

# CARBON MECHANISMS REVIEW

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## What Role for Market Mechanisms in the 2015 Agreement?

Flexible instruments pre and post 2020

### Early Mover

The EU 2030 Package and  
what it means for Markets

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November - December 2014

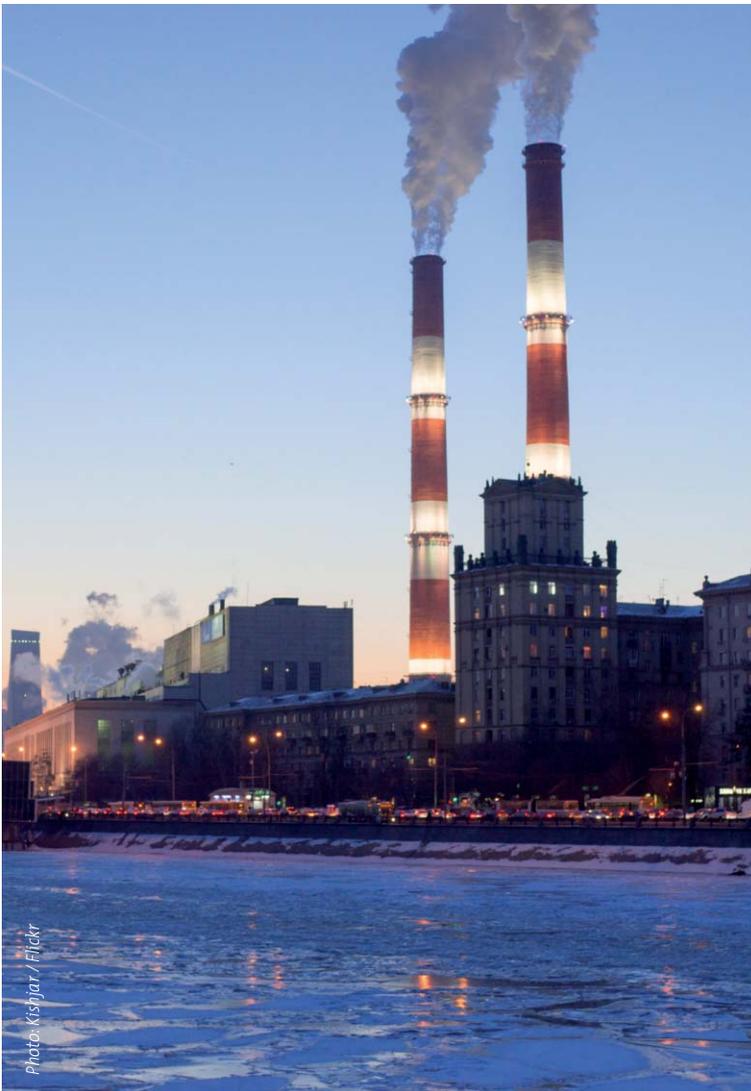


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# editorial

## Dear Reader!

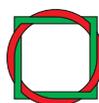
Is this the game changer? Many observers of the climate change negotiations watched with great interest the joint announcement of the US and China on their plans to curb GHG emissions.

The fact that China, as one of the largest emitters, has taken such a proactive step at such an early juncture breaks a major deadlock in the negotiations – the US had taken the stance that if China failed to act, they would not go ahead either. The coming months will show whether this momentum can be maintained and if it can contribute to a successful climate change agreement in 2015.

In this issue of CMR, we report on the EU announcing its climate change plans ahead of the US and China. We analyse the EU 2030 package and its implications for markets. And we ask what role the carbon markets should play in the 2015 agreement. This latter point is examined from two different angles, with Dirk Forrister, CEO and President of IETA, and Franzjosef Schafhausen, Director General for Climate Policy, European and International Policy, at the German Environment Ministry, putting forth their views and opinions. We also take up the debate on net mitigation and analyse the implications for selected project types, project developers and host countries. Last but not least, I am delighted to present an overview of the current state of the Chinese emissions trading systems and their offset provisions, written by practitioners from those markets.

On behalf of the editorial team, I wish you an informative read.

*Christof Arens*



**Wuppertal Institute**  
for Climate, Environment  
and Energy

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# Early Mover

## The EU 2030 Package and what it means for Markets

Silke Karcher, BMUB

**In the early hours of October 24, at about 1.30 am, the European Council conclusions on climate were through<sup>1</sup>, and all those who had waited near phones and screens to give last-minute advice or pass on breaking news finally went to bed – or to buy themselves a stiff drink. It had been an important night for those working on EU climate policy.**

### For the non- EU-centered audience: What happened?

On October 23 and 24, the European heads of state had convened for their quarterly meeting in their capacity as the European Council. The last time they had addressed climate had been in March, when they had not decided much other than agreeing to decide on key elements of post 2020 climate policy in October – in time for the Lima COP in December, but too late for the UN climate summit in September.

EU legislation is proposed by the European Commission and decided by the European Parliament and the Council of the EU<sup>2</sup>, meaning the regular meetings of line ministers from the 28 member states; decisions in the ministers' council are reached by qualified majority. The European Council, on the other hand, explicitly does not decide on legislation, and traditionally decides in unanimity. It has a powerful role in setting the strategic agenda and achieving consensus on central issues. Given the broad range of positions as well as the long term perspective, it was

obvious that, as in the last climate package, the European Council would have to set the targets.

In the run up to the Council meeting, hopes for compromise were high, but failure to agree was a concrete fear. Just a week before the meeting, the German Chancellor felt the need to manage expectations by pointing out that an agreement might not be reached.

However, the Council delivered and came up with a triad of targets for reducing greenhouse gases (GHG), fostering renewable energy use and increasing energy efficiency – along with a detailed outline of the envisaged legislation.

The degree of detail is unusual for European Council conclusions. This was necessary because several member states, especially Poland and the Visegrad + 2 Group<sup>3</sup>, insisted that they could not agree on targets without knowing the details of what the outcome would mean for them in pretty concrete numbers.

The targets were set at:

- At least minus 40 percent domestic (i.e. within the EU) versus 1990 for GHG reduction
- At least 27 percent for renewables in 2030
- And at least a 27 percent efficiency increase versus the same trend line as in the previous

<sup>1</sup> See: [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/145397.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf) (accessed November 10, 2014)

<sup>2</sup> Yes, it is confusing. There are two different EU institutions with very similar names: the summit of heads of state (known as the European Council) and the meeting of line ministers, called either the Council of the EU or the EU Council. (There is also a body called the Council of Europe, which is not an EU body at all.) See also [http://europa.eu/about-eu/institutions-bodies/council-eu/index\\_en.htm](http://europa.eu/about-eu/institutions-bodies/council-eu/index_en.htm)

<sup>3</sup> The Visegrad countries are: Poland, Hungary, Czech Republic, and Slovakia; the '+ 2' being Romania and Bulgaria.

package. With regards to efficiency, a review is planned with a view to a 30 percent target

The GHG target is binding, the renewables target is binding at EU level, but not for individual member states, and the efficiency target indicative.

A fourth target was added: electricity grid interconnection, which should be increased to 15 percent of installed capacity by 2030. This recognises the role of a well-connected grid for security of supply (currently the Baltic states are better connected to the Russian rather than to the EU grid) and for the integration of fluctuating renewables (a reason why Portugal and Spain, with high renewable shares but weak connection to the rest of the EU, insisted on targeting the issue).

## The targets send two strong messages

Firstly: **the EU still has a strong climate agenda.** While a 40 percent reduction might not be the full share of what the EU needs to contribute to a below 2° warming world, the addition of “at least” is more than the Commission had suggested (40 percent) and opens the door to increasing ambition in the forthcoming UNFCCC negotiations. Knowing the way decision-making processes go in the EU, the fact that the Council tightened rather than watered down a proposed target is impressive and perhaps unprecedented.

Secondly: the EU continues to recognise the necessity for integrated climate and energy policy, which specifically addresses renewables and energy efficiency as important pillars for achieving climate targets, and for addressing security of energy supply.

The specific message to markets beyond the clear commitment to climate policy is more complex, as outlined below.

## The 2020 package forms the basis

The previous EU climate package covering EU climate policy for the period up to 2020 came into being when the European Council agreed targets for GHG reduction, renewables use and

energy efficiency in 2007<sup>4</sup>. The GHG target was set at 30 percent based on 1990 levels, on the condition that a comprehensive international climate agreement was reached, and 20 percent unilaterally – which is still the EU target for 2020, as the agreement has yet to materialise. A target for renewables was set at 20 percent of final energy consumption in 2020. For energy efficiency, an indicative target was adopted to low energy demand by 20 percent compared with projections for 2020.

