**“Seven steps for implementing a carbon tax”**

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In a petition, more than 4,000 US American economists demand the implementation of a carbon tax in the US. In a similar statement (#Scientists4Future), more than 26,000 mainly German scientists encourage – among other things – the implementation of a carbon pricing scheme. And the Fridays-for-Future movement demands a carbon tax as well.

A carbon price is the key market instrument for climate policy. It helps to internalize external damage costs in economic decision-making of consumers and firms, and assures that relative prices reflect the true emissions embedded in goods and services. Under a comprehensive carbon-pricing scheme, consumers and firms can adapt their buying decisions or investments towards lower emissions by simply reacting to price signals, even if they do not know the amount of emissions embedded in every single product.

Various proposals for how to implement a carbon-pricing scheme have been suggested, and different countries have opted for different instruments, with a different coverage of emissions (“uncovered emissions” are those that are not subjected to the carbon price). In what follows, I introduce simple concept of carbon taxation including all sectors of the economy. This concept could be operationalized in effectively any country around the globe. It is a tax on the carbon content of fossil fuels, that covers almost 100 percent of the CO2 emissions with a minimum of bureaucratic or transaction costs. My concept is designed in a way that avoids a rise of the fuel prices in the transport sector. This may be relevant in countries like Germany, where gasoline and diesel are already taxed at a very high rate, exceeding the target price of CO2 emissions. Rising gasoline or diesel prices can trigger significant resistance from citizens against the implementation of a carbon price, and can therefore undermine the primary goal of reaching a uniform carbon price across all sectors of the economy.

My proposal comprises the following seven key measures:

1. **[Implementation of a carbon tax on extracted and imported fossil fuels]** The key policy measure is the introduction of a tax on the carbon content of all fossil fuels (coal, oil, natural gas). This tax is raised when fossil fuels are extracted from the earth’s crust (or shortly thereafter). Moreover, the carbon tax should be levied on all imports of fossil fuels and directly linked secondary products (such as gasoline or electricity) from countries without a carbon tax. In the medium to long term, the tax level should reflect the external costs of CO2 emissions. These are estimated to be around 180 Euros per ton CO2 by the German Federal Environment Agency (Umweltbundesamt – UBA). The initial price should, however, be lower to enable the economy to adapt to the changing prices. A starting price at the level of the Swiss carbon tax (approx. 80 Euros per ton CO2) seems adequate.
2. **[Increase of the carbon tax]** The carbon tax should increase over time. Every year, the price should rise in accordance with the inflation rate. Every three years, the decrease of the CO2 emissions and possible adverse effects on the economy should be evaluated by a body of independent experts. As long as no substantial economic damages are observed, the price should be raised every three years by approx. 10-20 Euros per ton of CO2 (in addition to the inflation) until the target of 180 Euros per ton is reached. In addition, the target should be adapted over time to the latest scientific evidence.
3. **[Reimbursement of the expenses for emission permits]** If a carbon tax is implemented in a country that already participates in an international emissions trading scheme (such as the EU ETS in Europe), domestic firms should receive a full reimbursement of their expenses for emission permits, if the carbon tax level is higher than the permit price. If the permit price is higher than the tax, refunding should correspond with the tax level, which assures that firms effectively pay only the permit price. In both cases, a double tax burden is avoided due to the reimbursement. This way, the two instruments (carbon tax and permit trading) can be applied simultaneously without problems. While the tax delivers a stable price signal, emissions trading is a tool for securing the overall (e.g., EU-wide) reduction target. The tax is similar to a minimum price in permit trading. When the permit price is reimbursed, every CO2-emitting company (in every sector) is equally affected by the carbon price. The tax is passed on from companies extracting or importing fossil fuels to CO2-emitting firms along the value chain by higher prices.
4. **[Reduction of existing taxes]** The revenues of the carbon tax should partly be used to reduce already existing taxes (e.g., electricity taxes) in order to reach a uniform carbon price across all sectors of the economy. Moreover, existing taxes on gasoline and diesel may be reduced so that fuel prices in the transport sector remain stable (instead of rising because of the carbon tax). In some countries, gasoline and diesel are already taxed more heavily than what would be corresponding with a target price of 180 Euros per ton of CO2. Due to the inelastic demand for fuels, other measures are required in the field of transport to reduce the sectoral emissions.
5. **[Rainforest conservation and reduction of social hardship]** Some of the revenues from the carbon tax should be used for rainforest conservation programs. Next to greenhouse gas emissions due to deforestation, the irreversible loss of biodiversity drastically increases the global social costs of the forest clearing. The international community should take every possible step to pursue an immediate stop of the deforestation, e.g. by means of incentive programs. Due to the irreversibility of the deforestation of primary forests, rainforest protection should even be prioritized over the reduction of domestic emissions in industrialized countries. For a country like Germany, an annual expenditure of, say, 10 billion Euros for the protection of rainforests seems appropriate, to be financed from the revenues of the carbon tax (in Germany, this would correspond to approx. 15 percent of the total carbon tax revenues). Another part of the tax revenues can be used to compensate particularly affected households. A premium could also be paid to households for buying a new, environmentally friendly heating system. Remaining carbon tax revenues should be transferred lump-sum to the citizens, thereby assuring that the carbon tax is overall revenue-neutral from the government’s perspective.
6. **[Border carbon adjustment]** A carbon tax at a significant level (to have a real impact on the emissions), such as the starting level of 80 Euros per ton of CO2 that is suggested here, should ideally be accompanied by a border carbon adjustment scheme (BCA) in order to avoid competitive disadvantages for the domestic industries. With BCA, expenses for the carbon tax are reimbursed to the companies selling their products abroad, and the domestic carbon tax is levied also on imports of fossil fuels and products with high embedded emissions. To minimize administrative costs, the companies in a respective sector should take the initiative and apply for the implementation of BCA in their sector. The government should then consider the implementation of BCA in that sector. No BCA is necessary when trading with countries that have their own carbon price at a comparable level. This creates an incentive for other countries to go along with carbon pricing to avoid the administrative burden of BCA. Furthermore, it is of first-order importance to establish also an international carbon taxation on fuel for ships and aircraft.
7. **[Promotion of renewable energies]** Alongside the global public good of climate stability, investments into low-carbon technologies (e.g. photovoltaics, storage technologies) can also be considered as a kind of global public good (similar to emission reductions). Therefore, parallel to implementing a carbon tax, the government should actively promote investments in low-carbon technologies.

