



Determining carbon credit demand until 2020

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The Kyoto Protocol has set binding greenhouse gas (GHG) emission reduction targets for 37 participating industrialized countries. These targets can be achieved through a combination of measures including emissions reductions on a national level, investments in emission reduction projects abroad and the acquisition of carbon credits. The first step in determining how many credits will be needed until 2020 is to understand the forces driving demand.

Political quarrels, economic swings and demand for carbon

The demand for carbon credits is determined by three main drivers:

- the ambitiousness of participating countries' reduction targets
- the extent to which participating countries can meet their reduction requirements abroad
- the economic conditions of the participating countries

The carbon market has been and indeed is still being established

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Carbon credit demand is determined by a country's reduction targets, current economic conditions and to what extent these must be met domestically.

through international agreements and national legislation attempting to abate GHG emissions.

The political process of establishing reduction targets for nations is more of an aggressive chess game with multiple players trying to protect their interests than an orderly process involving defining targets based on pre-defined metrics such as the current stage of economic development. This was the case in the negotiations leading to the Kyoto Protocol in the 1990s and this is the case in the current post-Kyoto negotiations.

The Kyoto Protocol requires the industrialized countries to make at least half of the emission reductions domestically. The remainder can be purchased as carbon credits on the global market. The restrictions aim to force countries to adopt energy

efficiency measures and renewable energy projects domestically and not only rely on buying emission credits from the market.

The interpretation of these restrictions has varied greatly across countries. As there is no defined baseline against which to measure countries' reductions, the volume of credits allowed to a country has been driven by the rather arbitrary and often very inflated "business as usual" emission baseline of the countries.

Finally, the question remains whether all the credits countries are allowed to purchase are really needed. This issue has become especially acute with the recent downturn of the economy. Many countries which only a few years ago were expected to be drastically short of emission credits have seen

their emission levels drop to the extent that they don't need to purchase all the credits they are entitled to.

Time horizon for demand matters

The Kyoto commitment period (2008-2012) and the coinciding economic downturn has taught us two lessons. First, recessions have not disappeared from this world and a recession is linked with reduced emissions. Climate policy and reduction targets should not be crafted based on the assumption that the economy will continue to grow indefinitely at the pace of boom years. Secondly, long term reduction targets are an efficient tool to keep a carbon market alive even in times when demand for credits drops drastically.

While the Kyoto Protocol laid the foundations for a global carbon market and nurtured demand for

credits throughout the 2000s, the Kyoto targets alone would not be enough to create sufficient demand to sustain the carbon credit market today. In the short term, current demand is clearly not strong enough to support a functioning market.

Nevertheless, despite the drop in global carbon prices in 2008, the carbon market is currently seeing robust price signals. Few would dare to predict that prices will drop to zero in the coming years. Indeed, the European Union's (EU) mid-term climate policy and plans for similar policies in other countries are feeding current carbon prices.

Thus demand for carbon credits should not be viewed from a short-term perspective only, but should also look ahead to the year 2020, which most countries are setting as the mid-term reduction target year.

Demand until 2020 – American fog and European lighthouse

Currently, the main short-term political driver for credit demand is the Kyoto Protocol. Demand that stems from the EU's Emissions Trading Scheme (EU ETS) is subordinate to demand due to Kyoto as the EU ETS is merely a domestic policy tool to achieve Kyoto carbon reduction commitments.

However, due to the recession, the demand for credits driven by policy fundamentals during the Kyoto period – mainly from EU countries and Japan – might amount to only some 500 million tonnes CO₂ equivalent. Additionally credits are being purchased with the purpose of banking these for the post-Kyoto period.

A survey of the carbon credit world up until 2010 shows that, thanks to a legislative Climate Package adopted in 2009, the European Union is likely to continue to be the strongest global demand driver for emission credits due to its 2020 EU ETS reduction targets as well as its targets for sectors falling outside of the EU ETS.

Since half of the EU ETS reduction requirements can be met by credits, this amounts to a credit demand of between 1,700 and 1,400 million tonnes CO₂-equivalent (CO₂e) from 2008 to 2020. A tightening of the EU target from 20% to 30% would add roughly 1,000 million tonnes to EU credit demand.

But the EU is not the only source of carbon credits demand. Other major demand centers might emerge in the United States, Japan, Australia and Canada. Still, without an international post-Kyoto agreement, domestic legislation will continue to drive post-2012 credit demand in these countries.



There is hope that Australia might prove another major demand center for carbon credits although Japan is a more likely candidate.



A lack of political support for climate change mitigation means that the outlook for a US cap-and-trade scheme in the near future is bleak.

The various versions of US climate legislation proposed in recent years would have implied a credit demand for between 4,000 and 6,000 million tonnes CO₂e from 2013 to 2020. Unfortunately, with support vanishing in the US Senate, the introduction of a US cap-and-trade scheme is becoming more and more unlikely. The most recent proposals on how to deal with greenhouse gas emissions have concentrated more on renewable energy targets – a policy choice which would not leave space for a carbon credit market.

Similarly, politics seem to have turned against a swift introduction of a carbon trading scheme in Australia. Australia, which could have turned into a market for some 500 million to 700 million credits, seems to be steering more in the direction of a carbon tax as an instrument to set a price on carbon. Canada has said it will follow the course of US politics, which means no serious carbon trading policy initiative has been on the agenda there.

The land of the rising sun

Japan remains the most promising source of post-2012 credit demand outside of Europe. Japan's new government has changed the tone of the country's climate politics and a 25% overall reduction target on 1990 levels is now the base case.

Assuming that 50% of reduction efforts could be purchased abroad, such a target could amount to an overall demand of some 900 million credits for the period between 2013 and 2020. However, the opposition and industry is calling for a more modest target which could cut credit demand in half.

The last segment of carbon credit demand is the global voluntary carbon market. The carbon neutral movement is developing steadily and the voluntary market currently comprises about 5% of total carbon market volume.

Nonetheless, for now there is no reason to believe that the size of the voluntary market will drastically

increase post-2012. This virtually guarantees that the voluntary carbon market will continue to be a marginal tranche in the broader market context.

Puzzle pieces and scenarios

The global carbon market can be described as a big puzzle in which individual pieces can transform the overall shape depending on largely unpredictable policy outcomes. The sum of European puzzle pieces with a defined shape, i.e. policy certainty, constitutes some 3400 million carbon credits over the Kyoto and post-Kyoto periods. But who knows how the remainder of the pieces will be placed?

Assessing a future carbon market requires modeling scenarios and making assumptions on all the open issues including:

- achievement of a new international agreement beyond 2012
- the EU's decision on whether to adopt a 30% target by 2020
- domestic legislative processes in other countries

In a worst-case scenario, only meager demand from Japan would be added to existing demand post-2012, translating to an additional 4,000 million credits between 2008 and 2020. A best-case scenario in terms of carbon market size would add up to 11,000 million credits, mainly driven by an increase of the US market. Such an outcome however currently seems remote.

The two scenarios show the impact political decisions have on the future of the market. Until some fundamental decisions are made on all the open issues, speculation will continue and uncertainty persist. Yet even in its current limited form, the carbon market is up and running and offers opportunities for experienced players.