The GHG target was then implemented by adapting the Emissions Trading Directive for the energy and industrial sectors. The EU also adopted the Effort Sharing Decision (ESD), setting binding national targets for each member state for GHG emissions outside EU Emissions Trading Scheme (ETS) sectors. The renewables target was broken down into member state targets in the Renewables Directive, thus setting the enforcement framework. These three legislative measures were adopted in 2009.

Energy efficiency in the EU is addressed by several separate pieces of legislation on appliance standards, promotion of co-generation and building standards, respectively. In 2012, a new Energy Efficiency Directive (EED) was adopted with the aim of closing the remaining gap in achieving the 2020 savings target.

## Markets and the 2020 package

Markets have a role in many areas of the 2020 package:

- The ETS, meaning the carbon market, is naturally the central climate policy instrument for the energy and industry sectors. While industries facing international competition enjoy free allocation based on GHG efficiency benchmarks, from 2013 on full auctioning was the rule for the energy sector. Exemptions for full auctioning in the power sector were, however, granted to many of the newer and poorer member states in order to ease their energy sectors' transition.
- Limited exchange of quotas between member states via bilateral agreements was allowed in the non-ETS (meaning the ESD) sector. For the time being there is no trade under

<sup>4</sup> See: [http://www.consilium.europa.eu/ueDocs/cms\\_Data/docs/pressData/en/ec/93135.pdf](http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf) (accessed November 10, 2014)

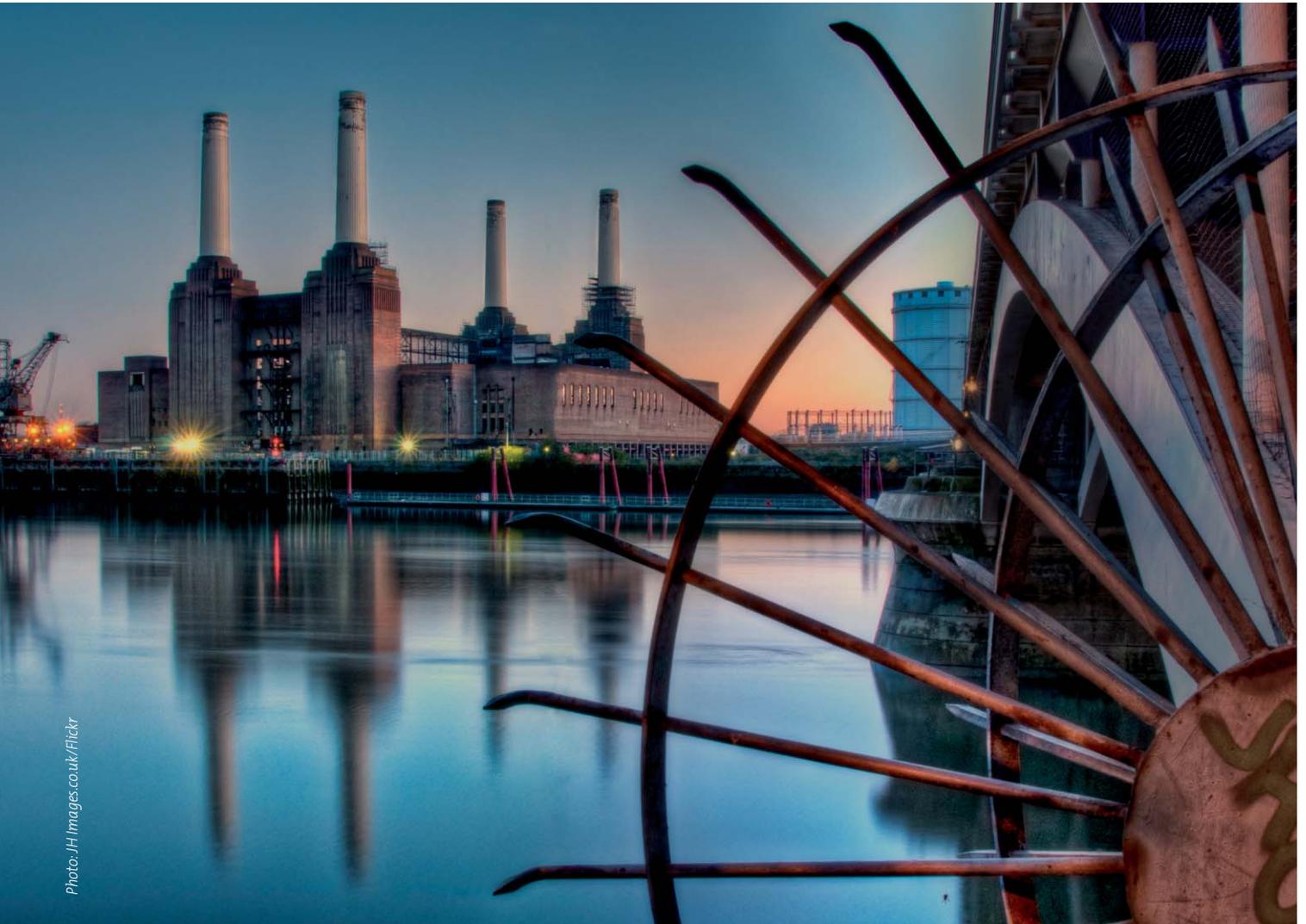


Photo: JH Images.co.uk/Flickr

*Fossil fuel-based energy production is one of the technologies that need to be replaced on the way towards a carbon neutral society: The Battersea Power Sea Station in London ceased generating electricity in 1983, but not for reasons of climate change.*

the ESD. However, the ESD only took effect from 2013 on – and in any case, most countries are either well or over-allocated as regards ESD units (AEAs).

- Domestic offset projects were envisaged but never included in legislation. These projects would have produced carbon credits in ESD-covered sectors and allowed their use in the ETS. Project mechanisms within the realm of the ESD were not planned.
- The use of international credits (CERs and ERUs) was allowed to some extent in the non-ETS arena and to a fairly large extent under the ETS. Use of CERs and ERUs was envisaged very early and was first regulated with the EU Linking Directive in 2003. The way international credits were addressed in the EU ETS later proved to be a heavy burden for the EU ETS and for the European debate on carbon markets (see Box).
- Trade in renewables quotas between member states is possible under the Renewables Directive, and has been used to a small extent – one example being Luxembourg buying quotas from Germany.
- European trade in efficiency certificates (often called white certificates) was not implemented in legislation. However,

## CERs and ERUs in the EU ETS

A very generous quota for use of Kyoto certificates in addition to EU allowances was decided and was not compensated for by reducing the original amount of allowances, thus inflating the cap from the very beginning. This had two effects: It started the CDM (and JI) gold rush that led both to an unprecedented rise in the development of climate protection projects worldwide and pioneered private sector involvement in the sector. However, the down side was oversupply within the EU. When the economic crisis hit, driving emissions down, the oversupply surged again and almost caused a collapse of the EU market with its constant low prices. This has led to a situation where carbon market-friendly stakeholders, including in the European Commission, are now extremely wary of international certificates, because they see them as a threat to the domestic carbon market. The unique kick-start the EU-based demand had given the international carbon market is far less present in deliberations on the future of carbon markets than the concern about the current price level in the EU ETS.

the Efficiency Directive encourages reduction obligations for energy suppliers that can be implemented via national certificate systems. Different systems using certificates have been implemented, for example, in Poland, the UK, Denmark and Italy.

## Beyond 2020: The 2030 package and its impact on markets inside and outside the EU

The 2030 package has various market impacts, many inside the EU (such as the ETS) and some outside the EU.

The European 2030 GHG target is set at at least a 40 percent reduction in EU internal GHG emissions based on 1990 levels. The breakdown of the 40 percent target between the member states is, however, based on reductions compared with 2005 emissions, as in the previous package.

Essentially, the European Council conclusions set the budgets for emissions up to 2030, both under the ETS and the ESD.

The **ETS emission budget** for the period up to 2030 was set according to a linear reduction from the 2020 target of -21 percent compared with 2005 figures to a 2030 target of -43 percent compared with the base year 2005. This corresponds with an annual reduction of the emission budget of 2.2 percentage points from 2020 onwards. Thus, the annual reduction is increased from 1.74 percent between 2013 and 2020, to 2.2 percent beyond 2020. The total ETS emission budget for the period 2021 to 2030 is 15.5 billion tons.

