



# Climate Policy after Copenhagen: Managing Carbon Price Risk in an Uncertain World

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## Summary points

- While the Copenhagen Accord may represent a step forward for US climate policy if it helps the passage of cap-and-trade legislation through the Senate, it obscures European companies' forward view of international carbon markets.
- The policy environment remains very uncertain. Europe has to decide between a 20% and a 30% emission reduction target by 2020 relative to 1990. Member states are likely to be divided on this decision, which will have strong effects on the carbon price.
- Strong carbon prices are needed to stimulate markets for low-carbon technologies. Other policies will also be needed because markets tend to under-deliver on long-term investment. Portfolios of multiple policies will, however, need careful coordination. Emissions caps need to be made tighter whenever other climate policies are introduced in order for the emission reductions to be achieved.
- Accumulation of price uncertainty in carbon markets leads to discount rates being higher for the long term. Emissions caps are therefore best suited to playing a medium-term policy role, and should be set 10–15 years ahead.
- Greater emphasis is needed on public investment to develop long-term solutions to climate change. This is necessary in order to bridge the gap between private discount rates that rise over time and socially optimal discount rates that decline over time.

## Copenhagen alters the international policy landscape

It's not until something breaks that you know how fragile it is. The multilateral climate negotiation process was tested to destruction in Copenhagen. But there is a notable divide in opinion across the two sides of the Atlantic. Many US commentators make the case that the process was already broken long before the start of the Copenhagen summit, and that their President stepped in to rescue something useful from the wreckage. The European perspective, on the other hand, tends to view the Copenhagen Accord as a backwards step because it says nothing about the institutional structure around international emissions trading that has been an important part of EU climate policy since the Kyoto Protocol was agreed in 1997. Since the US was not a participant in these mechanisms anyway, Americans do not feel this as a significant loss. But for European companies, the way forward on climate policy has become obscured rather than clarified by this latest round of negotiations.

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It has always been abundantly clear that the US would never join the Kyoto Protocol. It is also clear that the Kyoto parties needed something that would replace that treaty, which has only another three years to run. What was needed was a new treaty that allowed the US in, while keeping the most important and well-functioning aspects of the Kyoto Protocol. The Copenhagen Accord achieves the first objective, but fails the second.

Repeated attempts to merge the dual-track negotiations within the UN process during the past year or so have failed, with developing countries unwilling to let Kyoto parties off the hook of commitments they have already signed up to. Whether or not such a resolution could have been achieved with more negotiating time (after all, the US has only been fully on board for nine months), we will never know. Once the decision was made to proceed with the high-level segment of Copenhagen involving world leaders, there had to be something for them to sign. What was eventually agreed was a bare-bones two-page document that supported the bottom line of US and Chinese negotiating positions. Many smaller countries have long feared such a G2 solution because of the weakness of the ambition levels embodied in these two countries' positions on climate change.

Is there anything more substantial to European objections to the Copenhagen Accord than disappointment at the failure of their attempts at leadership on climate change over the past decade? After all, the Accord achieves some of the fundamental requirements for a climate change treaty: it requires countries to take on quantified emissions reductions targets, defines the engagement with developing countries, establishes a reporting mechanism, and agrees to establish an international financing mechanism for mitigation and adaptation measures by developing countries. Developed countries will commit to quantified emissions targets for 2020, and developing countries will commit to 'nationally appropriate mitigation actions'. These commitments will presumably be the ones that countries had declared at the start of the Copenhagen negotiations. The fact that these commitments will not be subject to negotiating pressure is probably not a significant loss. The US negotiating team had no room for manoeuvre because of the state of play of domestic legislation, and the Chinese showed no inclination either to move at Copenhagen. The EU is in perhaps the most uncomfortable position, as it had explicitly left room to move from a unilateral 20% emission reduction target to a 30% reduction target if other parties followed with suitably ambitious targets of their own. It will now have to decide which target to commit

to without being able to negotiate face to face with its trading partners, and there will be strong divisions between member states over this decision.

So the stringency of targets coming out of Copenhagen will be a disappointment to those who believed in the power of international negotiation. Likewise, the breakdown of the international negotiating process itself is an even greater disappointment for those who had a stake in the process working. But neither of these outcomes will be a surprise to those who did not believe that international negotiation could change the position of powerful countries.

