

Heading towards the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) to be held in Paris from November 30th to December 11th 2015, I4CE - Institute for Climate Economics, in partnership with ADEME, the French Environment and Energy Management Agency, attempts to shed some light on the challenges surrounding this Paris Climate Conference 2015. We will be exploring what can be expected from the post-2020 climate agreement in Paris. We will also be discussing some key success indicators of such an agreement. Over the course of six issues, ClimasCOPE will provide analysis related to carbon pricing, climate finance, greenhouse gas (GHG) emissions' accounting, the role of subnational actors, adaptation to climate change and the compatibility of government commitments with the scenario where in global mean temperatures would rise by no more than 2°C.

Editorial – Carbon pricing: a necessary tool on the agenda of solutions for climate funding

The main issue of the Paris Climate Conference 2015 is to achieve a new international climate agreement, applicable to all countries, which aims to keep the global temperature rise below 2° C. To motivate governments into action, one of the key elements of these negotiations will be to secure a commitment from developing countries to reduce their GHG emissions. This challenge is intrinsically linked to the development of new financing solutions allowing industrialised countries to support developing countries in their efforts to implement mitigation and adaptation measures. In a pledge made in 2009, in Copenhagen, developed countries committed to provide funds of \$100 billion per year by 2020 to developing countries to support their action against climate change. Created in Durban, in 2011, to meet this high demand for funding in developing countries, the Green Climate Fund, has so far collected capitalization (State pledges) of \$10 billion. So the question is, what solutions can be found to achieve this Copenhagen goal and increase its funding tenfold to finance global transitions to a low carbon economy, estimated to cost some \$1000 billion per year? The search for solutions must extend beyond the UN negotiating process. Putting a price on carbon could constitute one of the economic solutions that increases the competitiveness of GHG emission reduction measures and garners new sources of funding to support the transition to a low carbon economy.

According to economic theory, setting a single, global price for carbon, regardless of the source or the country in which a tonne of carbon is emitted, would be the basic ingredient for effective global action. Putting a price on carbon at the international level could be achieved through the introduction of a global tax or by implementing an emissions' trading system shared among the participating States, as in the Kyoto Protocol. The issues at stake for the Paris agreement are different. The new

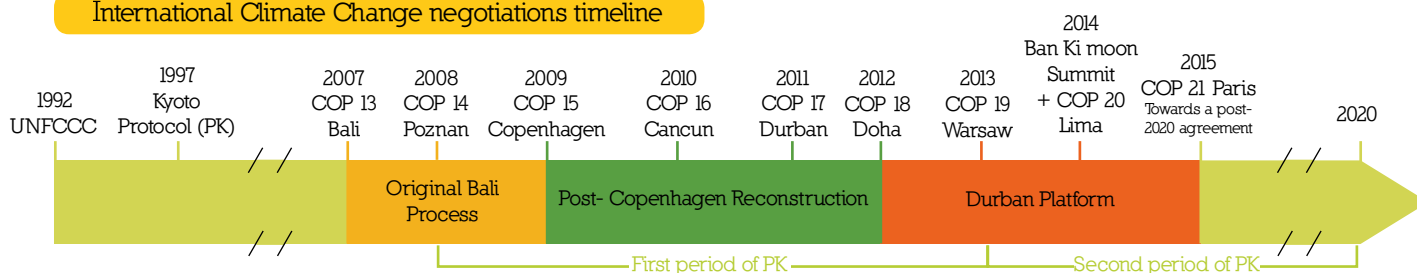
agreement will not seek to establish an international carbon price. Instead, in order to be successful, it will have to foster the emergence of long-term national, regional or sectoral economic signals, to encourage both public and private decision-makers to achieve the environmental and energy transition and to generate funding.

