GED FARMER

THE DIFFERENT APPROACHES TO CARBON MARKETS

Since the start of carbon markets in 2002 with the UK Emissions Trading Scheme (ETS) – the first multi-industry carbon trading system – the carbon world has become a very diverse and complex place.

There are now 38 carbon pricing instruments operating or in their early implementation stages across the globe, with the share of emissions covered by those instruments having increased threefold over the last decade[1].

Driven largely by the Kyoto Protocol, and now with the Paris Agreement committing countries to hold the increase in global temperature to well below 2°C above pre-industrial levels, significant reductions in GHG emissions are needed, and these will require significant investment.

Governments and business increasingly agree that carbon pricing helps to mobilize the finance needed to support industry to achieve these goals.

Hence the complex carbon world will become more so. The EU ETS currently remains the largest international market, closely followed by the seven pilot schemes within China and the US with the Regional Greenhouse Gas Initiative (RGGI) and California's cap-and-trade programme.

Six jurisdictions implemented new carbon pricing instruments in the 2014–15 period[2]. In addition, Taiwan and Ontario announced that they would be adopting an ETS in the future, and Oregon, Ontario, and Washington State announced they are considering the implementation of an ETS.

With so many jurisdictions designing and developing carbon markets, and each government making decisions based on what is best for its circumstances and needs, it is important to consider the different approaches being taken and the effectiveness of some of the key design choices.

To effectively compare and contrast carbon markets we have chosen six key design elements to discuss, namely: the cap, allocation, cost containment, offsets, monitoring, reporting and verification (MRV) and oversight.

A primary issue for any carbon cap-and-trade program is the level of the cap. Jurisdictions have taken a variety of approaches to setting these targets. Some continue to base cap levels on the original Kyoto Protocol targets and therefore have a 1990 base year, but since the end of the Kyoto Protocol and the new Paris Agreement many jurisdictions have developed differing targets and base years submitted as their Intended Nationally Determined Contributions (INDCs). The base year chosen has little impact on the functioning of the carbon market itself, but the lack of commonality makes comparison of goals difficult.

An important consideration with the cap, which does impact on the market functioning, is ensuring it is set at an accurate level. The availability of accurate baseline data is essential to establishing an accurate and reasonable cap.

Overestimation of baseline emissions will lead to over-allocation of allowances which results in low allowance prices and thus a lack of incentive to reduce emissions. This was a key lesson for the EU ETS in its first phase, where poor quality baseline emissions data led to an over allocation of allowances, and prices fell to less than €1 in 2007.

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Whereas underestimation of future emissions, as was the case in the South Korean ETS's first year, leads to significant rises in unit prices and places excessive financial burden on participants in the form of compliance costs and non-compliance penalty costs.

The question of allocation relates to whether to auction allowances, issue them for free or to define a proportional split of approaches. The majority of schemes issue a proportion of allowances for free and the remainder is auctioned, with the amount of free allocations reducing as the programmes' mature.

There are two important considerations with regard to free allocation. The first is whether to use grandfathering, where entities receive emission allowances according to their historical emissions, or benchmarking, where allowances are allocated based on defined performance indicators. The second is to restrict this to those sectors that cannot pass on the costs to the consumer, those that are exposed to foreign

competition and those that have less ability to reduce their emissions intensity.

Under the EU ETS in phase 1 most allowances were issued by grandfathering, which rewarded historically high emitters and resulted in some entities achieving windfall profits. More recently designed schemes have learned from these difficulties and utilise benchmarking approaches. California for example utilises a sector specific emissions intensity benchmark which rewards efficient facilities.

Due to uncertainty over the cost of abatement, mechanisms are generally included within the scheme design to ensure that the price of allowances does not exceed was is supportable, these are commonly referred to as 'cost containment' measures. Such mechanisms include price ceilings, price floors and banking and/or borrowing between compliance phases.

Price ceilings are used to prevent severe escalation of allowance prices by setting a maximum allowance price at which allowances can be bought directly from the government. For example in the California scheme, there is an Allowance Price Containment Reserve (APCR) from which allowances were released at prices of $40, $45, and $50/tonne in 2013, rising at 5% plus inflation thereafter. Allowances are sold from the APCR on a quarterly basis if there is demand.

Price floors set a minimum price at which allowances will not be entered into the market, to prevent prices slumping to a level which would negate action for emissions reduction. For example under RGGI there is an auction reserve price. Allowances not sold at auction are retained by the authorities and can be re-auctioned in future years or retired.

Banking enables allowances to be carried over from past compliance phases, thereby enabling flexibility in meeting emissions reduction targets over a greater period of time. Banking can be extremely important to manage price fluctuations, particularly where a scheme may be suffering from over-allocation.

The problems that the EU ETS suffered at the end of its first phase due to the over-allocation were worsened by the inability of operators to bank any allowances for use in future phases; hence the phase 1 allowances had no future value. As a result of this the rules of the EU ETS were revised for later phases and now allow banking for future compliance.

The use of offsets is another consideration. Whether they be international or domestic offsets, these offer the opportunity for purchasing emission reductions at a lower cost than to reduce emissions at a facility level.

All carbon markets currently allow the use of offsets. International credits from the Clean Development Mechanism (CDM) and Joint Implementation (JI) have played a very significant role in international emission reduction, particularly through EU ETS obligated installations.

However, domestic offsets are increasingly being specified as the scheme design choice, for example in the US and in China with Chinese Certified Emissions Reductions (CCERs). Domestic offsets have the advantage of ensuring that the investments required are being made to the benefit of the domestic economy.

Monitoring, Reporting and Verification (MRV) plays an important role in all carbon markets. To ensure that operators are monitoring and reporting their emissions in a consistent and comparable manner, rules for how that monitoring and reporting shall be undertaken are clearly defined.

This monitoring and reporting is supported by verification, either by government inspection or an independent, accredited verification body. Such external verification provides transparency and trust for the users of the information reported that it is accurate.

Finally, oversight of any carbon market is essential to ensure transparency and to prevent fraud or manipulation of the market. Measures are put in place to ensure that ownership of allowances, verification of offsets and cancellation of credits is securely managed, tracked and transparent for all market participants.

The EU ETS has been subject to a number of security problems where national registries have been hacked and allowances stolen. The introduction of the common EU registry has greatly improved security, however this has been constantly revised and upgraded in line with evolving security standards.

It is clear that our future international carbon market will be a patchwork of different domestic approaches; this is necessary to ensure that actions are appropriate to domestic situations and needs. However it is important that these schemes continue to learn from the lessons experienced to-date and continue to evolve.

The considerations of the cap, allocation methodologies, cost containment, use of offsets, MRV and market oversight are essential to ensure continually effective functioning carbon markets. Whilst a truly global carbon market now seems beyond reach, the correct consideration of these design elements may assist in future linkages between schemes to facilitate cross border trade and still achieve the benefits of a global market, namely: significant and sufficient scale to attract investment; improved stability of the carbon price; and cost efficiency.

Ged Farmer *is Technical Manager, Sustainability at LRQA*

(1) State and Trends of Carbon Pricing 2015 - World Bank Group (2) Hubei, Chongqing, France, Mexico, South Korea, Portugal.