

Decision Time for Europe on Climate Change Keep the head buried in the sand or get tough?

Daniel Gros and Christian Egenhofer

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Global climate change negotiations continue, with one meeting following another at regular intervals. But in reality, the news has not been good and things are getting worse. Recent meetings were very much a step back from those leading up to the December COP-15 in Copenhagen. Rather than building on the Copenhagen Accord, negotiators seem to prefer to re-generate long texts containing an increasing number of options. At best, this can be interpreted as a standstill. Meanwhile, across the Atlantic, efforts to present federal climate change legislation to the US Senate have been abandoned as supporters realised that the bill stood no chance of passage – despite the high priority President Obama has attached to climate change.

Without the American climate change bill, the promises made by the US administration in Copenhagen are likely to fall short of making a meaningful contribution to the global effort of reducing GHG emissions, jeopardising the much-hailed new architecture of the Copenhagen Accord after less than one year. The European strategy is also in tatters. The EU stubbornly sticks to its 20% reduction commitment (by 2020, compared to 1990), knowing that this would be insufficient on its own, under any circumstance, for reaching its self-declared objective, namely to keep the global temperature increase to 2°C. The commitment by the Chinese government – to increase the CO₂ efficiency of its economy by about 3% per annum – is of no help either, despite the spin put on it in the media. Chinese economic growth rates of close to 10% translate into a doubling of Chinese emissions over the present decade, even if the Chinese target is fully met. By 2020, Chinese emissions could thus well be more than three times as large as those of Europe and surpass those of the US and Europe combined! Exempting emerging markets from any commitments, as was done under the Kyoto Protocol, no longer makes any sense. This is increasingly the view taken by Japan, Russia and even the EU. But why would China, India and other emerging economies accept stringent commitments if the US, historically the biggest emitter and still on a par with China, is unwilling to accept even a modest reduction?

Any solution will need to address the core of the problem: ‘coal’, or, more accurately, abundant coal. Burning hydrocarbons (natural gas and petrol) yields both water and CO₂. By contrast, burning coal yields only CO₂. On average coal emits more than 100% more GHG than natural gas with which it competes in power generation. Moreover, coal is widely available and is much cheaper per tonne of CO₂ released than either natural gas or crude oil. Here it becomes clear that any tax on carbon falls much more heavily on coal than on crude oil (or gas).

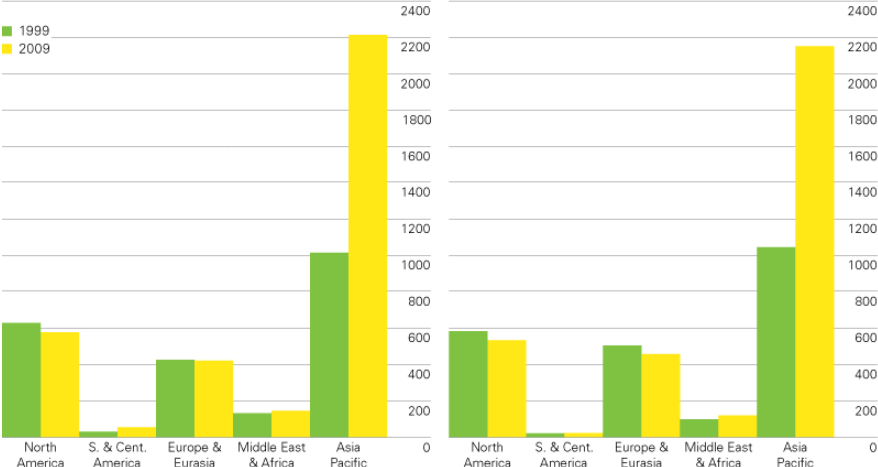
Daniel Gros is Director of the Centre for European Policy Studies (CEPS) in Brussels. Christian Egenhofer is Senior Fellow at the Centre for European Policy Studies (CEPS), where he heads the Climate Change and Energy Unit.

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Some have dubbed coal the ‘most democratic’ fuel because in general, it is produced where it is used. Only somewhat more than 10% of the world’s consumed coal is traded across borders, a figure that is projected to remain stable. In contrast, the figure for oil is close to 50% and is fast-growing. Coal production in major regions such as North America or Asia matches consumption; only Europe is a significant importer (see Figure 1). As a result coal does not cause anxieties of import dependency. And coal will remain available for a long time. While proven oil reserves are in the order of a bit more than 40 years (at current consumption levels) and gas for 65 years, proven coal reserves extend to almost 120 years.