**Some explanations regarding the suggested policy measures:**

**Obligation of the policy makers to put a price on emissions:**

From the economic point of view, greenhouse gas emissions cause externalities (external costs) in the form of climate damages. In my opinion, the pricing of external costs is part of the basic responsibilities of a state, comparable to granting public security or an effective health care system. Economic theory tells us that markets do not function efficiently without a price for externalities (thereby leading to a so-called market failure). Since, in my view, it is one of the fundamental tasks of the government in a free market economy to provide the framework for well-functioning markets, policy makers are obliged to put a price on external costs, wherever it is possible. Apart from the economic perspective, also from a legal point of view there must be a commitment of the government for environmental protection (Paris Agreement, as well as constitutional obligations, e.g., Art. 20a of the German Grundgesetz). I do not claim to have expertise for a legal assessment.

Thus, in my opinion the lack of a price for CO2 emissions in many countries is a form of governmental failure (similar to a market failure in economics), since the state then fails to establish the necessary framework for an efficient and at the same time climate-friendly economy. The lack of a price for CO2 emissions is – from an economic point of view – in fact a *subsidy* for climate-damaging economic behavior. Considering this, the introduction of a comprehensive (covering all emissions) and sufficiently high carbon tax can also be seen as the removal of a subsidy for climate-unfriendly behavior. In view of the well-known risks of catastrophic climate change, CO2 emissions can even be considered a particularly serious form of externality. Thus, the lack of a price on CO2 emissions or the willful prevention of such a measure by particular politicians or lobbyists could also become relevant from a legal point of view, since in my opinion, citizens have a right of climate protection. In any case, morally speaking it is an indicator of governmental failure, if children go onto the streets and demonstrate for climate protection (Fridays for Future), because the government fails to do its job.

**Carbon tax or cap-and-trade?**

Similar to the carbon tax, a cap-and-trade system is a market instrument to put a price on emissions. However, many economists prefer the tax. The advantages of a carbon tax are (almost) obvious. While the permit price is subject to unpredictable fluctuations in any cap-and-trade system, the carbon tax provides a stable price signal. Very low prices (as could be observed in the EU ETS in the past) are inadequate because some low-cost abatement options for emissions then remain unexploited. In addition, unexpectedly high prices may be harmful for the economy. Moreover, stable prices provide a more favorable environment for investments into low-carbon technologies since the risks for the investors are then lower. The reason why the European Union opted for a cap-and-trade scheme has a historical background. One of the major reasons was probably that the introduction of a carbon tax would have had to be approved of by all member states. That was presumably one of the reasons why the negotiations on an ecological tax in the middle of the 1990ies failed. Instead, emissions trading was chosen which was easier to implement in the light of competence issues within the EU.