**Reductions under ESD** are set to -30 percent based on 2005 figures. The target for 2020 is -10 percent compared with the base year 2005. The total emission budget for the period 2021 to 2030 is 22.5 billion tons.

**International certificates** are not part of achieving the 40 percent reduction target. However, while the European Commission's impact assessment sees the 40 percent domestic target as part of an economic pathway towards the EU's 2050 ambition of an 80 to 95 percent reduction based on 1990 figures<sup>5</sup>, most studies agree that this is less than what the EU would need to contribute as its fair share towards a 2°-compatible 2030 reduction scenario. According to some calculations, a "fair share" would be closer to 55 percent. Chancellor Merkel made very clear what the small words "at least" mean in that context: "...for flexibility in the international negotiations, meaning the Paris climate conference, we added the words 'at least'. That means, if other partners do more, the EU can also look again."<sup>6</sup> In its white paper on the 2030 package, the Commission referred to international action as follows: "Should the outcome of the negotiations warrant a more ambitious target for the Union, this additional effort could be balanced by allowing access to international credits."<sup>7</sup> The debate preceding the Council meeting made it quite clear that domestic ambition beyond 40 percent would be exceedingly difficult to agree on, so the assumption is that action beyond 40 percent would involve international action, presumably markets – naturally depending on markets as a possibility under the new regime.

<sup>5</sup> There is disagreement on this though, since it essentially assumes a linear reduction path to a reduction of just over 80 percent by 2050. Thus, the upper level of ambition, of 95 percent, is not reflected and it is argued that a linear path with higher reduction percentages at the end might not be the most economic solution.

<sup>6</sup> Translation from German by the author.

<sup>7</sup> See: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52014DC0015&from=DE> (accessed November 10, 2014)

Concerning the EU ETS, some key decisions were taken, but many finer details and the crucial question of dealing with the current oversupply must still be fleshed out.

Central ETS issues addressed in the Council text are:

- The distribution of allowances for auctioning to member states and funds for specific purposes
- The continuation of free allocation in the industry sector
- The extension of exemption from full allocation in the power sector
- The introduction of a market stability instrument.

These issues are further addressed in the following.

The ETS cap is divided between the amount to be auctioned and the amount allocated for free to carbon leakage-affected sectors and is based on benchmarks. Roughly 55 percent go into auctioning.

Even though the ETS as such is a centralised instrument, **allowances are auctioned by the member states** and revenues flow into their budgets. Their **distribution** was thus one of the **most controversial** topics of the package. As in the previous package, the main factor for distribution is historical emissions. Some 90 percent of auctioning allowances are allocated to the member states based on their historical emissions, while 10 percent are allocated to member states with a per capita GDP below 90 percent of the EU average, as a measure of solidarity.

Additionally, **two funds** have been created:

- One for innovation in all member states. The fund gets the revenue from auctioning 400 million allowances to support CCS, innovative renewables and low carbon innovation in industry. This fund is a successor fund which only slightly modifies the previous package's NER300 fund.

- The second fund, known as the modernisation reserve, is reserved for member states with a per capita GDP below 60 percent of the EU average (another solidarity measure). This fund gets two percent of the total allowances (approximately 310 million tons). The revenue is spent on increasing efficiency and modernising the energy sectors in the beneficiary member states. It is administered by the member states' national banks, while the EIB is involved in project selection. As yet, it is unclear (and will be subject to controversial debate when deciding on the details) whether, and if so under which conditions, the finance can be used to rehabilitate old or build new coal-fired power plants.

According to the conclusions text, **free allocation to carbon leakage threatened sectors** will continue in a very similar way as with the previous package.

It is important to note that **free allocation to the power sector is only possible as an exemption** and follows a completely different logic. Member states with a GDP below 60 percent of the EU average (meaning the new member states) can opt to use a limited part<sup>8</sup> of their allowances allocated for auctioning to instead give them to power sector installations for free, under a set of conditions aiming at modernising the sector. Member states that opt to do so forgo the respective revenue they would otherwise have received. Again, the concrete conditions for free allocation, especially to the coal sector, still need to be discussed and are likely to be subject to dispute.

Finally, a crucial issue addressed in the text involves the **reform of the ETS**, with an *"instrument to stabilize the market in line with the Commission proposal."* This proposal is currently being discussed among member states by expert-level working groups preparing a legislative decision. The proposed market stability reserve (MSR) would essentially take allowances from the market and place them into a reserve in times of

<sup>8</sup> The limit is set at 40% of the allowances distributed according to historic emissions. So it is considerable less than 40% of their total auctioning allowances – since it is the same countries profiting from additional allowances for solidarity and being allowed to give away allowances for free.

surplus, releasing them into the market in times of scarcity, but never increasing the total amount. Discussions are underway regarding when the MSR should start and if “backloaded” amounts should go into the reserve. Backloading refers to allowances of 900 million tons held back from auctioning for price stabilisation. The backloading decision currently stipulates that they are put back into the market from 2019 onwards. Under the current proposal for an MSR, a 2021 start is envisaged and backloading is not addressed. Germany strongly argues that the surplus needs to be addressed as soon as possible and that it should not be contradicted by a parallel flooding of the market with the backloaded allowances. Arriving at an ambitious solution is one of the challenges faced.

The second pillar, **the ESD, meaning the effort sharing** of countries concerning GHG emissions outside the ETS, involved long discussions about concrete distributions. There had been hope that the Council would agree on a final set up. This agreement was not forthcoming, however, but many key elements are nonetheless contained in the text. The most important are as follows:

- Distribution of effort will follow a **similar approach as in the last package**, where effort was distributed according to GDP with some additional adjustments taking account of countries with very high reduction costs.
- The **range of reduction targets** based on 2005 figures will be between 0 percent and 40 percent. This means the poorest member state, Bulgaria, will have a 0 percent change compared with 2005. This looks less ambitious than it is, for Bulgaria has a +20 percent target for 2020 compared with 2005, meaning that Bulgaria would have to achieve a 20 percentage point reduction between 2020 and 2030.
- **Flexibility in reaching the targets will be increased.** This means enhanced possibility of

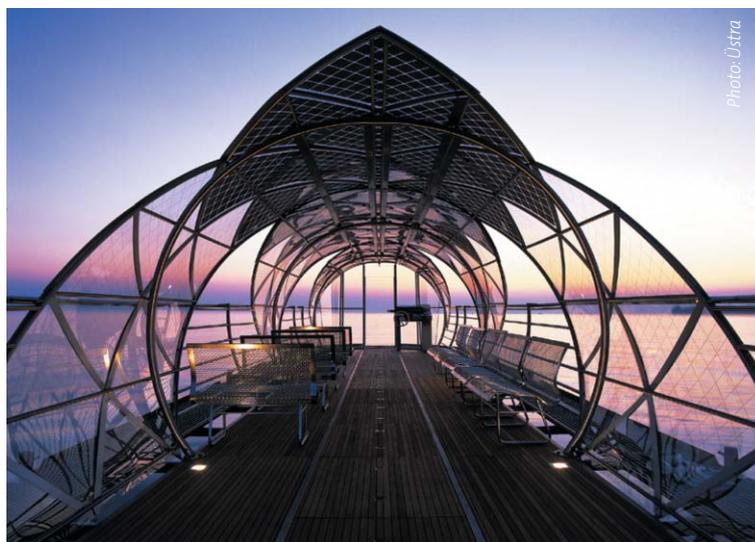


Photo: Ústra

*The considerable challenges of climate change policy call for conventional and unconventional measures: This solar-powered catamaran is in use in Germany.*

trade between the member states. In addition, very limited quantities of ETS allowances may be used in order to fulfill country obligations. Enhanced flexibility between countries could lead to GIS<sup>9</sup>-like schemes or potentially to project mechanisms that could work in a similar way to JI, but within the ESD sector. Germany had argued strongly in favour of explicitly mentioning trading platforms and project mechanisms as a means of enhancing flexibility. The concrete text of the conclusions might make it difficult to introduce project mechanisms as it refers to enhancing flexibility through existing mechanisms – a GIS-type approach to exchange of quotas between member states, however, would always be possible.

Flexibility (for example allowing Denmark to achieve emission cuts relatively cheaply in, say, Romania, rather than quite expensively at home) could both lower overall costs and guide investment to where it is needed most.

<sup>9</sup> GIS, Green investment scheme, schemes by which countries sold AAUs with the condition of investing the revenues in climate protection.