Figure 1. Global coal production and consumption



Source: BP Statistical Review of World Energy, 2010.

This may explain why coal has been the highest-growing fossil fuel consumed in the world in the last decade. The share of coal in total energy in the Asian economies is about 50%. China alone produces and consumes half of the global coal supply. Some 70% of its energy needs are covered by coal, which accounts for close to 90% of its CO₂ emissions. The corresponding figures for the EU are much lower (see Tables 1 and 2). The owners of coal mines and their clients worldwide, i.e. power companies and industry, are strongly opposed to any tax on carbon. They constitute a small, but extremely well-organised group, especially when it teams up with other fossil fuel lobbies, which wield immense influence to block policies aimed at limiting emissions of CO₂ and putting a price on carbon. In the US, coal states ‘neatly’ coincide with battleground states where elections are lost or won.

Table 1. What are the major home-produced sources of CO₂ emissions?

By fossil fuel, in CO ₂ units (millions of tonnes)				
		Oil	Gas	Coal
US		959	1,191	2,318
World		12,025	6,332	12,379
EU		349	412	704
OECD		2,768	2,367	4,080
FSU		1,923	1,697	937
China		575	149	5,091
India		115	65	714

Table 2. Where are the coal lobbies?

Production of fossil fuels (mtoe)				
		Oil	Gas	Coal
US		311	499	587
World		3,906	2,654	3,136
EU		113	173	178
OECD		899	992	1,033
FSU		625	711	237
China		187	62	1,290
India		37	27	181

In Europe, however, indigenous coal production no longer plays an important role, except perhaps for Poland. It is thus not surprising that it was possible to enact a ‘cap and trade’ system here, which imposes a carbon price at least on a large part of European industry: the tax seems to fall mostly on foreign suppliers of coal (and to a lesser extent on foreign suppliers of hydrocarbons in the Middle East and Russia). By contrast, in the US domestic coal production (and consumption and hence the coal lobby) is much more important, with production almost four times as large as in the EU (see Table 2).

The writing is clearly on the wall for those who championed carbon taxes as the means of achieving emissions reductions in the US. The fact that a climate bill will not even be presented to the US Senate also has wider implications: if it proved impossible to obtain a decision to introduce a moderate carbon tax in a rich economy with only a moderate dependency on coal, it is certain that no commitment will be forthcoming for the next generation from China, which is still much poorer and depends even more on indigenous coal than the US (and produces twice as much as the US). And after China, India looms as the next emerging coal-based industrial superpower.

Without any significant commitment from the US, the Copenhagen Accord, so laboriously achieved last year, will soon become obsolete. So, business continues as usual, both in terms of climate change diplomacy with its wandering circus of big international meetings, and in terms of rapidly increasing emissions. The former is designed to create the impression that the world’s leaders are still working on a solution to the problem. But the latter, more alarmingly, constitutes what is really happening on the ground: a rapidly growing industrial base in emerging markets that is hard wired to an intensive use of coal, thus making it more and more difficult to invert the trend at some point in the future. Europe and other industrialised countries continue to ‘outsource’ GHG emissions at scale. Recent research suggests that Europe imports the equivalent of 4 tonnes of CO₂ per person in the form of products containing embedded carbon. The equivalent figure for the US is 2.5 tonnes per person.¹

Could anything be done to prevent the world from rapidly using up its carbon budget? The obvious answer seems to be to deploy massive-scale carbon capture and storage (CCS) technology, which is able to sequester the carbon and store it. However, while everybody talks about this technology, it is still in the demonstration phase. In order to become a serious abatement solution by 2020, according to the IEA’s 2009 ‘Blue Map’ scenario, 100 carbon capture plants, a minimum of 10,000 km of pipelines and storage of 1.2 GtCO₂ would have to be put in place. There is little indication that this will happen anywhere close to 2020. Progress is hampered by public opposition, siting problems and the lack of finance and a regulatory framework. Given the sheer scale of investment required, one cannot realistically count on CCS for meaningful reductions before 2030, but more realistically in 2035-40. And by that time, the official goal of limiting temperature increases to 2°C will definitively no longer be achievable.