However, cap and trade is an instrument with obvious weaknesses compared to the carbon tax. It works but is suboptimal, and therefore it should not be expanded to other sectors. Moreover, climate change is a matter with urgency – immediate action by policy-makers is needed. An expansion of the cap-and-trade system to non-EU ETS sectors (as is currently debated in Germany) could take years, whereas a domestic carbon tax could be implemented relatively quickly and would cause little transaction costs (since only a manageable number of firms would need to be taxed).

**Level of the tax:**

In order to get an intuition for the magnitude of the initial tax of 80 Euros per ton of CO2 as suggested by me, it might be helpful to recall that in a typical industrialized country, the average emissions per person amount to around one ton of CO2 per month, totaling 12 tons per person annually (in Germany just under nine tons per capita per year). If all consumption and investment decisions remained unchanged after the introduction of the tax (which is in principle possible since the tax is an incentive instrument and not a restriction on a person’s consumption choices), a person causing emissions of one ton CO2 per month due to her consumption decisions would – at first sight – apparently have an additional expenditure of 80 Euros per month due to the tax. However, the tax revenues (as described in steps 4 and 5) would, among other things, be used to reduce taxes on electricity and gasoline, to alleviate hardships and to finance a lump-sum transfer to the citizens. Hence, the overall burden is significantly reduced for the “average person”, even if the person does not change her consumption habits whatsoever. The aim of the tax, however, is of course to steer the behavior of economic actors (consumers, firms…) towards more climate-friendly behavior. As a result, the remaining additional expenditure implied by the tax is effectively reduced even further because products with lower embedded emissions (that become relatively cheaper) are purchased more often and thus gain a higher market share. This steers also firms’ investment behavior towards lower emissions. The additional monthly expenditure for an average person due to the tax that still remains after accounting for all these effects is finally just a small proportion of the original 80 Euros considered above. And in the long run, this manageable burden pays off for the entire society because the climate damages are reduced.

From an economic perspective, the tax should mirror the external costs that arise when emitting one ton of CO2 into the atmosphere. This way, the social welfare optimum can be reached. A lower price, by contrast, is generally inefficient. Since, in my opinion, policy makers around the globe have until today not met their obligation to establish a price capturing the external costs of emissions, an initial price below the full external costs (here: assumed to be around 180 Euros per ton of CO2) might nevertheless be appropriate to give economic actors time to adapt to the new price structure.

It must be admitted, of course, that the “true value” of the external costs arising from the emission of a ton of CO2 into the atmosphere cannot be calculated precisely. Due to the complexity of the problem (uncertainty about the amount of temperature increase caused by greenhouse gas emissions, uncertainty about the resulting amount of climate damages, including wars possibly triggered by climate change and increasing migratory pressure, disastrous climate change, etc.), the external costs of a ton of CO2 can only be roughly estimated. This does not change anything regarding the government’s obligation to set the price for the external costs to the best of our knowledge about those damages, given the current research. Uncertainty about the global and local climate damages to be expected is not an argument justifying political inaction, but in line with the principle of prudence, an argument for even more serious action of the policy makers.

Just like the “socially optimal” CO2 tax level cannot be exactly calculated, the optimal initial price is also hard to define. Both, the initial tax level and the growth path of the tax should be set with a sense of proportion but – regarding the past inaction of policy makers to tackle the issue of global warming, as well as the urgency of the problem – not too hesitant. The initial price of 80 Euros per ton of CO2 suggested here are – among other things – inspired by the actual carbon tax of roughly this magnitude implemented in Switzerland. This seems to be a price level that can trigger sizable emission reductions, while at the same time not causing any economic disruptions.