How could this agreement facilitate the emergence of a carbon price? Drawing from the lessons and achievements of the UNFCCC and its Kyoto Protocol, it will firstly have to foster the implementation a harmonized GHG emissions accounting system for all countries. Secondly, to allow for the development of national, regional and even sectoral carbon price signals, the Paris agreement will have to provide flexibility in the choice of economic instruments used by countries to achieve their GHG reduction targets. Some aspects of the Lima Agreement also suggest the possibility of using market mechanisms to complement national actions. Thirdly, mutual recognition - which requires knowledge - of the efforts of each country may encourage a longer-term convergence of the use of economic instruments such as a carbon price.

In the long term, the convergence of different carbon prices to a single, global carbon price cannot occur without ensuring the comparability of the abatement efforts of countries. The ability to compare efforts through more transparent and standardized communication between countries is therefore the primary issue that the Paris agreement should address. Thus, it is not only the linking, but also the harmonization of reporting systems that will indicate whether the convergence of the abatement efforts is underway.

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International Climate Change negotiations timeline



Source: I4CE - Institute for Climate Economics, 2015.

The Challenge – Putting a Price on Carbon

Carbon pricing offers consensus as a tool to fight against climate change. Encouraging economic decision makers to invest in clean energy and more low-carbon technologies and enhancing their efforts requires giving an economic value per tonne of gas emission of greenhouse gases (GHGs). Many initiatives, reports and political speeches urgently call for the setting of a price on carbon. But under what conditions can this price come about and what are the expectations for the future climate agreement in Paris?

One of the main issues of the Paris agreement is to promote the emergence of economic signals

Several initiatives support the urgent need to establish a carbon price for all economic and policymakers. The Calderón-Stern report *'Better Growth Better Climate'*, published in September 2014, presents ten recommendations to contain global warming below the 2°C scenario. These include the introduction of a carbon price. At the Ban Ki-moon summit, held in September 2014 in New York, 73 countries, 11 regional governments, 11 cities and more than 1000 companies expressed their support for the introduction of a carbon price through the initiative *'Putting a price on carbon'* led by the World Bank.

The legally binding agreement expected to be signed in Paris will not lead to the establishment of a carbon price between the signatory countries. However, this agreement will facilitate the implementation of carbon pricing policies that lower the cost of emission reductions.

A fair price on carbon

In the lead-up to the Paris conference, the countries will present the efforts they consider are achievable in the context of *Intended Nationally Determined Contributions*¹¹. Based on national specificities, each country may select its own economic instruments to cost-efficiently reduce its GHG emissions.

The public climate policy toolbox includes several economic instruments which could bring about the emergence of a carbon price. Tools can be price based (i.e. taxes), while others are contingent on carbon intensity (emission standards), or on the quantity of emission reductions (emission trading scheme, GHG emission reduction mechanisms).

- **Carbon tax:** a monetary levy added to the selling price of a product – such as fossil fuel – based on the amount of GHG emitted during use.
- **Emission standard:** a legal reference standard which determines the amount of GHG emissions to be respected during the production of an item or a technology.
- **Cap and trade system:** a mechanism which sets emission reduction obligations for market participants and assigns emission allowances according to that ceiling. Participants can buy quotas – to compensate for excessive emissions – or sell quotas – to make the most of additional reduction efforts.

GHG emission reduction mechanisms such as the Clean Development Mechanism, Joint Implementation, and the Japanese Bilateral joint crediting mechanism are examples of instruments that reduce GHG emissions by channelling funding to economically competitive low-carbon projects. They can be seen as compensation systems that can be both mandatory and voluntary. While they do not explicitly authorise the emergence of a carbon price they can help to expand the scope in which a price can be implemented.

The effectiveness of a carbon price signal will be even greater than the transfer achieved by the producer of GHG emissions (companies or industries) to the end user so that there is also encouragement to choose products that emit less carbon.

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Proportion of GHG emissions covered by carbon pricing tools



Jurisdictions featuring a carbon price in 2015*



* Carbon pricing include taxes, standards and emission trading scheme.
Source: I4CE - Institute for Climate Economics, 2015.

