David Robinson assesses the crucial role of coal in the US climate legislation

Introduction

If a bomb was ticking and could explode at any moment, you would do everything possible to defuse it right away. The problem of climate change resembles a ticking bomb. Yet the global response to this bomb has been slow and inadequate. There are many reasons, including the absence of global leadership, the difficulties of collective action in the international system, the uncertainty about when and where the bomb will explode, and the preference to let others do the heavy lifting.

One other reason for the slow response is that protecting or compensating the potential losers often weakens the environmental integrity of the legislation. This matters less where a small country is concerned. However, weak climate legislation in the USA will undermine global efforts to fight climate change.

This article examines some of the pressures that have weakened the environmental integrity of the American Clean Energy and Security Act (ACESA), which recently passed through the House of Representatives. Producers and consumers of coal and of coal-based electricity (i.e. the 'coal lobby', including companies, workers and consumers of different sizes in these sectors and more generally citizens in the regions where the companies operate) are the main losers from climate legislation; compensating them and helping them to prepare for the future has come at a price.

This article has four sections. First, it summarises the challenges of climate change and the importance of cutting coal emissions from existing coal-fired power plants, especially in the USA and China. Second, it discusses some of the reasons why ACESA is coming up short. Third, it illustrates how this draft US legislation has been weakened in order to obtain support from affected parties, especially those relying on coal and coal-based electricity. And, finally, it draws some conclusions.

The reader should take away two messages. First, the pressure to weaken the environmental integrity of ACESA in the US Senate will be intense; it is important for the Administration to resist that pressure. Second, there is no credible way to stabilise greenhouse gas emissions without cutting emissions from existing coal plants. US legislation should focus on cutting emissions from existing (not just new) coal plants and providing economic incentives for this to happen as soon as possible in the USA and China.

1 The Problem – and the beginning of the solution

The latest evidence from MIT, published recently in the American Meteorological Society's *Journal of Climate*, indicates a median probability of surface warming of 5.2 degrees Celsius by 2100, with a 90 percent probability range of 3.5 to 7.4 degrees. This can be compared to a median projected increase in the 2003 study by MIT of just 2.4 degrees. The conclusions of the MIT study are presented on a large roulette wheel, which reminds us that we are gambling with the world's future!

To avoid dangerous interference in the world's climate, the world's governments have already committed to limit temperature increases to 2 degrees Celsius this century. To achieve that, the industrialised countries must start by cutting emissions by 25–40 percent by 2020, using 1990 as a base year. Global emissions should also begin to decline between 2015 and 2020. On current performance, the world is unlikely to meet these targets. Meanwhile, the bomb is ticking.

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The consequences of failure to meet the targets would impact hundreds of millions of people. The hardest hit will be in developing countries, with growing problems of health, access to food and water, loss of homes to floods, drought and radical weather events, and more frequent wars over access to resources. The governments of the wealthiest countries also recognise that this could undermine global political, economic and military stability, and that climate change will create serious problems for their citizens.

It is widely accepted that there is no silver bullet and that a wide range of methods for cutting emissions will be needed. Yet, one crucial part of the answer is to cut emissions from coal, which currently account for almost 40 percent of world (energy based) CO_2

emissions and could reach 50 percent by 2050.

The USA and China currently account for over 40 percent of the world's anthropogenic greenhouse gases (GHGs) and over 50 percent of coal use. Both countries rely heavily on coal for electricity. Over the past five years, China has brought on stream coal-based capacity approximately equal to the entire US capacity of coal-based plants; China also plans significant additions. Once built, these coal-based plants will almost certainly run due to their low variable costs.

To sum up, there is no realistic way that the world can address climate change adequately if China and the USA do not reduce the emissions from their existing coal-based generation plants.

2 US Draft Climate Legislation

On June 26, 2009, the US House of Representatives approved the American Clean Energy and Security Act (ACESA), by a narrow margin of 219 to 212. It must now be debated in committee and passed by the Senate, before eventually going to the President to be signed into law, assuming it makes it that far. It is possible that a version of ACESA will become law before climate change negotiations in Copenhagen in December this year.

First, the good news; ACESA is the first major climate bill to be passed by either chamber of Congress in the USA. Among its most important and positive features are a minimum national standard for renewable energy, a nation-wide cap and trade program to reduce greenhouse gas emissions in the USA (83 percent below 2005 levels by 2050), as well as significant investment and incentives to promote energy efficiency measures and carbon capture and storage (CCS). The draft also avoids the problem of windfall profits that beset the EU emissions trade scheme, and may be able to get at least some of the CO_2 price signals through to customers.