The other – more promising – route would be for the EU to go it alone and impose an import tax on the CO₂ content (i.e. including the embedded carbon) of all goods imported into the EU from countries that do not have their own cap-and-trade system or equivalent measures. This is an appropriate task for

¹ See e.g. Steven J. Davis and Ken Caldeira, *Consumption-based accounting of CO₂ emissions*, Proceedings of the National Academy of Sciences (PNAS), 1 March 2010 (<http://www.pnas.org/content/107/12/5687>).

the EU as one of the world's major economies and still the biggest importer. Such a carbon import tariff improves global welfare because it transfers, at least partially, via trade flows, carbon pricing even to those parts of the world where governments have so far refrained from imposing domestic measures of any magnitude. In other words, it creates a mechanism that enforces the pass-through of carbon costs across the globe. That will erode the huge differentials of embedded carbon in exports between different countries. As shown in Table 3, exports of China and India are around *five* times more carbon-intensive than the GDP of the EU, a situation that can hardly be squared with reducing carbon globally at a massive scale.

Table 3: Carbon intensity of exports and GDP in selected key economies

	CO ₂ intensity of exports	CO ₂ intensity GDP 2005
EU27	0.47	0.43
US	0.72	0.53
China	2.46	2.43
India	2.67	1.78
Brazil	1.05	0.5
Russia	3.85	4.4

Sources: Own calculations based on IMF data and Weber, Christopher L., Glen Peters, Dabo Guan and Klaus Hubacek (2008), "The contribution of Chinese exports to climate change", *Energy Policy*, Vol. 36, No. 9, pp. 3572-3577. The carbon intensity of exports is based on 2002 data. Both intensities are measured as tonnes of carbon per \$1,000 of exports. (cited in Daniel Gros and Christian Egenhofer, *Climate Change and Trade: Taxing carbon at the border?*, CEPS Paperback, p. 36).

A key effect of such a tariff is that it would reduce global emissions under all circumstances and therefore serve as an important tool for fighting climate change.² Granted, if imposed by the EU alone, the effect might be limited, but it would at least serve as a clear signal to producers keen to sell everywhere in the world, including China, whose most important market is still the EU. From a purely economic perspective, an EU carbon import tariff would be a straightforward means of moving towards a global 'shadow' carbon price, even in the rest of the world, and thereby towards an efficient climate change policy. Solutions can be devised to concerns such as WTO compatibility and equity, the latter for example through rebating to less developed countries such as India³ in line with 'responsibility' for actual and historical emissions and 'capability' to reduce emissions, two fundamental principles under the UN Framework Convention on Climate Change. Analytical tools to establish both responsibility and capability exist, such as the widely known GHG Development Rights (GDR) concept or the Global Carbon Budget approach, similar to the GDR and developed by a group of Chinese scholars.

The imposition of import taxes on CO₂ content is still highly controversial within and between the EU member states, with different industries taking different stances. This lack of a clear line is also evident within the European Commission. True, carbon tariffs at the border are not a solution that rich and poor countries alike fancy. Unfortunately, however, there is enough cheap coal around to power ever-increasing emissions for at least another century. A planet composed of nation states that in turn are dominated in part by special interest groups does not seem capable of solving this problem – either from inside or outside the UN. The EU so far appears to be the only major actor among industrialised countries that might be able to break this stalemate by getting tough. Oddly enough, there is a discussion in India – and in a somewhat different context in China – of imposing export taxes on high-carbon exports to steer the economy towards lower carbon intake and avoid being locked into a high-carbon capital stock. A substantial export tax on high carbon exports by China and India would of course achieve the same effect as an EU import tax in terms of introducing a price for carbon in international trade and it would have the additional advantage of assuring governments that the taxes would end up in their coffers.

² See also the Comment by Dieter Helm in the *Financial Times*, "A carbon border tax can curb climate change", 5 September 2010.

³ For an up-to-date analysis and overview, see Daniel Gros and Christian Egenhofer, *Climate Change and Trade: Taxing carbon at the border?*, CEPS Paperback, Centre for European Policy Studies, Brussels, 2010.