¹¹ INDC (*Intended Nationally Determined Contributions*), for which the principle was officially recorded during COP19 in Warsaw in December 2013, represent the effort that each country expects to achieve in the fight against climate change.

Links to more information

- World Bank, State and trends of carbon pricing 2014. <http://documents.banquemonde.org/curated/fr/2014/05/19572833/state-trends-carbon-pricing-2014>
- World Bank, *Put a price on Carbon*. <http://www.worldbank.org/en/news/feature/2014/09/22/governments-businesses-support-carbon-pricing>
- CALDERÓN and STERN, *Better Growth Better Climate*, Report, <http://newclimateeconomy.report>

News – First submissions of intended Nationally Determined Contributions for Paris Agreement

Initial contributions

Several countries have begun to submit their INDCs to the UNFCCC. On February 27th the EU committed to a domestic target to reduce GHG emissions by at least 40% by 2030 relative to 1990 levels covering all economic activities. Additionally, the EU intends to submit a policy on reducing emissions from Land Use, Land Use Change and Forestry (LULUCF) activities before 2020. Meanwhile, **Switzerland** committed to an emission reduction target of 50% by 2030 relative to 1990 levels on March 6th which will be met with partial use of carbon credits from international mechanisms. On March 27th **Norway** submitted their contribution of at least 40% reduction by 2030 relative to 1990 levels which will include all sectors from energy to land-use and waste covering 100% of emissions. Lastly, **Mexico**, on March 28th submitted their INDC of an unconditional, nation-wide 22% GHG emissions reduction by 2030, relative to a BAU scenario starting from 2013, with emissions to peak at 2026.

However, if a global agreement is reached, the reductions commitment could increase to a target of 36% GHG reductions by 2030.

First meeting of international climate negotiations since the Lima Conference

The first meeting of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)² since Lima COP20 was held from February 8th to 13th of 2015 in Geneva, Switzerland in preparation for the post-2020 negotiations. The objective of the Working Group is to propose a draft text for agreement to be negotiated in Paris later this year. The proposed draft text covers the following elements; mitigation efforts and adaptation strategies, technology transfer, capacity building and enhancement, financing and loss and damage. An additional assignment to the WG is to outline technical aspects of the agreement such as the schedule and

April Calendar

- March 31st: Deadline for voluntary submission of nationally contributions
- April 13th - 15th: 7th Carbon Forum in Africa to take place in Marrakech, Morocco
- April 17th - 19th: Spring meeting of the World Bank and the International Monetary Fund, in Washington D.C., United States of America.