## Efficiency and Renewables in the 2030 package

A new indicative **efficiency** target of 27 percent (with a view to 30) is set out in the Council conclusion and this target will be implemented via specific EU legislation, not national targets, in the same way as the 20 percent target for the previous period. The 27 percent target has been criticised as too low, especially in view of energy security, which can be enhanced by implementing efficiency measures to reduce gas demand for heating. Gas demand is currently an important issue in the EU due to tensions with Russia, its main supplier.

For **renewables**, a policy change will eventually take place since the Council conclusions exclude another round of achieving the target by breaking it down to member state targets. The challenge is to set up a new governance scheme that allows the EU to continue to lead on renewables – rather than forgo innovation and investment opportunities due to a rather anachronistic fear of expensive renewables. Renewables use incurred high costs during the learning curve, but are far less expensive today. This has, for example, been shown in a study by German think tank *agora*<sup>10</sup> and is also illustrated by the high support prices for nuclear energy foreseen in the UK contracts, and is thus a means of supporting both renewables and nuclear.

## The future of LULUCF in the EU

With regard to LULUCF, the EU had just completed legislation on monitoring and reporting GHG emissions and reductions. Therefore, no concrete targets or policies were decided, but the text includes a clear commitment to addressing the issue in due course: *“Policy on how to include Land Use, Land Use Change and Forestry in the 2030 greenhouse gas mitigation*

*framework will be established as soon as technical conditions allow and in any case before 2020.”*

## The 2030 Package Outlook

The EU heads of state have agreed on an ambitious set of targets that should help speed up development and encourage ambition in other regions' future targets. The challenges now facing the EU involve ambitious and efficient implementation of the measures outlined. Given the fact that the new European Commission has only just been appointed, the exact schedule for this remains unclear. At the time of writing, only the legislative process for a market stability reserve in the ETS has begun.

On a very general level, the outcome of the European Council meeting shows a strong commitment to climate action. Other parties are now challenged to deliver their domestic targets. Some, notably the US and China, have already done so. Use of international market mechanisms has not been considered in the EU's 2030 target to date. This topic will be debated in the lead up to Paris. The German position in the negotiations on the Council text was to at least include a sentence stating that *“The EU will consider raising the ambition of its GHG reduction target, including through the use of mechanisms of the international carbon market, as part of/within the framework of an international climate agreement”*.

*This article is a personal contribution of the author and does not necessarily express the opinion of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).*

<sup>10</sup> See: [http://www.agora-energiewende.org/fileadmin/downloads/publikationen/Analysen/Comparing\\_Costs\\_of\\_Decarbonisationtechnologies/Agora\\_Analysis\\_Decarbonisationtechnologies\\_web\\_final.pdf](http://www.agora-energiewende.org/fileadmin/downloads/publikationen/Analysen/Comparing_Costs_of_Decarbonisationtechnologies/Agora_Analysis_Decarbonisationtechnologies_web_final.pdf) (accessed Nov. 10, 2014)

# Exploring the Options

## Net mitigation in the CDM – Conceptual approaches and practical implications for host countries

Stephan Hoch and Axel Michaelowa, Perspectives GmbH

**The role of market mechanisms in the Paris climate agreement remains uncertain. An increasingly fragmented landscape of existing and new market mechanisms, as well as a broader results-based focus, such as in REDD+ or the Green Climate Fund emerges. While the New Market Mechanism and Framework for Various Approaches are to achieve a net mitigation impact beyond offsetting, this issue is more controversial for the CDM as a Kyoto Protocol mechanism. We explore options for net mitigation through different types of CDM activities, building on the following terminology:**

- Net mitigation refers to any type of measurable mitigation impact that is not used to offset UNFCCC compliance obligations and thus results in net atmospheric benefits.
- Supported net mitigation refers to those net mitigation impacts that have been achieved with international climate finance support (similar to supported NAMAs).
- Own contributions refer to domestic net mitigation impacts in the CDM host country that have been achieved without international support and are part of their INDC.

This means that supported net mitigation and own contributions are understood as specific cases of the broader net mitigation category. Any type of net mitigation – with or without international support – should be made as transparent as possible.

We then define the phase of the CDM project cycle where net mitigation can be achieved with a specific type of intervention:

1. **Pre-registration:** ambitious baselines (“over”-conservativeness, crediting below threshold, baseline validity), crediting periods shorter than activity lifetime

2. **At issuance:** discounting, “net mitigation levies” (similar to share of proceeds)
3. **Post-issuance:** use of CERs other than for offset purposes (CER cancellation, buyer discounting)

The CDM can be utilized both as an “MRV toolbox”, and as a market mechanism. These aspects can be seen as different varieties of results-based finance. The critical difference is the use of the CERs that are generated by a CDM project.

Developing country contributions to global mitigation action defined through INDCs should be measurable and be fully accounted for. This essentially rules out pre-issuance options such as overly conservative baselines, as they lead to non-quantifiable net mitigation impacts. An exception could be an ambitious baseline or crediting threshold in which the difference to business as usual (BAU = CDM baseline) is measured transparently. Issuance stage net mitigation via discounting could be acceptable for higher-income developing countries, taking into account the idiosyncrasies of different sectors. However, the most accurate way of measuring mitigation impacts is arguably to first fully establish the actual mitigation impact of a CDM project with full crediting. Subsequently, some CERs could be cancelled, thereby achieving a net mitigation impact, while others could still be traded and used as offsets. In particular, for those CDM host countries with weaker capabilities, mitigation action will need to be supported with international climate finance (and other forms of support). Here, financial support would trigger CER cancellation, as is already happening in individual pilot initiatives. The following case studies focus on this form of supported net mitigation.

## Practical case studies

### Case study 1: CDM Programme of Activities for improved cook stoves (ICS)

There are over 50 ICS PoAs under development. As ICS are primarily used by the poorest people of low- and lower middle-income countries, and there is an ongoing need for financial support (such as for maintenance), net mitigation here requires international climate finance support. The host country or POA's coordinating and managing entity (CME) could offer to generate and retire a certain amount of CERs at a fair price (say, \$5 – to be established depending on technology costs and country circumstances, or through reverse auctioning) against international climate finance (see Fig. 1). A CDM window in a National Climate Fund (NCF) could channel finance to different PoAs or directly to the CME. The CME or host country

government could then cancel CERs using a national CER cancellation account in the UNFCCC CDM registry. The number of cancelled CERs equals the net mitigation achieved. Remaining CERs for which no cancellation agreement exists could then still be sold on the carbon market. MRV operates entirely within the existing CDM system.

Host country benefits include a reliable source of revenue from CERs, and greater investment certainty. Also, national contributions to global mitigation action will be acknowledged transparently.

### Case Study 2: Large-Scale Energy Efficiency

Typical project scenarios include the use of waste energy (gas that would be flared into the atmosphere