**Why a tax on extracting and importing fossil fuels (instead of a tax on CO2 emissions)?**

In general, a carbon tax (or more general, a carbon price) can be implemented at different parts of the value-added chain. This is due to the fact that effectively, only the amount of carbon extracted from the earth’s crust or imported in the form of fossil fuels, determines the amount of CO2 emissions finally resulting from it. There are hardly any sinks for carbon (e.g., wooden buildings), so that virtually all extracted or imported carbon eventually ends up in the atmosphere in the form of CO2. This would be different with CO2 storage (CCS). Using such a technology, the actors would benefit by receiving payments for CCS under the carbon tax because they effectively produce “negative emissions”. Thus, the tax sets incentives to both avoid CO2 and to store it whenever possible. However, CCS technologies are currently not available on a large scale, and there are geological risks to be considered as well.

Implementing a carbon tax right at the source of the extraction and on the import of fossil fuels has the advantage of being simpler than taxing the final CO2 emissions, and the bureaucratic cost burden is low. While there are thousands or millions of CO2 emitters in an economy (including individual households), the number of importers and firms extracting fossil fuels is typically very limited. Thus, almost all CO2 emissions are covered by such a source tax on the carbon content of fossil fuels, which would be hard to achieve with a tax on the emissions of CO2. The EU ETS, for example, only covers about 45 percent of the CO2 emissions of the participating countries.

Compared to an emission tax, the carbon extraction and import tax has no disadvantages or losses of efficiency whatsoever, not even for the firms extracting or importing the fossil fuels. The reason for that is that the competitive situation of these firms remains effectively unchanged. The carbon price is simply added to the final product prices of these firms and is thus passed on to the processing firms and eventually to the consumers of the products and services. If it were possible, without additional bureaucratic costs, to record the emission of every gram of CO2 into the atmosphere, to assign it to the actor and to tax it, an emission tax would be exactly as efficient as a comprehensive tax on the extraction and import of all fossil fuels according to their carbon content. The actual recording and assigning of CO2 emissions, however, is rather complex, which is why only sufficiently large actors (firms) are captured in the EU ETS. By contrast, a carbon source tax on extracted and imported fossil fuels can be implemented more easily because it affects a relatively small number of actors, and the carbon content of the fossil fuels can be determined in a straight-forward way.

**Is a carbon tax compatible with an already existing emissions trading scheme?**

The introduction of a carbon tax in addition to an existing emissions trading scheme such as the EU ETS creates an asymmetry: while emissions trading puts a price on CO2 for the (large) emitters, a source tax on carbon is charged when fossil fuels are extracted and imported. Thus, the CO2 price will partly be paid by different actors in the two systems. Would this lead to complications (like double taxation or overcompensation of expenses for emission permits) if the two systems are combined, as described in step 3?

The answer is “No”. Both systems are fully compatible with each other. Let me give an example to illustrate that. Let us consider a (hypothetical) firm A that extracts fossil fuels from the earth’s crust and partly imports them from abroad. Let us assume the firm extracts/imports an annual amount of carbon in the form of fossil fuels that is equivalent to one megaton of resulting CO2 emissions (when the fossil fuels are eventually burnt). If the carbon price is 80 Euros per ton of CO2, firm A must pay 80 million Euros to the tax authorities. Let us assume that firm A sells its products to only two other firms (B and C) that process them into final products. Let us assume that firm A does not cause any CO2 emissions during the extraction process of fossil fuels, whereas firms B and C generate emissions totaling one megaton of CO2 per year. Thus, firm A does not have to buy emission permits under the cap-and-trade scheme (say, the EU ETS). Let us further assume that firm B is part of the EU ETS while firm C is operating in a non-ETS sector. Thus, only firm B has to buy emission permits to legalize its CO2 emissions. Both firms, B and C, do not have to pay a carbon tax to the tax authorities under a carbon source tax, because this was already done by firm A. But they are still affected by the carbon tax since firm A passes its carbon tax costs on through its product prices. In order to avoid a double taxation, firm B must receive a full refund of the expenses for the emission permits by the tax authorities. This applies when the tax is higher than the permit price. The firm is then equally burdened by the carbon tax as is firm C. Firms B and C then pass their costs on to the final consumers by raising their product prices. As a result, not only the firms but also the consumers are incentivized to save CO2 by rethinking their consumption or investment decisions. Should the permit price in the EU ETS be higher than the tax, only the (effective) expenses for the tax should be reimbursed to firm B. These correspond to the tax level, multiplied by the firm’s emissions. Thus, the firm then effectively only pays the permit price in the EU ETS. Nevertheless, also in this case, there must be a refund to firm B, although it does not directly pay the carbon tax to the tax authorities (this is done by firm A), since firm A passes its own emission costs on to firms B and C by higher prices. If the permit price is higher than the carbon tax, this leads to the same market outcome as a mere carbon taxation exclusively in the non-EU ETS sectors. However, even then a big advantage of the carbon tax remains, namely that only a few firms must be taxed instead of (potentially) thousands of emitters.