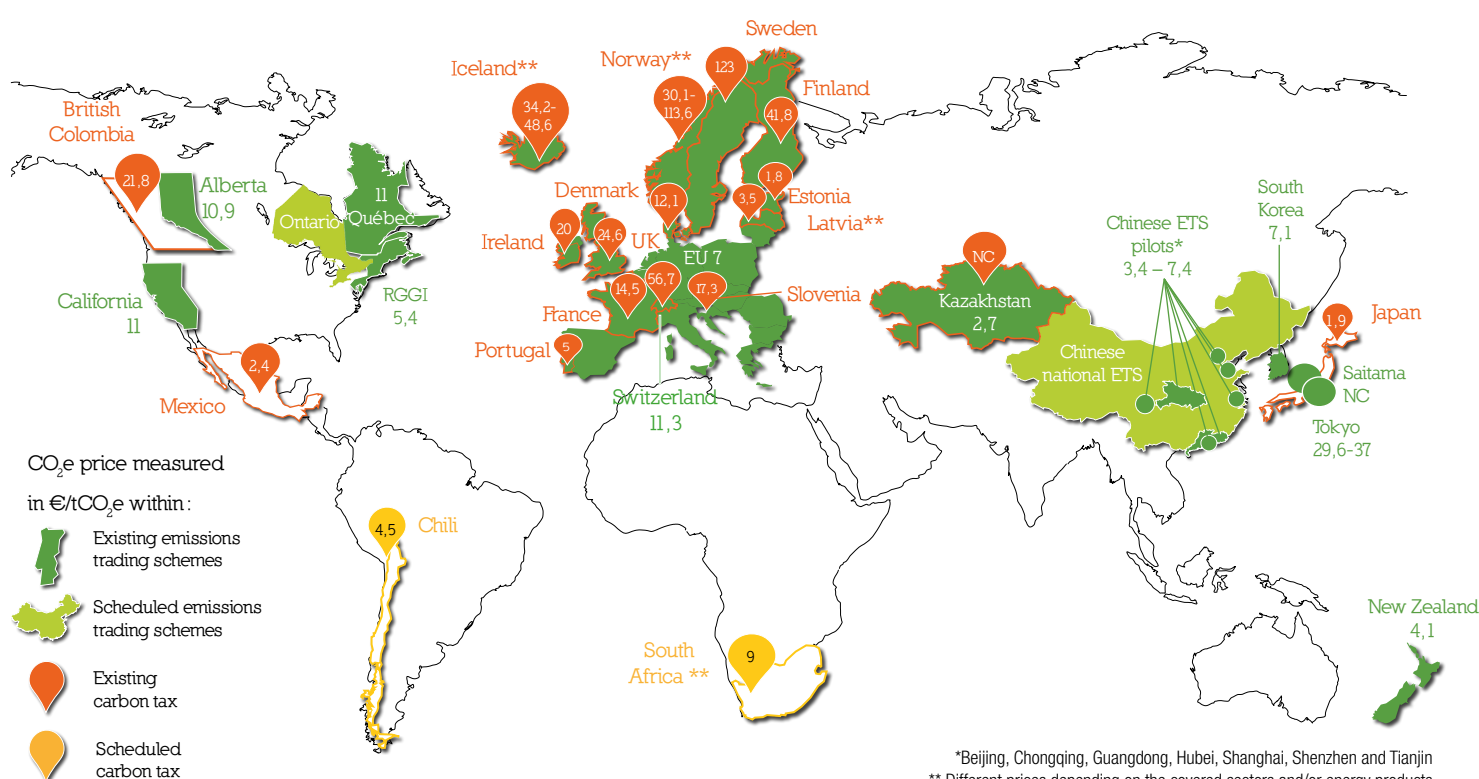
evaluate national commitments. The draft document is expected to consider the different positions held among the parties and highlight the various options available to countries with challenging circumstances. The next technical session will take place in Bonn in June 2015, where informal discussions on the elements of the proposal will be held before finalising the proposal that will be negotiated at COP21.

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² ADP = Ad hoc working group on the Durban Platform for Enhanced Action. The Durban Platform was created in 2011 to bring all the countries to the table to work on a 'protocol, a legal instrument or an outcome with legal force' that will be applicable to all parties to the Climate Convention of the UN (UNFCCC).

Indicators

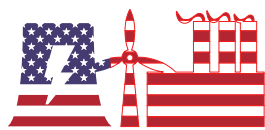
Carbon pricing world map in 2015



*Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin
** Different prices depending on the covered sectors and/or energy products
Source: I4CE - Institute for Climate Economics, June 2015.

Initiatives – 5 carbon pricing initiatives

USA's Clean Power Plan (CPP): sets a federal target to cut carbon pollution from power plants.



In June 2014, the US Environmental Protection Agency (EPA) published their proposals to cut carbon pollution from power plants which will be adopted in the summer of 2015. The plan provides various options for states to reduce their emissions to achieve a national GHG reduction of 30% by 2030 relative to 2005 levels. The CPP will implement a consistent national framework that builds on states current efforts to reduce carbon pollution. The proposal also ensures that states are afforded the flexibility to choose the most cost-effective reductions for their state's circumstances and may achieve the federal target individually or in regional groups. If approved, the proposal would cover 32% of US GHG emissions.