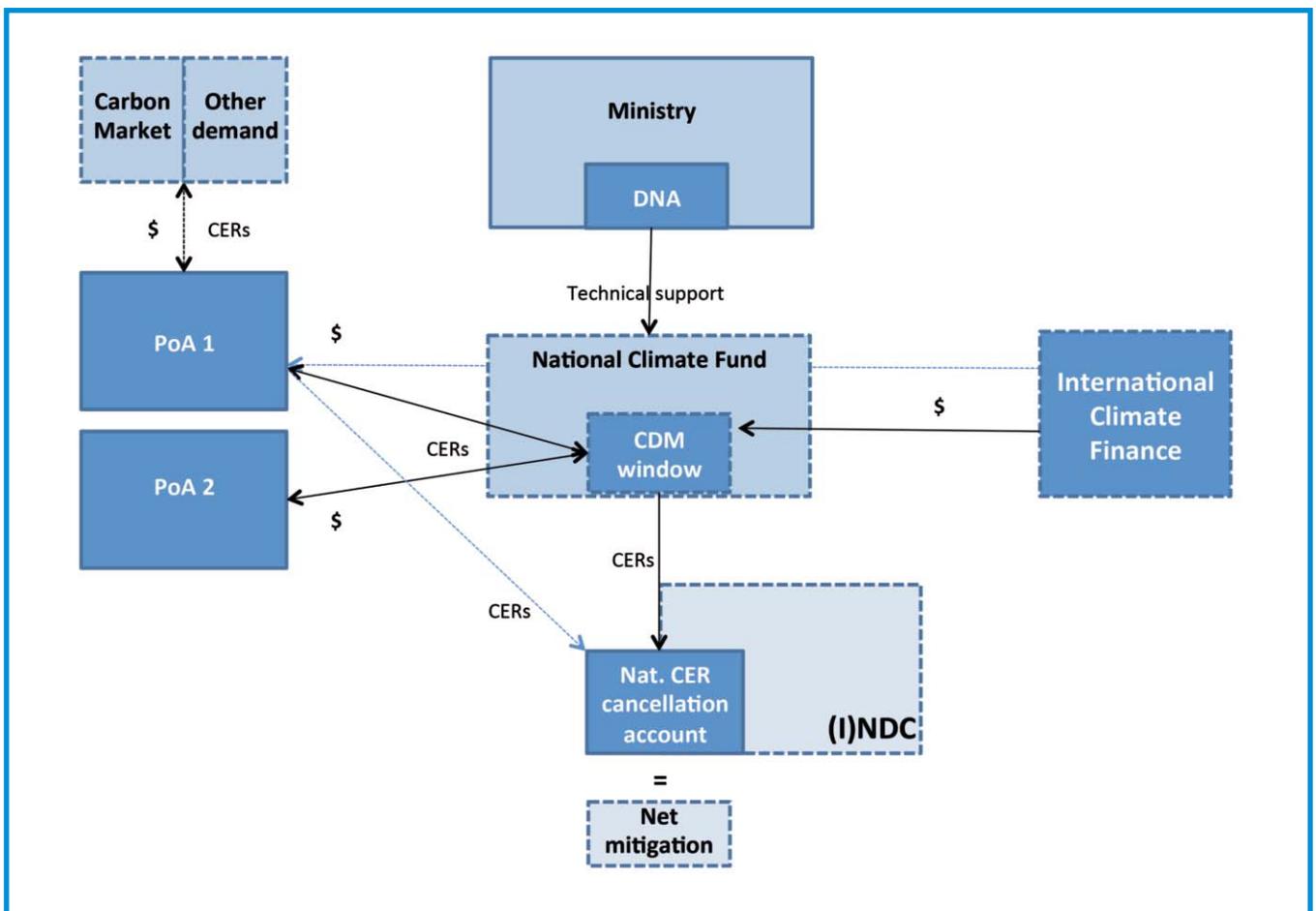


Figure 1: Net mitigation via CER cancellation

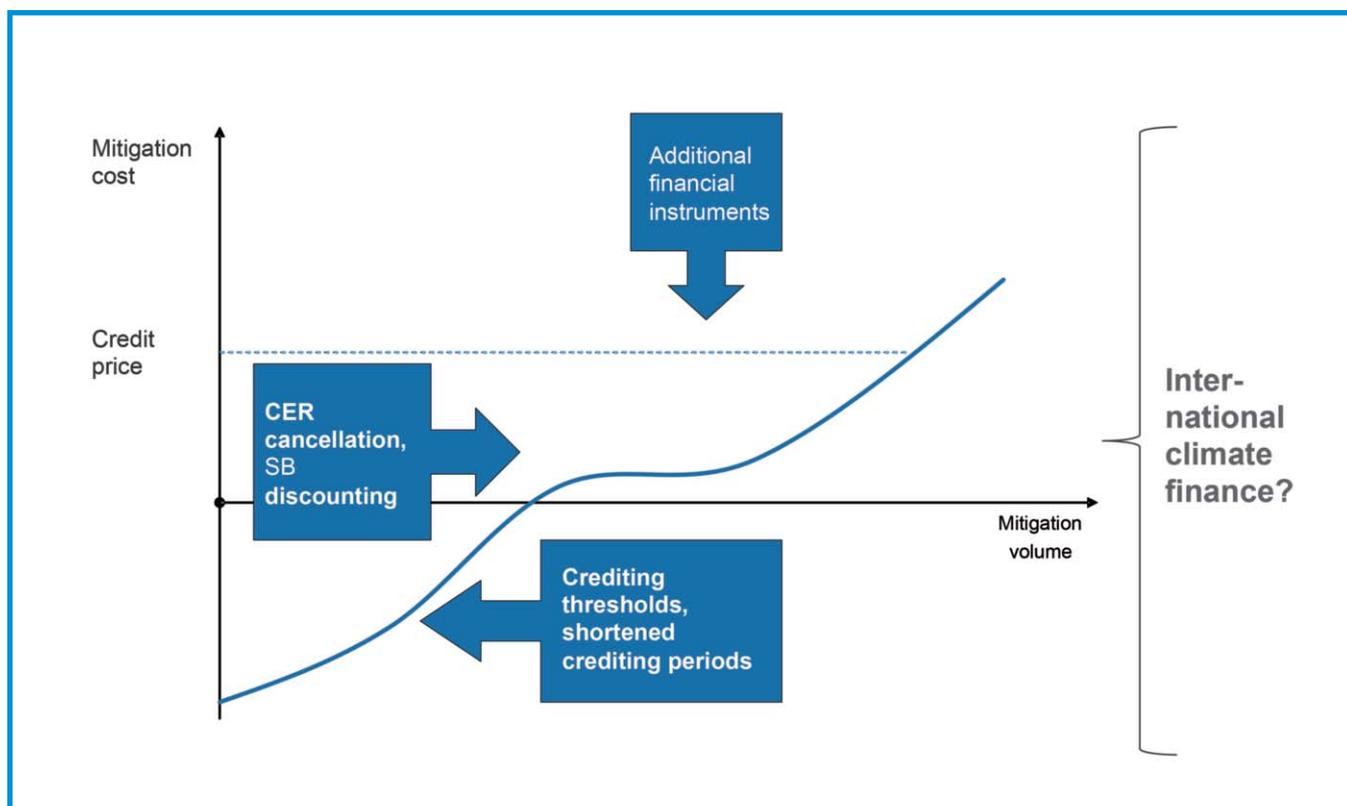


Figure 2: Different options for net mitigation in the CDM

in the baseline scenario) in the iron and steel sectors to generate electricity. It is commonly acknowledged that initial investment into energy efficiency must be paid back in a very short period (months to a few years) in order to be attractive to private sector actors. The key challenge is therefore to mobilise initial upfront investment, with the promise of large savings when technical lifetimes exceed CDM crediting periods. Upfront concessional lending through climate finance could, therefore, be combined with grant elements for which a certain number of CERs need to be retired.

Several net mitigation options are possible. CERs could be cancelled in exchange for international climate finance. For projects with negative costs, crediting periods could be set in consideration of technology lifetimes, credible payback periods and internal rate of return (IRR) on investments. Shortening crediting periods would constitute net mitigation, possibly

in exchange for more reliable CER revenue or other climate finance. National or regional sector-specific standardised baselines could be used to establish project baselines and ambitious crediting thresholds. For high-income countries, a net mitigation levy (similar to discounting) differentiated by development status and project criteria could be mandatorily subtracted at issuance, although the attractiveness for investors needs to be considered. MRV operates entirely within the existing CDM system. Pre-issuance net mitigation would not be credited, but may be considered in INDCs by estimating mitigation impacts – for shortened crediting periods, for example.

Figure 2 illustrates how different options for net mitigation could be operationalised relative to the impact of the location of the mitigation action on the marginal abatement cost curve, depending on the

characteristics of the activity and the combination of different sources of finance.

Please note that the negative cost options are ideally addressed by shortening the crediting period and using crediting thresholds, whereas positive cost options are more appropriate for “classical” standardised baselines, discounting and CER cancellation. For measures with costs above the carbon market price, a combination of financial instruments is required and these will be less attractive for net mitigation.

Different net mitigation concepts, such as CER cancellation and “undercrediting” using adjusted baselines and crediting periods, are possible and can be combined. Supported net mitigation impacts are also dependent on the provision of (upfront) finance. The concept can be applied to any type of energy efficiency improvement with negative cost over its lifetime. Host countries might see some weakening of incentives for investments, but this would potentially be in exchange for overcoming upfront financing barriers. Substantial long-term savings are possible through energy efficiency, which is particularly relevant where fuels need to be imported using foreign currency.

## Assessment of political feasibility

To avoid double-counting, Annex I countries could include their financial contributions for supported net mitigation in their INDCs, while CDM host countries could include the mitigation impact. This approach would build on existing methodological and institutional infrastructure. The attractiveness of supported net mitigation for host countries depends on the evolution of carbon prices: in a low-price scenario of g5/CER or lower, supported net mitigation would certainly be attractive for host countries and for project developers, as international climate finance would then be the main driver of the CDM activity. In a high-price scenario of g10/CER or higher, this type of pricing may be less attractive and project developers may opt to sell their credits on the carbon

markets. Still, the long-term nature of many projects may persuade project developers to accept lower prices in return for a high degree of certainty on long-term CER revenue. One important aspect is that, from a technical perspective, the implementation of supported net mitigation action is immediately possible without COP or EB decisions. For the post-2020 period, however, the required level of mitigation ambition and indicative pledges, at least from some parties, indicate that there could be a stronger demand for credits which could drive market-based activities. This may allow greater combination of different net mitigation approaches (with and without international support) in order to achieve greater net mitigation.