**On the reduction of existing taxes:**

In some countries, including Germany, carbon prices are not uniform across different sectors of the economy. This implies that in some areas, CO2 can be emitted essentially for free into the atmosphere, while in other areas, there are high taxes (for example taxes on gasoline). In addition, these existing taxes often do correctly reflect the actual CO2 emissions. From the standpoint of economic efficiency, the goal should be a consistent, uniform taxation of all CO2 emissions across all sectors of the economy. This is actually a necessary requirement for efficient climate protection. This statement is one of the most robust insights of economic theory. The background can easily be explained. If firms have to pay different carbon prices in different sectors, they avoid emissions with varying intensity. The costs for the “last ton of CO2 avoided” correspond with the CO2 price when a firm is striving for profit maximization. Thus, a swap could be offered among any two firms facing *different* CO2 prices: a firm in a sector with a low CO2 price offers to reduce its emissions by an additional ton of CO2, which can be achieved at low cost, whereas a firm in a sector with a high CO2 price (which implies a high “marginal abatement cost”) is allowed to emit an additional ton of CO2. The total amount of emissions thus stays the same, but the overall costs of emission reduction are lower after the swap, since the firm that is now allowed to emit more would have had higher abatement costs than the other firm. An efficient outcome for the entire economy can only be reached when there is a uniform CO2 price across all sectors. In return, existing taxes (e.g., on electricity or fuels) should partly be dropped or reduced when a new carbon tax is implemented. Hence, under the introduction of a carbon tax, energy costs could become *lower* for the consumers. (For Germany, more specific elaborations on this point have been made by CO2-Abgabe e.V..)

If a carbon tax is implemented specifically in Germany, in my opinion a reduction in the existing taxes on gasoline (and perhaps on diesel) is justified. The existing taxes are already high, and a further increase in the overall tax burden on these fuels may trigger resistance in the population against the entire carbon pricing scheme. Furthermore, a rising tax burden on gasoline runs counter the goal of a uniform price on CO2 emissions across all sectors of the economy! Note, that a reduction in these existing taxes does not lead to a reduction in the overall tax revenues for the government from taxing gasoline (and diesel), as the reduction in the existing taxes should be designed in such a way that the overall tax burden on these fuels remains constant. However, this means that part of the revenues from a tax on extracting and importing fossil fuels should be used to make up for the reduction in revenues from taxes on gasoline.

**Rainforest protection:**

It might be somewhat surprising at first sight, that the protection of the rainforest is explicitly included in this proposal for implementing a carbon tax, in particular if the country that implements the tax does not even have any rainforests on its territory. Two aspects are important here. First, the urgency of the problem of tropical deforestation must be emphasized. This deforestation continuously proceeds and the international community of nations has failed to effectively support the countries with rainforests, thereby offering them sufficient financial support and incentives to stop the deforestation. Protecting the rainforests is an investment in a global public good. Therefore, financial support for the countries that own the forests is well justified from an economic standpoint. The extinction of species associated with the deforestation is irreversible. Therefore, it is mandatory to act immediately, and unilaterally if necessary. The second aspect relates to economic efficiency in reducing the global emissions of greenhouse gases. Even if tropical deforestation did not correspond with a dramatic loss of biodiversity, it would still be more efficient to divert a significant part of the national expenditures for climate protection towards protecting the rain forests, instead of compensating national actors for lowering their emissions (e.g., in the context of shutting down coal-fired power plants). This is because with a given amount of money, more emissions can generally be avoided by rainforest protection than by any other national mitigation efforts. Rainforest protection is one of the cheapest abatement options worldwide. Since the international community has failed so far to deal adequately with that problem, immediate (and if necessary unilateral) action is necessary. The implementation of a carbon tax is a unique chance to take the initiative for rainforest protection, because new revenues are generated by the tax that are directly linked with CO2 emissions and, hence, with the problem of global warming. Therefore, using part of the revenues from a carbon tax for protecting the rain forests (and thus species diversity), is an approach that may seem reasonable also to the wider public, whereas the introduction of a new tax with the only goal to protect forests in other countries, would be much harder to explain to the public.