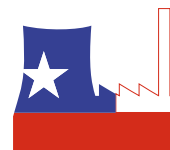
Chile's carbon tax: a tax against air pollution and climate change



In September 2014 the Chilean government adopted legislation supporting a 'green tax' which will enter into force on the 1st of January 2017. The regulation covers emissions from stationary and mobile sources of GHG emissions. The regulation covers:

- Carbon dioxide (CO₂): US\$5 per emitted tonne.
- Sulphur dioxide (SO₂), nitrogen oxide (NOx) emissions and particulate matter (PM): US\$0.1 for per emitted tonne.

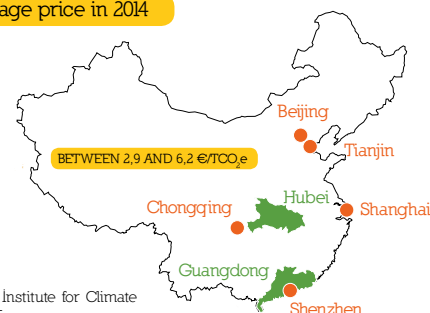
Thermal power plant of 50MWt are covered for all GHG and particulate matter whereas light and medium sized commercial vehicles are only covered for their NOx emissions. Taxis and emergency vehicles are exempted.



Chinese CO₂ emissions trading systems pilots: a novel experimental strategy

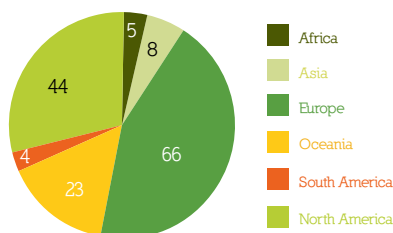
From June 2013 to June 2014, China launched emission trading schemes (ETS) pilots, including two provinces and five cities, in preparation for the launch of a national carbon market in 2016. The participating territories were selected to represent the various and diverse economic, industrial and geographical conditions of China. The purpose of the program was to enhance regional understanding of trading emissions and to facilitate the development of a national-scale system.

Pilots average price in 2014



Private business initiatives: Internal carbon pricing

Companies with internal carbon pricing (by country)



Carbon Disclosure Project, September 2014.

In order to prepare for the introduction of carbon regulations, some businesses, in an effort to increase their adaptive capability to reduce GHG emissions, have implemented internal carbon pricing programs. According to the *Carbon Disclosure Project*, in 2014, 150 companies operated using an internal carbon price. In the same year 254 companies invested in emission reduction projects of which 79% had set an internal target. This led to a 362 CO₂e emission reduction (increase of 1% relative to 2013 levels). Internal carbon pricing incomes could be used to:

- allocate proceeds to internal environmental initiatives.
- purchase offsets from voluntary market to compensate for generated emissions.

'Carbon Pricing Leadership Coalition': Multilateral action from the World Bank

In October 2014, the World Bank (WB) launched the '*Carbon Pricing Leadership coalition*' (CPL) to follow the '*Putting a Price on Carbon*' statement in September which garnered the support of over 1,300 organisations and governments. The CPL invites president, ministers and business leaders to deepen the public-private dialogue. From February to June 2015, the main objective of the program will be to analyse carbon price scenarios demonstrating their economic effectiveness. By October 2015, the WB will have developed strategies to raise awareness and provide assistance to governments and the private sector. In addition to the CPL, the WB also supports the adoption of carbon pricing mechanisms through the '*Partnership for Market Readiness*' program (developed to support the preparation of emission trading systems) and the 'Networked Carbon Markets' initiative (examines the potential connectivity of carbon pricing initiatives).



I4CE – Institute for Climate Economics is a research institute on climate economics launched in September 2015, supported by *Caisse des Dépôts* and *Agence Française de Développement*. This think tank provides independent expertise and analysis on economic issues related to climate & energy policies in France, in Europe and throughout the world. The views and opinions do not engage the responsibility of ADEME.

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