Differentiation between higher and lower income countries should be considered. Higher-income countries and projects with low mitigation costs and low sustainable development benefits should take up net mitigation which includes own contributions. A differentiated set of eligibility criteria and resulting net mitigation demands should be developed that considers the circumstances and capacities of lower-income countries. For CDM activities conducted in poor segments of low-income countries, supported net mitigation could primarily be achieved in exchange for international climate finance.



Photo: Mi Wenju / UNFCCC

*Domestic emissions trading, national offsetting, own contribution? Carbon pricing will impact climate change activities in developing and developed countries.*

## Arguing the point: What role for the Carbon Markets in the 2015 agreement?

### Carbon Pricing after the New York summit: Two views from different jobs

**The global carbon market is fraught with conflict and uncertainty. On the one hand, the market crashed years ago and suffers from low demand. On the other, domestic and regional carbon markets are growing. The Ban Ki Moon summit was a global high-level event that should motivate Parties to assume their climate responsibilities. And with the Carbon Pricing Initiative, the relevance of carbon markets has been highlighted, thus signaling even further that carbon markets should and could play a role in the climate agreement 2015. Would it, therefore, be useful to build momentum into the Carbon**

**Pricing Initiative or has the initiative served its purpose in creating awareness at a specific stage of the climate change negotiations?**

We asked Dirk Forrister, CEO and President of IETA, what he expects given that in October, IETA urged negotiators to build on carbon pricing momentum. Forrister was very clear in his reply: *“These positive words now need to be turned into action, and governments now need to ensure a place for carbon pricing – and specifically markets – in the future climate agreement.”*



### Dirk Forrister

is President and CEO of the International Emissions Trading Association (IETA). Previously, he was Managing Director at Natsource LLC, the manager of one of the world's largest carbon funds. Earlier in his career, Mr. Forrister served as Chairman of the White House Climate Change Task Force in the Clinton Administration.

For the policy-making side, we asked Franzjosef Schafhausen, Director General for Climate Policy, European and International Policy, at the German Environment Ministry, what added value might lie in further activities under the Carbon Pricing Initiative. How might they trigger use of market mechanisms and private sector involvement in the UNFCCC negotiations?

## Building momentum: An ambition-raising opportunity

**CMR:** Dirk, the World Bank reports on its website (1) that policy-makers and business people broadly support carbon pricing: *“Seventy-three countries and 11 states and provinces – together responsible for 54 percent of global greenhouse gas emissions and 52 percent of GDP – joined 11 cities and over 1,000 businesses and investors in signaling their support for carbon pricing through a series of initiatives being announced at the UN Secretary-General’s Climate Leadership Summit on Tuesday.”* This group, responsible for more than half of global GHG emissions, reached consensus on carbon pricing, but have not taken any action so far. What should they do? Do you see the need for a separate forum and action, or do you want to push them towards more binding activities under the UNFCCC?

**DF:** The Summit in New York ignited a fresh spark of public interest in carbon pricing – right at a pivotal time for nations involved in the international climate negotiations. It’s not every day that you get such strong “political lift” to elevate the importance of an issue like this. It offers a golden opportunity for political and business leaders to seize the moment to advance serious carbon pricing policies at national and international levels. Still, the words in the Paris Agreement matter in providing a solid foundation for countries interested in using markets. That’s why we expect carbon pricing to be featured at the international cli-

mate negotiations in the months ahead – and it will be discussed in a very important global context.

First, countries are now preparing their intended nationally determined contributions (or “INDCs”) for the 2015 agreement. These are due in the first quarter of 2015. They will need public support to deliver these INDCs – and critically, they need business support for making them work in practice. Governments should reach out to progressive businesses for support in establishing carbon pricing programs – and business should offer insights about how to establish credible, cost-efficient, and robust markets for emissions reductions.

Second, nations are also negotiating a set of new international policies to guide and support national efforts far into the future. The Kyoto Protocol served as the basic international architecture from the time it was negotiated in 1997 and will continue to fulfill this role all the way until 2020. That means we need to be thinking about the new Paris international market architecture in a similar long-term context. It may need to undergird national (and even sub-national) actions for the next 20-30 years – so until 2040 or 2050. Not many people realise this important aspect of the agreement.

Over that time horizon, we know that many OECD countries are planning serious policies to decarbonize their economies. For example, Europe’s stated 2050 target is 80-95% below 1990 levels by 2050. The US goal is also 83% below 2005 levels by 2050. All other major economies will need to take on similarly serious emission reduction targets, if we are to keep temperatures from rising no more than the 2°C average. If we’re to do this without threatening economic prosperity, the Paris agreement needs to foster cooperation in reducing emissions between countries – and the best way to do that is by enabling carbon markets and offset systems to link to one another.

This brings me to your second question – do we work within the UN, or do we need an alternative forum? IETA's preference is that we build on the 20 years of experience at the UNFCCC rather than re-invent the market elements in another forum. However, we hear more and more concern from negotiators that the bitter political divisions between pro-market and anti-market countries will hamper the UNFCCC's effectiveness in delivering the market elements under the Paris agreement. This has led us to consider whether alternative trading models that operate without UN support – such as the linked systems in California and Québec – may be worth building upon, if the UN system stalls.

**CMR:** The CDM has been the subject of much criticism in the past, especially regarding its use for offsetting in Annex I countries of the Kyoto Protocol. Complementing emission reductions domestically by buying cheap international certificates was severely challenged and this found a strong echo in the media. So far, we understand IETA is lobbying for strong and advanced mechanisms, meaning the NMM and the FVA, which could tackle emissions at the right, scaled-up level to stay within the limits of the two degree pathway. What is it exactly that IETA is promoting? Is it about how additionality and environmental integrity should be addressed?

**DF:** IETA offered a new set of comments on the NMM and FVA topics to the UNFCCC in October, taking account of the many debates on these topics over the past few years. We decided it was time to promote a fresh concept of how the NMM might work within the Framework to provide the scaled-up action required for the “two degree” level of climate protection.

We proposed that the FVA should do three things:

First, it should provide the accounting backbone of the new system. It should offer a sound monitoring, reporting and verification framework so that countries choosing to transfer and receive carbon units can report using a common approach – which should help provide transparency to market participants.

Second, the FVA should make standard market infrastructure tools available to nations to make it easier for them to develop their own carbon markets. The use of the tools would make them “linking ready.” The kinds of tools we envision include:

- standardized emissions benchmarks for key sectors along with standardized MRV protocols;
- a common registry and unit issuance system;
- standardized unit issuance procedures;
- a standardized reporting template;
- an accreditation system for independent verifiers; and,
- a co-benefits checklist to consider in assessing sustainable development attributes.

Third, the FVA should develop a unified project crediting mechanism (UPCM), consolidating the negotiating tracks on CDM reform, JI and NMM. This mechanism could assess projects against a sectoral benchmark that improves over time, eliminating the need for project-based additionality determination. We believe that for many countries, project-based offsets will be an important part of their INDCs. The good work done in the CDM should be scaled up in this newly consolidated mechanism, which in our view should combine the best ideas from the discussions on CDM reform and the NMM.

With these functions performed within the FVA, we proposed to convert the NMM provision into a simple “transfer” mechanism that serves as a conduit for units to move between systems. It could undergird linkages between allowance-based systems – or through transfers of offsets created by the FVA's UPCM.

