what after 2012 ?

Companies are run by people as conscious of their responsibilities towards the environment and future generations as anyone else, and they can do a lot to mitigate climate change. Oil prices are unlikely to return to their levels of a couple of years ago as global demand surges and production margins get tighter. Clean and efficient energy technology is a growing business sector and energy savings can be very profitable, but as important as they might be, energy savings alone will not be sufficient to mitigate climate change. Cedric Philibert jots down some notes on how we can "decarbonize" our energy mix.

RENEWABLES ARE OFTEN profitable in some niche markets, but not always on a wider scale. Technical improvements bring costs down while exhaustion of the best sites keeps them up. Fossil fuel use with carbon capture and storage may become competitive with renewable energies, but will always cost more than just using fossil fuel. So reducing CO_2 emissions beyond what energy savings will allow will bear costs. Firms can bear some of these costs but face competition. Thus, they cannot do much if their competitors do not follow suit. This is where governments must step in.

Governments must price carbon and create a level playing field for companies. Kyoto is a first step, but has not created a global level playing field fro a globalised economy. Greater technological cooperation between countries, such as that espoused by the Asia-Pacific Pact, is step in the right direction, but will it be enough? Likely not, as it does not create a global carbon price. Kyoto has introduced emissions trading to the world and this might be its greatest merit since it encourages investment in renewable energy projects in developing countries, in particular. Worryingly, that is exactly the reason why some countries do, or do not support the treaty and it is a point that must be taken very seriously. Beyond the chicken-and-egg issue – "we will engage when they will engage", and vice-versa – there are concerns about uncertain mitigation costs – and uncertain "unabated" emission paths. These concerns must also be addressed.

Developing countries could be first authorised to enter trading on the basis of non-binding, or "no-lose", targets, at country or sector level. If they beat the target they can sell surplus allowances, if they do not beat it they are not obliged to buy on the markets. This is likely the only way (very similar to the Clean Development Mechanism), to engage them on a larger scale while not threatening their economic development – or giving them large amounts of surplus allowances.

Industrialised countries too, have concerns about mitigation costs, as over-allocation in the European Union's Emissions Trading Scheme (EU ETS) demonstrates. These concerns could be addressed through some cost control mechanisms, such as price caps. Beyond allowed emissions, extra allowances would be made available at a fixed price. If the price level is reached, the money raised could be used to partially fill the gap in purchasing expensive reductions, finance more technology development or adaptation.

Price caps, I believe, could help all industrialised countries join an agreement, and help them adopt relatively more ambitious objectives than without them. Various concerns, however, have been expressed about price caps. The most-often expressed are the following:

1. Reluctance about price caps from shortages in commodity markets
2. Fear that the price be too low
3. Concern that the emission outcome is not certain
4. Fears that carbon prices would be too volatile for investors
5. Fears that no agreement could be reached on a single price
6. Uncertain climate damage costs prevent us choosing efficient price levels
7. Fear that price caps may prevent technology development
8. Perception that expected costs (benefits for some) are reduced

I would like to briefly comment on each of these concerns.

1. **Shortage:** Contrary to price caps in commodity markets, price caps in emissions trading schemes entail no risks of shortage.

2. **Too low price:** Nobody can ensure what a negotiated price cap level would be, but it is unlikely that countries that seeking for a "low" price cap would adopt stringent targets in the absence of any price cap; perhaps more importantly, I believe there is today a technological basis for setting a minimum price cap level. There is indeed a world wide agreement that carbon dioxide capture and storage (CCS) technologies will have to be used on a large scale in a couple of decades. In the short run, governments must finance more large demonstration plants and continue to ensure that the carbon price is high enough to drive large-scale CCS.

3. **Uncertain outcome:** Nobody, not even Sir Stern, has yet been able to say what exact CO2 concentrations should be sought. There might be thresholds beyond which climate damages increase sharply, but we ignore at what concentration level. The economic theory shows that with hybrid instruments and tighter targets can entail lower expected costs, while bringing greater benefits. There is a lower certainty that a set level of emissions is not exceeded, but a greater chance that emissions would remain below that same level.

4. **Volatile carbon prices:** With relatively lenient targets the carbon price may remain low on average but can prove rather volatile; with relatively more ambitious targets and price caps it will likely remain within a narrower range of values, as its minimum will be "higher" and its maximum capped;

5. **Multiple price levels:** A unique price cap level is not necessary but would be preferable. As said above, there is now a technological basis for an agreement on carbon price. Levels of efforts may remain differentiated between countries, as in the Kyoto Protocol, due to differences in assigned amounts.

6. **Uncertain costs of climate damages:** With or without price caps, choosing targets requires implicit, if not explicit, assessments of the costs of avoidable damages.

7. **Technology development:** Price caps may help adopt more ambitious targets at the outset, which are more likely to drive technology development than uncertain carbon prices associated with relatively lenient targets.

8. **Reduced benefits:** The overarching purpose of mitigation strategies is to combat climate change, not to make technology developers or carbon traders rich. Keeping global costs affordable remains a priority.

Most of these concerns stem from the vision that price caps would be introduced in a system where targets have already been adopted. If the concept is adopted first and the target numbers decided upon subsequently, the negotiating dynamics will be profoundly modified. Other cost-control measures can be thought of, but they have to prove they could be as effective as price caps. In any case, they would be likely ingredients of the post-2012 future, whether it is a modified Kyoto or a fully-new instrument.

biographical notes

CÉDRIC PHILIBERT is a former science journalist who advised the French environment minister 1988 – 1990. From 1992 to 1998, he advised the CEO of the French Agency for the Environment and Energy Efficiency, then joined UNEP and, in 2000, the IEA, in charge of the "evolution of climate policy". The views expressed here are those of the author and do not necessarily reflect those of the IEA, the OECD or its member countries.