Second, the bad news; the passage of the legislation in the House has come at a cost in terms of its environmental integrity, partly in response to the concerns of the coal lobby. The pressure to weaken ACESA will be even greater in the Senate, as explained below.

3 Key Trade-offs Related to Coal

Coal is generally considered to be 'bad' because of its effect on the environment, but backing coal out of the US energy supply creates a number of problems for (a) national security, (b) the cost of electricity, (c) the regional and social distribution of wealth, and (d) the global competitiveness of US industry. Simply put, there are trade-offs between the environmental benefits of reducing coal emissions and the economic and political benefits of relying on coal. Below, we examine each of the key trade-offs and then explain how this is likely to influence voting behaviour in the Senate.

National and Energy Security. The USA has the world's largest coal reserves. Estimates of the remaining life of those reserves vary, but in all cases are sufficient to be considered of strategic importance. Currently, one of the few energy objectives that enjoy cross-party support is the reduction of US dependence on imported oil, especially from the Middle East and Venezuela. Looking forward, coal will become of even greater strategic importance in the transport sector as electricity replaces oil as a transport 'fuel'.

Cost of Electricity. Coal's high share (50 percent) of US electricity generation reflects the economics of the industry prior to the introduction of a price for CO_2 emissions. Domestic coal is relatively inexpensive to mine. The resulting low variable costs of coal compensate for the relatively high fixed costs of large-scale coal plants. When CO_2 emission costs are ignored, the levelised cost of new conventional coal-based generation has generally been lower than the cost of alternatives. The economics change when CO_2 emission costs are internalised, but conventional coal plants continue to be competitive until CO_2 emission costs rise substantially. CO_2 prices have to reach quite high levels before it is uneconomic to run these plants, once they have been built. One of the central objectives of the coal industry is to keep CO_2 emission prices as low as possible until the technology to capture and store CO_2 is commercially available.

Regional and Social Distribution of Wealth. The benefits of the coal industry are shared unevenly. Typically, the beneficiaries of coal live or operate in the coal mining areas of the east (West Virginia, Pennsylvania) and the Rockies (Wyoming, Montana) and the coal-based electricity areas of the Midwest. Introducing a CO_2 price will negatively affect the economies, companies and generally the people of these regions. Naturally, political representatives will resist climate legislation that adversely affects their constituents.

Competitiveness of US Industry. Some industries, for instance cement and iron and steel, point to the risk of leakage (i.e., that business will move to other parts of the world where emissions are not controlled adequately). Although these industries now accept the inevitability of federal climate legislation, they have lobbied for mechanisms that will effectively protect them from cost increases and from foreign competitors.

The trade-offs described above add up to strong and organised political support for weakening climate change legislation, compensating the losers and helping the coal and related power industry to make a transition to a low carbon future. The fight is, to a large extent, between those regions and interests that benefit from low cost coal now, and those that do not. This fight will now be waged in the Senate, which will soon be considering ACESA. There are three features of the Senate negotiations that could lead to an even weaker bill from the environmental perspective.

First, the Senate is more sensitive than the House of Representatives to regional political interests. Support for aggressive climate legislation comes mainly from Senators in the states that rely least on coal, in particular the Pacific West and the North East. The states that rely heavily on coal

are more concerned about the introduction of climate legislation. This was already evident in the House of Representatives, whose representation is based on popular vote (i.e., population), but will be even more clear-cut in the Senate, where each state has the same voting weight.

Second, a significant proportion of the Senators from the states with coal interests are Democrats. Thus, while the Democrats now have sixty Senators and could pass legislation without the support of Republican Senators, there are many Democratic Senators who will press for further concessions, for instance an easier emissions cap.

Third, the states that rely most on coal are demographically the poorer states, both in terms of income per capita and unemployment. It is difficult for the current administration to pass legislation without ensuring that these groups are protected. In the current economic climate, the prospect of creating additional unemployment in these regions is especially unpalatable.

4 Coal and ACESA

ACESA is about 1400 pages long and includes numerous mechanisms to address the concerns of the coal and related power industry, their customers and other interests who would be threatened by more environmentally aggressive legislation. Some of the measures do not have a significant impact on the environmental integrity of ACESA or on international negotiations, for instance rebates to small customers whose electricity prices would otherwise rise significantly as a result of climate legislation. Other concessions to the coal lobby are positive for the environment, for instance incentives to invest in carbon capture and storage. However, some concessions weaken the environmental integrity of ACESA and are potentially problematic for global climate negotiations. I will focus on three of these.