As businesses involved in operating carbon markets around the world, we want high-quality systems that can support major new investments in mitigation. Our FVA and NMM proposals are girded in this principle. We believe that the availability common market tools would help to avoid the emergence of low quality systems. The UPCM would offer an approach to offset-

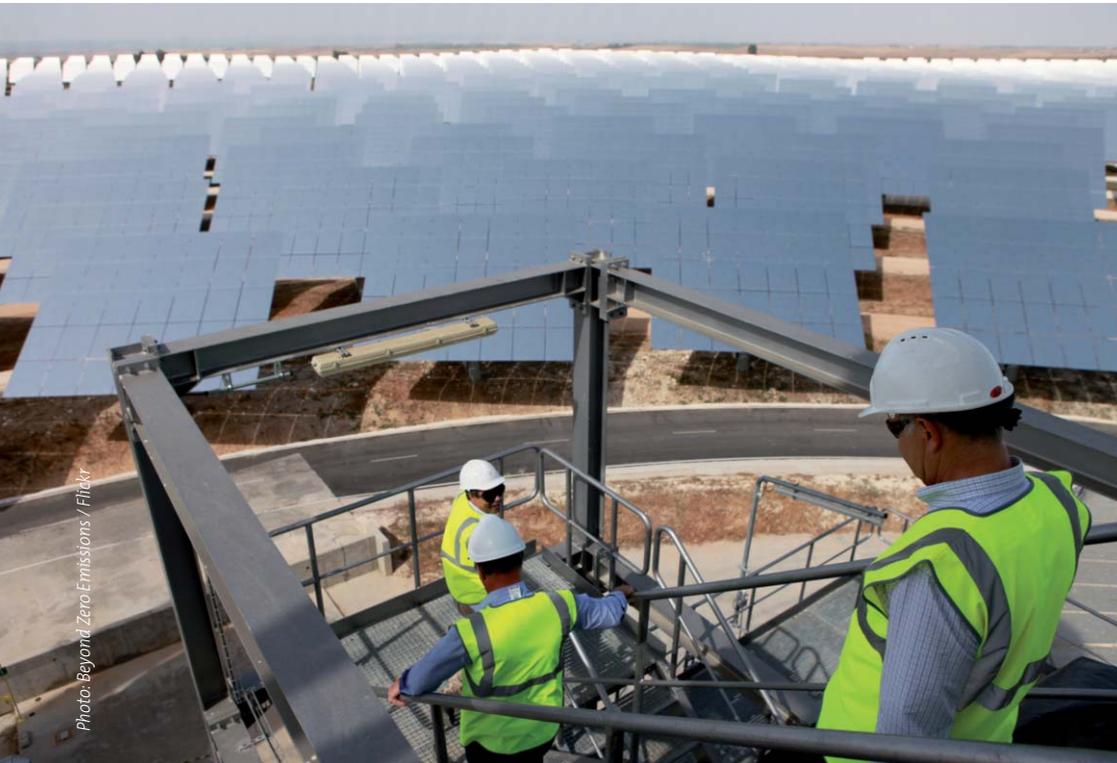


Photo: Beyond Zero Emissions / Flickr

*International, national or sub-national markets? The FVA is to host different kinds of markets.*

ting that is superior to current practices in its focus on high-quality sectoral performance benchmarks instead of a project-based additionality test that is prone to second-guessing.

**CMR:** The growing domestic carbon markets worldwide are expected to create the fundamentals for the global carbon market of the future. We understand the FVA could form the umbrella. However, the timing could be a problem. Earlier in the debate on the carbon market, people thought that CERs, the global climate currency, could serve as the connecting factor. Further down the line, we see activities on the direct linking of regional emission trading schemes. Dirk, are these alternatives or do we have to wait until the FVA has been developed under the UNFCCC?

**DF:** Our view of the future market architecture is that it draws on both “top-down” UN elements and “bottom-up” national or sub-national compliance markets. We think the availability of tools at UN level could accelerate the process of launching domestic markets

in many developing countries. However, we recognize that it may take time for UN market tools to emerge, so we expect many of the larger jurisdictions may form markets without those tools. For example, the EU ETS is already well established, as are the California, Québec and RGGI programs. Other US states and Canadian provinces are considering use of market-based approaches as alternatives to their respective federal regulatory proposals. China is reportedly developing a national carbon trading program for use under its next 5-year plan – and potentially in its INDC.

At the end of the day, the market fundamentals will emerge from these national and sub-national markets – and their openness to accepting external carbon units

for compliance. Our view is that the international architecture needs to offer the conduits and accounting systems to allow transfers, but that the supply and demand characteristics will emerge from the stringency of national and sub-national systems and the decisions of whether and how to link those markets bilaterally or multilaterally. Our preference would be for a unified global marketplace – but the current political reality has us planning for a set of trading blocs where units are mutually recognized.

**CMR:** A final short question: Dirk, which carbon market items should be addressed in the Climate Agreement 2015?

**DF:** IETA asked this question to a research team led by Professor Robert Stavins at the Harvard Project on Climate Agreements. They produced an insightful report<sup>1</sup>, finding that the Paris Agreement might require only fairly simple accounting provisions. From this basic provision interested Parties could elaborate more operational aspects through a set

of companion COP decisions – or in national and plurilateral system agreements.

IETA took these insights and developed a straw proposal for the markets language<sup>2</sup>. For the Paris agreement itself, we suggested a simple provision stating that Parties may cooperate in achieving their INDC targets together – and that they should report transfers and receipts to assure integrity. We suggested a second set of policies that should accompany this provision in a set of COP decisions – and these are highlighted in our aforementioned submissions to the UNFCCC.

Finally, I just want to emphasize that we have offered these suggestions as an observer to the process to stimulate more focused discussions – and we fully expect to improve upon these ideas as the process unfolds.

## Exhausting negotiations, but perhaps clear signals for markets mechanisms

**CMR:** Franzjosef, you began your career in a public finance research institute in Cologne in the 1970s. You first looked at the challenge of internalising external effects from an environmental standpoint, and only a little later on from the climate perspective. It's impossible to talk about the substance of carbon pricing before addressing the political dimensions. Where is action needed on carbon pricing today? What instruments and mechanisms are needed?

**FS:** Internalising external effects is a constant challenge for policy-makers. Debates on the right balance between environmental and economic interest never reach a conclusion. However, it would be wrong to narrow these conflicts down to bargaining

processes in the political arena. In substance, environmental challenges such as climate change have their own dynamics and these depend heavily on economic and technological trends, and/or on impacts from ecosystems.

Putting a price on carbon, which is the actual debate, is a kind of carbon markets reloaded. Nonetheless, this time the discussions could take advantage of broad experience gained in the use of the flexible mechanisms of the Kyoto Protocol, the European Emissions Trading Scheme and the emerging regional emissions trading schemes in various countries.

With the Clean Development Mechanism, we have seen the first global currency for carbon markets, and with the EU ETS we have seen how a strong engine can drive carbon markets to the level we need to meet ambitious targets. I do not want to stress the need for higher demand and tougher targets – these are things that can be solved in Paris and thereafter. In the time that remains leading up to Paris, negotiations should focus on the reform of carbon market mechanisms.

The shortcomings of the first generation of carbon market mechanisms are clear. What we now need is a common sense approach – one which acknowledges that markets are not only about making emission reduction targets cost-efficient, but also serve to provide incentives so that market activities contribute to the overall aim of keeping global warming below two degrees. To entice market actors into such behavior, we need to raise the emission reduction pathway up to more than three percent annually. This is unlikely to be achieved with domestic activities alone, thus highlighting the potential for international cooperation in two ways:



**Franzjosef Schafhausen** is Director-General Climate Policy, European and International Policy at the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). He has been working with the Ministry since 1987 in various positions. Among other things, he has headed the Working Group “Emissions Trading to combat the global Greenhouse Effect” since the year 2000.

<sup>1</sup> The Executive Summary is available on the Harvard Center on Climate Agreement's website, and it will be updated soon with the full report. See: [http://belfercenterksg.harvard.edu/project/56/harvard\\_project\\_on\\_climate\\_agreements.html](http://belfercenterksg.harvard.edu/project/56/harvard_project_on_climate_agreements.html)

<sup>2</sup> IETA's Policy Paper with its “straw proposals” for the Paris Climate Summit 2015 are available at [https://ieta.memberclicks.net/assets/UNFCCC/New\\_York\\_2014/ieta%20policy%20brief\\_market%20provisions%20in%20the%202015%20agreement\\_170914.pdf](https://ieta.memberclicks.net/assets/UNFCCC/New_York_2014/ieta%20policy%20brief_market%20provisions%20in%20the%202015%20agreement_170914.pdf)

Firstly, the different cost curves between countries in different economic situations, which in turn lead to cost-efficient and strategies suited to the respective economy. And secondly, the growing GHG emissions in countries with high economic growth and a great need for catch-up among their populations. It is a well-known fact that global resources will not suffice if we pursue the traditional growth pathway. The Earth's capacities will be exhausted at a far faster rate. To reroute the market mechanisms appears a very suitable way in which to develop strategies for green growth and low-carbon development.

