

What role for carbon trading?

Has the Paris Agreement breathed new life into cap-and-trade schemes, recently accused by some critics of being dead in the water?

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Paris, the 'City of Lights', is known for an endless list of things: art, culture, food, philosophy, fashion and science to name a few. However, in the environmental world it has achieved a new renown. It was the birthplace in 2015 of the Paris Agreement: an international agreement in which 195 countries achieved a consensus on the next steps to address climate change. This was the greatest milestone since the Kyoto Protocol was adopted in 1997.

Beyond generating consensus, another important feature of the Paris Agreement is that it sends important signs about the advancement of emissions trading as a policy tool. Article 6 of the agreement offers structures that help support current and future market-based efforts in various parts of the world. (It is estimated that over 65 nations currently have implemented or are considering an emissions trading programme for their respective jurisdictions). The Article also supports the eventual linkage of different trading regimes; broader use of emissions mitigation measures; and a call for the greater use and incorporation of sustainable development into national policies and goals.

Both the Kyoto Protocol in 1997 (in the case of greenhouse gas emissions) and the Clean Air Act of 1990 in the US (in the case of sulphur dioxide emissions) provided 'enabling' language that, while not explicitly mentioning a market structure or rules, helped to start successful emissions markets around the world. We would like to make the case that the agreement reached in Paris is not a mere accident in its use of enabling

language, but that it clearly builds on the successful experiences of both the Acid Rain Program in the US and the European Union Emissions Trading System (EU ETS).

Economic rationale

As a quick background, the work of Nobel Laureate Professor Ronald Coase at the University of Chicago, on how to reach an optimal solution to the issue of negative externalities through private negotiation, became the theoretical basis for emissions trading, commonly known as 'cap and trade'.

The economic rationale for emissions trading is simple. It sets a cap on aggregate emissions in order to reduce harmful pollutants and their impacts, with each participant being assigned a fixed number of 'allowances' representing the right to emit a unit of the pollutant. A participant who reduces emissions below their allocated number of allowances can sell the extra excess reductions, and is incentivised to do so to another participant. The latter can use them to hedge their compliance needs – at a cost – until they can install new technologies to meet their reduction targets. In the meantime, systemic reductions are achieved at least cost to society.

The implementation of a wide-scale cap-and-trade system was first tested in the US, which is still to this day one of the most successful examples of a cap-and-trade system in the world. The US Environmental Protection Agency's (EPA) Acid Rain Program, enabled by the Clean Air Act Amendments of 1990, facilitated the reduction of sulphur dioxide emissions (the main cause of what was commonly known as acid rain) from power generation (i.e. the main sources covered by the Acid Rain Program) from 18 million tonnes in 1990 to three million tonnes in 2012.

This was 78 per cent lower than 1990 emissions and considerably below the 2010 mandated cap of 8.95 million tonnes. To achieve this permanent and significant reduction, each generating unit was assigned a fixed number of allowances, each representing the right to emit one tonne of SO₂. Each unit could then choose how it would reduce its emissions. Flexibility was key: a unit that reduced emissions below the number of allowances it was allocated could sell the extra allowances (or excess reductions) to another unit that might use them to compensate for emissions above its individual target.

Independent estimates by the EPA show a 40-to-one benefit-cost ratio. In 2010 alone, healthcare costs were reduced by \$120 billion at a cost of between one and three billion dollars. Estimates indicate that between 30,000 and 40,000 lives were saved in that year.

In Europe, a multinational system for the European Union started in 2005 and has now become the world's largest carbon market. The EU reduced carbon emissions by 24 per cent by 2014, six years ahead of its 2020 mandated target of 20 per cent. However, numerous articles in the popular press erroneously announced the failure of the EU ETS, citing low prices while overlooking this incredible accomplishment. This seems to be a typical case of 'curing the fever by breaking the thermometer'. The price is merely an output of the programme design and of its fundamental drivers. It is sounder policy to modify the underlying design (for example, imposing more stringent targets) than to try to artificially raise or fix the price.

Alive and well

Contrary to public perception, as presented in the mainstream media, the evidence on

Price trends for EU emission allowances (EUAs) and certified emission reductions (CERs), 2005–14

EUR/EUA, EUR/CER



Source: EEX (EUA price), 2015; ICE ECX (CER price), 2015. Graph produced by European Environment Agency

the ground is that cap and trade is alive and well, not only in Europe but also in America. Since 2009, 10 states on the east coast of the US have been participating in the Regional Greenhouse Gas Initiative, with a goal of reducing power plant emissions by 10 per cent by 2018 from 2009 levels.

More importantly, California, a state which is often a national trendsetter in innovative areas such as entertainment and technology, began a cap-and-trade programme in 2012. The programme is performing well and providing a much-needed price signal function. Open interest in Californian allowance futures (the measure of the breadth of a market) is now larger than established commodities such as oats and lumber.

On 1 October 2013, California and the government of Québec announced the completion of an agreement that harmonises and integrates their two cap-and-trade programmes. California is also working closely with other western US states and Canadian provinces. Like seat-belt laws, cap-and-trade policies in the US are going to emerge via a bottom-up approach, from

individual states – yet another data point that suggests that innovations in this area are percolating at the local level.

Countries such as Mexico and South Korea have passed enabling legislation, while emerging economies such as Brazil, India and China are pursuing cap and trade. China is piloting seven different cap-and-trade programmes that will cover around seven per cent of China's total emissions, or roughly the total amount emitted by Germany each year. This critical development is already having a tremendous impact on the discussions about the future of emissions trading as a policy tool. It is no surprise that California and China have signed a memorandum of understanding to explore ways to link the two programmes.

The environmental marketplace is vibrant with activity around the world. Contrary to the notion that the world will have a unified environmental market, we are witnessing a 'plurilateral' system that includes regional, state and national markets. In the US, California is leading the way. China is also in the vanguard with its seven separate cap-and-trade pilot markets and its intention to start a national programme next year.

▲ There are lessons to be learned from the experience of the EU ETS. The sharp economic slump in 2008 resulted in an abrupt decrease in emissions, leading to the accumulation of surplus allowances, which hampered the market from functioning effectively

In addition, emerging markets that begin developing environmental policies by setting energy efficiency goals are also ones to watch. India has been focusing on promoting energy efficiency but could soon morph into cap and trade, which would be a positive development on the world stage.

Markets in emissions and 'rights to use' have helped to solve environmental problems and created enormous investment opportunities. They have achieved this by commoditising the externality and then pricing it. The same concept could also be applied to water quality and quantity issues.

Although beyond the scope of this piece, developments in water markets are a trend that readers should also pay attention to in the next decade. The convergence of the environment and finance is here to stay, and the developments of the Paris Agreement seem to confirm this trend. ●