### What the Copenhagen outcome means for companies

The negative reaction to the Copenhagen outcomes from European business stems from the fact that many European companies have a direct stake in the future of the institutions and frameworks surrounding international climate policy. For example, companies have been actively involved in international emissions trading for many years now. The fact that the previous rules of the game have been swept aside with such apparent ease by the Copenhagen Accord will (at least temporarily) dent the credibility of international policy as a basis for business-level decision-making.

The Copenhagen outcome certainly requires a recalibration of expectations. It was already clear well before the start of the summit that the negotiating environment was very different from that in Kyoto 12 years earlier. But the outcomes suggest an even greater emphasis on the primacy of domestic legislation than expected, implying that climate policy has become less multilateral as a result of the Copenhagen negotiations.

From an environmental perspective, the biggest casualty of a move towards greater unilateralism of climate policy is the potential weakness of emission reduction targets that may result from such a process. Finding ways to exert effective pressure on the stringency of domestic climate targets will be the primary challenge for international climate policy in coming years and decades.

But from a business perspective, stringency is only one aspect of the problem. Uncertainty over climate change policy is a key issue for companies, especially those for which energy is a major component of their cost structure. Although they operate perfectly well in situations of market uncertainty, political risk is different because there is a lack of counter-parties able to trade the risk. Investment decisions that companies make, particularly in the energy sector and energy-intensive manufacturing industries, are very susceptible to changes in policy. Reliability and transparency of policy-making, and moving towards a level legislative playing field, are key priorities for business.

Given that enforcement mechanisms for domestic legislation tend to be more robust than for international policy, it could be argued that such a bottom-up process leads to a more reliable policy environment. Because domestic policies are usually developed with input from all stakeholders, companies will often have had the chance if not to influence the design of policies then at least to have a very close understanding of them, together with an understanding of the ways in which they are likely to be changed in the future.

### Carbon pricing – necessary but insufficient

While it may be business-as-usual for domestic climate policy, the prospects for international carbon markets have taken perhaps the most significant step backwards as a result of the Copenhagen Accord. No reference to the existing institutional structure for emissions trading is made, nor even a way forward for developing the future of emissions trading. There is a passing reference to the use of markets for funding reduced emissions from deforestation and forest degradation (REDD), but no specifics are set out on how this would relate to existing market mechanisms.

But it is clear that carbon pricing will continue to be an essential component of climate policy. If unabated fossil fuels are not priced out of the market, there will be no prospect for widespread uptake of new low carbon technologies. In Europe the EU emissions trading scheme remains an important pillar of climate policy, while in the United States proposals for a cap-and-trade scheme have

passed the House of Representatives, but face a tough challenge in the Senate. If a cap-and-trade scheme does go ahead in the US, extensive use of international emissions credits will be made. In turn, there will be pressure from business to harmonize these national and regional schemes, particularly in relation to the use of international credits. Therefore although the international emissions trading agenda has been set back by Copenhagen, it will inevitably resume, perhaps as much through bilateral negotiations as through the process of the UN Framework Convention on Climate Change (UNFCCC).

Essential though it is, carbon pricing cannot do the whole job of climate policy, mainly because it will tend to under-deliver on investment in long-term solutions. There are two generally accepted reasons for this. First, markets may under-deliver on investment in research and development if companies are unable to retain the eventual commercial benefits of such expenditure; this creates a rationale for some additional government support for the development of new technologies. Second, there is a moral hazard (sometimes called a time inconsistency) problem in the incentives for companies to invest in long-term solutions, because future governments may not feel bound by the commitments of their predecessors to provide continued levels of pay-off that are sufficiently high to recoup companies' initial investments.

There is a third reason – until now largely ignored in the literature – why carbon pricing will need to be supplemented. Research by the author indicates that carbon market risks tend to accumulate in a non-linear way, so that the variance in possible prices increases at an accelerating rate over time. This implies that the risk profile for the long term (more than 25 years ahead) is disproportionately higher than for the medium term (10–15 years ahead). The implication of this finding is that companies will tend to discount any price signals (including policy announcements and targets) at a higher rate if they refer to these longer timescales. Risk aversion on the part of companies would amplify this result.

If private investors apply a discount rate that *increases* over time, this implies a growing divergence with the socially optimal discount rate for climate-

related projects, which the economics literature suggests should *decrease* over time. Irrespective of the cause of the gap between private and social discount rates in general, if this gap is greater for long-term horizons than for short- to medium-term ones, this suggests a need for additional public support to promote long-term solutions. Other policy mechanisms are therefore required to bring new technologies to the point of commercialization where they can be supported by the carbon price.

