarbonPrice17

Ecofys, The Generation Foundation and CDP, How-to guide to corporate internal carbon pricing (2017):
Four dimensions to best practice approaches.
www.bit.ly/HowToGuideCarbonPrice

NOTES

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Through a series of discussion papers, the German Global Compact Network invites you to take part in a professional exchange of ideas covering the topics of climate management.

If you have any suggestions or additions to make to this paper, or would like to be an active participant in further discussions of the topics covered by the Peer Learning Group Climate, then pleased get in touch with →✉ sophie.gagern@giz.de