For a country like Germany, the suggested amount of 10 billion Euros per year for rainforest protection would correspond to using around 15 percent of the total gross revenue from the carbon tax for this purpose (before deducting the expenses for lowering taxes on electricity and gasoline, as well as for the reimbursement of the expenses for emission permits to firms in the EU ETS sectors). For Germany, I roughly estimate a total revenue of around 64 billion Euros per year. This figure is calculated by multiplying the almost 800 million tons of CO2 emissions per year in Germany (without land use, land use change, forestry; source: German Federal Environment Agency (Umweltbundesamt)) with the (initial) tax rate of 80 Euros per ton of CO2.

**Border carbon adjustment – BCA**

To protect domestic industries from competitive disadvantages that could arise from a unilateral approach for climate protection via the implementation of a carbon tax, a border carbon adjustment scheme (BCA) should be established. BCA as an accompanying measure was suggested also in a petition signed by more than 4,000 US economists who demanded the implementation of a carbon tax in the US. The problem with BCA is that, to my knowledge, no country has actually implemented it so far in the context of climate protection. One reason for that may be that many countries do not have a comprehensive carbon pricing scheme. Even in countries that have a carbon tax, there are usually various exemptions for high-emitting firms that are strongly exposed to international competition. If the carbon price is low, BCA is probably unnecessary. However, under a significant carbon price, such as the 80 Euros per ton of CO2 suggested here (as an initial price), the implementation of BCA may well be justified for some sectors of the economy. Upon implementing the tax, with BCA a uniform price signal in all sectors of the economy is maintained (with exemptions only for exports). Nevertheless, even firms with high carbon intensity in their production are able to compete with foreign firms because BCA serves to neutralize competitive disadvantages at the border. Exemptions for individual industries from the carbon price would not be necessary.

Legally, BCA was, among other things, questioned because the compatibility with the rules of the WTO has not yet been conclusively determined. However, as far as I know, a WTO-conform implementation of BCA is possible from a legal perspective. A final legal examination, however, can only be made if there is a precedence case. This means, that we may never find out if BCA complies with the rules of the WTO, unless a country finally tries to implement it. In any case, I strongly recommend to a country that unilaterally implements a carbon tax, to actively try to implement BCA along with the tax, and if necessary to initiate a legal examination concerning its feasibility. For further details on the legal and economic background of BCA, please refer to Cosbey et al. (2019): “Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature”, Review of Environmental Economics and Policy, 13, pp. 3-22:

<https://academic.oup.com/reep/article-abstract/13/1/3/5359520> .

BCA was also criticized as a very bureaucratic instrument that is in addition suspected to create trade barriers and could be abused for protectionist purposes. The latter can be safely ruled out if the border tax adjustment for imports and exports of goods with high emissions is exactly on the level of the domestic carbon tax. Then there are no advantages for domestic firms on the international markets since they only their expenses for the domestic carbon tax on their exports are reimbursed. Thus, domestic firms have no competitive advantage over their international competitors that produce in a country without a carbon tax. This also applies for foreign firms exporting their products to the country that implements a carbon tax and BCA: they pay the carbon tax for their products at the border in the same way as they would have, if they had produced in the country with the tax.

The fact that BCA is a bureaucratic instrument cannot be denied, at least for sectors where the emissions “embedded” in a product cannot be determined easily. By contrast, it would for example be straight-forward to determine the CO2 emissions of a coal-fired power plant that is located abroad and that exports its electricity to the country implementing the tax. BCA is more difficult with processed products like machines or cars. In these sectors, establishing BCA does not always make sense. Above all, it depends on how high the expenses for the domestic carbon tax are in relation to the final price of the products. If that ratio is low enough, there are no considerable competitive disadvantage for domestic producers that have to pay a carbon price and export their goods to a foreign country (without BCA). Then it is unnecessary to implement BCA for such sectors to avoid competitive distortions as these are negligible, but it may be justified in other sectors of the economy.

The easiest way to find out if BCA is adequate for a sector or not, is in my opinion to let the domestic firms that operate in that sector decide for themselves if they want to be subjected to BCA or not. That is why I suggest that domestic firms should be able to “request” BCA for their sectors (see step 6). If enough firms agree to it, BCA should be established for that sector, if that is possible. As a rule of thumb, if, say, 75 percent of the firms (weighted according to their market shares) in a sector request BCA for their sector, it should normally be implemented.