First, the legislation postpones significant emission reductions. For large domestic sources of emissions (e.g. power stations) the cap and trade part of the legislation requires a 17 percent reduction in CO_2 emissions by 2020, and an 83 percent reduction by 2050, in both cases using 2005 as the base year. The early target is not ambitious by international standards. If the 17 percent were measured by reference to 1990 as the base year, it would amount to approximately no reduction at all by 2020. For similar sources of emission, EU legislation requires a 20 percent reduction compared to 1990 levels, with the potential to rise to a 30 percent reduction in the event of an international agreement. Even though the 2020 US target is not ambitious by comparison to EU targets, there will be a strong effort in the Senate to weaken it further. For instance, the mining industry argues that a 6 percent reduction (instead of 17 percent) would be required to maintain coal demand at current levels until carbon capture technology becomes more widely available.

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Second, domestic cuts may be replaced by international offsets, reducing the 'domestic effort'. ACESA has two other main programs (as well as others) to cut emissions beyond the 17 percent that apply to large domestic sources: one to reduce tropical deforestation and a separate program for domestic and international offsets. The coal lobby supports international offset projects because they are expected to lower the cost of CO_2 emission permits in the USA. However, offsets reduce the incentive and the requirement to cut emissions at home. Furthermore, it is difficult to know whether these international offsets will deliver real CO_2 reductions abroad. Even if all the additional reductions were achieved, the overall US targets would still be below EU targets for 2020 and even further below the IPCC recommended reduction of 25–40 percent by 2020. Nevertheless, we anticipate that the coal lobby will press either for an increase in the volume of international offsets, or some other means to keep the price of domestic emission permits as low as possible.

Third, ACESA is a source of trade friction, especially with China and India. An indication of what is to come is in the early part of ACESA.

> The Administrator, in consultation with the Department of State and the United States Trade Representative, shall annually prepare and certify a report to the Congress regarding whether China and India have adopted greenhouse gas emissions standards at least as strict as those standards required under this Act. If the Administrator determines that China and India have not adopted greenhouse gas emissions standards at least as stringent as those set forth in this Act, the Administrator shall notify each Member of Congress of his determination, and shall release his determination to the media. (Section 3, International Participation, page 11 of ACESA.)

Later, ACESA imposes emission allowance requirements on importers of products in protected sectors from countries that have not passed climate legislation that is as demanding as ACESA. ACESA is clearly designed to support industries that are significant consumers of coal and coal-based electricity, including the iron and steel industry. Whether this legislation contravenes US obligations under the WTO is debatable; what is not in question is that it is provocative and will further heighten tensions with Beijing and New Delhi.

5 Implications: Good News, Bad News and Next Steps

Compared to previous US 'efforts' to combat climate change, ACESA is a step forward. No one doubts that the USA will engage in serious negotiations about the follow up to the Kyoto Protocol. ACESA will establish clearly the US position and will set the tone for the negotiations.

However, as currently drafted, ACESA is not ambitious enough, especially

in the period up to 2020. It does not respond adequately to internationally agreed targets, nor does it meet the tougher test of climate science. If it were to be weakened further as it goes through the Senate, this will undermine US credibility in climate negotiations. It is hard to believe that China and India will accept binding obligations to reduce emissions in response to this combination of unambitious US emission targets along with protectionist threats. If they do, they will be right to demand even greater transfers of financial and other resources from the USA and other developed countries to get the job done.

So what is to be done? To begin, the President needs to intervene more forcefully in the coming months to avoid further weakening of ACESA's environmental credibility as the legislation goes through the Senate. In particular, it is important to strip out or weaken protectionist measures, and to at least maintain the emission reduction targets.

Second, there is no credible path to stabilising global GHG emissions without reducing CO_2 emissions from existing power stations in the USA and China – the main source of emissions from the world's power sector. Both countries are likely to continue to rely on coal for electricity and it should therefore be a policy priority to create incentives to cut emissions from these plants. There are many ways to reduce emissions from coal plants, including retrofits to improve efficiency, biomass co-firing and carbon capture and storage (CCS). ACESA has already created incentives to develop and install CCS at new power stations in the USA. A central objective of ACESA and international agreements should be to provide the incentives to drive down the costs of CCS and other abatement technologies so that they will be adopted for existing stations in the US and more importantly in China, where most of the world's coal-based generation will be based. If ACESA were able to set that train in motion, the USA will have made a major contribution to defusing the climate change bomb.