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Such policies are already widespread. The EU has agreed a goal of meeting 20% of its overall energy demand through renewable sources by 2020. It is up to individual member states to introduce legislation to deliver the investments required to meet this target. Other technology solutions being promoted at the EU level include support for demonstration of carbon capture and storage (CCS), although there are few specific proposals on the table on how these would be financed.

### A solution to policy overcrowding

An important problem that arises out of this multiple-policy approach is dealing effectively with the negative consequences of policy interactions. A cap-and-trade scheme ensures that a certain level of emissions will be achieved at a certain date for the sources covered by that cap. Other policies applied to these same emissions sources will not alter the total level of emissions as long as the cap is unchanged. Subsidies provided to renewable energy, for example, will reduce emissions in the

power sector, but total emissions in the cap-and-trade scheme as a whole will be unaffected unless the cap is reduced to compensate. The effect of subsidizing one set of technologies is to shift emissions reductions around within the total cap-and-trade scheme 'emissions bubble', without having any effect on the size of the bubble.

The way to get round this problem is to ensure that whenever a new climate policy is enacted that is intended to reduce emissions within the boundary of the cap-and-trade scheme, the cap should be reduced by an equivalent amount to ensure the emission reduction actually takes place. Ideally, coordination of policies in this way would lead the carbon price to rise over time, overtaking and making redundant the individual technology subsidies. New abatement technologies could then be able to compete under prevailing market conditions, allowing government-determined subsidies to act as temporary kick-start mechanisms rather than permanent crutches. The prospect of continuously rising carbon prices could then provide a strong signal to price unabated fossil fuels out of the market.

### Policy responses to market uncertainty

Supply and demand for abatement in a carbon market are dynamic and uncertain. Costs for new technologies may decrease through economies of scale as they achieve greater market penetration. Or costs may rise if greater penetration leads to greater scarcity in the underlying resource, or if supply chain constraints are hit. Uncertainty in economic growth rates also feeds through to uncertainty in baseline emissions levels. All of these factors feed through to uncertainty in carbon prices.

At the same time, the level of the cap is highly uncertain. On the policy side, for example, the EU has, as noted above, set a unilateral greenhouse gas reduction commitment of a 20% reduction compared to 1990 levels by 2020, to be extended to much more ambitious 30% reduction if other major parties take on comparable commitments. If the EU is to stick to the Copenhagen Accord timetable, this choice should be

made before the end of January 2010. However, it is unclear whether the prior conditions for a 30% target have been met, nor how the differences between member states on this issue will be resolved. If and when the target is agreed, there is still considerable uncertainty over the share of the increased target that would be met through the emissions cap as opposed to other policy mechanisms, and how many emission reduction credits from countries outside the EU would be counted. This is a very real illustration of some of the risk factors arising from interactions between domestic policy programmes and international climate negotiations.

Companies have to incorporate these risks into their decision-making, and will generally incorporate risk premiums into their investment decisions. These risk premiums can often create an additional hurdle for capital-intensive low carbon technologies (such as nuclear power and renewables), which are often more sensitive to variability in the price of carbon than fossil-fired generating plant.

This raises many important questions. Should governments attempt to protect companies from these risks? Or would this represent too much of a hidden subsidy to companies and transfer too much risk to taxpayers? Are companies in just as good a position as anyone else to predict (and influence) the outcome of international negotiations, or are these political risks that only governments are in a position to underwrite?

These questions have profound effects on policy design. However, the answers are not obvious, and are likely to evolve over time in line with cyclical fashions for market-based or regulatory-based policy approaches. Policy options to limit exposure of companies to political risk need to be explored further, whether through additional taxation policies, price floors, carbon contracts, insurance or other financial products. But ultimately companies will still need to understand the complex interrelationships between domestic and international legislative processes.

The Copenhagen Accord has dented confidence in international institutions, but the process necessarily continues because countries will always have an

interest in the implementation of one another's climate policy. Over time there will inevitably be considerable learning, not only technological but also institutional. The Copenhagen summit has already been a significant learning event in relation to the efficacy of international negotiations. Subsequent negotiations will reveal further information on countries' ability to deliver and enforce the emission reductions to which they have committed. In that sense, companies should treat climate policy as a risk-management exercise in the same way that they manage a whole range of other business risks.

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