**CMR:** The Carbon Pricing Initiative has received broad response, and a consensus on the need for carbon pricing has been reached. What kind of impact will this have? Will it influence further decision-making in the UNFCCC negotiations? And looking at the issue from a German Environment Ministry perspective, should the initiative be expanded?

**FS:** First, we should ask ourselves what happened at the Ban-Ki Moon summit in New York. More than 1,000 companies and 73 countries spoke out in favour of carbon pricing. This is good, but not all the important emitters signed up. Second, the statement has been drafted in very general terms, which would not allow the building of a coalition on specific activities. Third, to make political references on the statement ahead of Paris seems to be the maximum and diminishing value. Fourth, the exchange of views and experience on continued and new carbon market activities could take place in existing forums and negotiations. Fifth, to find reasons in favour of an expanded carbon pricing initiative, we need a more focused debate which results in coalitions, both in the negotiations and on the ground regarding domestic emission reductions.

The challenge for the coming months will be to define the role and function of carbon markets in the Paris Agreement, going beyond the limits of the Kyoto Protocol, and to explore and demonstrate how mechanisms might lead to valued emission reductions. Every attempt to expand the carbon pricing statement to make it a productive initiative must be legitimated by the benefit it brings.

Also, the UNFCCC negotiations ahead of Paris are the right arena and it will be difficult to obtain sufficient political attention given recent global conflicts and clashes. Talks should be reduced to the question of what might be supportive for Paris and what not. My feeling is that we need someone who tables carbon markets on a global scale and connects it with domestic framing of climate policies. We may need a moderator between the global level and the countries.

However, applicants for this job are few and far between. Again, the job is not to build a process involving a heavy workload for those who have faced an overloaded daily agenda for years. But to explore the scope for an additional international initiative which brings momentum to the UNFCCC negotiations and encourages national governments to further develop domestic carbon markets, we need a well-focused agenda and a common understanding of a very simple process.

Any further debate must address a number of key questions. How do we get all relevant emitters on board? What can these forerunner countries suggest to provide stimulus for more hesitant countries? What is needed to bring the various national and regional markets up to international level? Would such activities support UNFCCC debates, not at least as regards the Framework for Various Approaches (FVA)?

## The future role of carbon pricing

**CMR:** The EU has set a domestic climate goal for 2030 of at least a 40 percent reduction based on 1990 levels and with emission reductions only reached within the boundaries of the member states. With regard to the political decision to limit climate change to two degrees, it is evidently not enough, but the wording "at least" allows scope for expectations of further raising ambitions before COP21 in Paris next year. Franzjosef, are there any signals that the EU is considering further climate action? And would there be any role for carbon pricing and carbon markets at international level?

**FS:** First, let me stress the point of prioritising domestic action. The EU's 2030 mandatory target has been set at least 40 percent below 1990 levels as a target for real emissions reduction within the territory of the EU. In the run up to the EU Council decision on 23 and 24 October, Germany and other EU member states were strongly in favour of an even more ambitious target. Finally, the EU decided on at least 40 percent and left the door open for ambition raising relative to the emission reduction targets of other Parties. Emission reduction targets have to be considered in the light of global economic competition, either with other industrialised countries or with the emerging economies of the Non-Annex I countries of the Kyoto Protocol. The EU consists of countries with different capabilities and responsibilities. A relevant number of EU member states has still to address an outdated energy system whose roots lie in the former Communist planning system. This restricts ability to find consensus on tougher targets in a phase when global agreements and regional regulations on climate change still allow free-riding and carbon leakage. However, the wording "at least" will be the subject of further political debate in the run up to Paris. Both governing Parties announced that Germany would work on this issue.

**CMR:** The EU ETS has been the engine of the international carbon market under the CP1/KP. Our impression is that the EU ETS cannot play the same role again. Germany has made strong calls for early establishment of the MSR (market stability reserve). Do you think that there will be room for international certificates beyond 2020? If not, what could be the role of the EU in the international carbon market?

**FS:** For the EU to play a key role in carbon pricing in markets, it has to adjust the balance of supply and demand within the emission trading schemes. The legislative process has been scheduled and is expected to produce a decision in April 2015. Also, the EU has to enhance its role in the international carbon market. State Secretary Jochen Flasbarth (Environment Ministry) commented on the positive results of the EU council decision a few days ago with an eye on the role of international markets. While explaining the 40 per-

cent target, he opened the door open to the flexible mechanisms. These mechanisms should lead to emission reductions in addition to the domestic EU target in 2030. The flexible mechanisms could again become an important tool with which to reduce GHG emissions globally. However, these mechanisms must be officially included in the Paris Agreement.

**CMR:** ... At the end the same question as for Dirk Franzjosef, which carbon market issues should be addressed in the Climate Agreement 2015?

**FS:** This depends on the progress we made in Lima or latest at the SB sessions in June. A text should be made available in a timely manner ahead of Paris. With regard to the mechanisms, I do not see much room for detailed and technically-oriented discussions, and ritual decision-making in the last moment of a COP is not suited given the complexity of the matter at hand. Beyond Paris, we will have time to develop detailed regulations as seen with the Marrakesh Accords. Besides defining the role in the new agreement, markets are more pressingly challenged to contribute to the pre2020 ambition (ADP) and not least to close the emission gap during this decade.

This is where the CDM comes in, in its current, more or less well-functioning state – compared, that is, with the state the CDM was in in 2007/2008, after initial experience had been gained with the instrument. Also, further reform steps have to be taken, not only with regard to the new agreement, but also for direct implementation. There are further reasons other than the market to keep the CDM alive for other emerging mechanisms for international cooperation on climate change, such as NAMAs or the growing domestic schemes. The MRV toolbox is only of value to global climate policy when the needs of emission reduction activities outside the market mechanisms are reflected in methodologies and other technical regulations.

# Stepwise Transition

## Paths from the CDM to future policy instruments

Björn Dransfeld, Perspectives GmbH, and Aki Kachi and Dennis Tänzler, adelphi consult

**In the light of an uncertain post-2020 climate regime, possibilities for the incremental transition from market-based mechanisms such as the Clean Development Mechanism (CDM) to various forms of a new market mechanism (NMM), domestic Emissions Trading Schemes (ETS) or domestic Non-ETS instruments such as NAMAs become ever-more relevant. In their research project, “Opportunities for a stepwise transition from CDM towards NMM and emissions trading and the respective capacity building needs”, Perspectives GmbH and adelphi outline possible options for the successful transition from CDM activities towards such future climate policy instruments for the BMUB.**

In the first work package of the project, models for transition pathways from the CDM towards future instruments were developed. Pathway options varied from countries without CDM or JI experience, to successful CDM hosts that were perhaps already implementing ambitious, comprehensive instruments. Five pathways were developed:

- Pathway 0, “no CDM legacy”, explores options for the introduction of markets moving towards NMM, NAMAs, and domestic ETS for the limited number of countries which were Kyoto Parties, but did not participate in the Kyoto trading instruments.
- Pathway 1, “NMM to ETS”, explores how a country might incorporate its existing CDM activities into a domestic emissions trading scheme, with the possible role of an NMM (in the form of a sectoral crediting or trading mechanism) as an intermediate instrument.
- Pathway 2, “CDM+”, explores how countries might upscale project-based CDM activities, moving towards the sectoral level with additional environmental gains to better facilitate a shift towards low carbon practices in the given activity sector.
- Pathway 3, “Offsetting”, explores the possibility of a continuation of CDM activities as an offsetting vehicle, potentially transitioning to a domestic offsetting vehicle, though international offsetting may continue to play a role.
- Pathway 4, “NAMAs”, maps out how the CDM could transition to a NAMA with the ultimate goal of the host country continuing the activity without support or crediting revenues.

The intermediate findings were applied to ten country case studies (Colombia, Chile, China, Indonesia, Kazakhstan, Mexico, Peru, Thailand, Turkey, and Vietnam). Each study explores the respective country context, existing climate policies and market-based measures, potential barriers, and current climate policy planning. With this analysis of country circumstances, further insights were gained on possible transition pathways, barriers and – where applicable – how to address barriers using targeted support measures.

## Lessons from country cases and workshops

As the market relevance of the CDM fades, a multilateral NMM has yet to take shape. Though their ambition levels vary, many countries are not waiting for a



*This industrial complex in Ulsan/South Korea hosts CDM project 0922, which involves destroying N<sub>2</sub>O at a Nitric Acid Plant.*

detailed international framework to move their own domestic “*post CDM*” policies forward. There is growing recognition that a multitude of diverse actions are being – and will be – taken relative to domestic circumstances, with a great deal of initiative on the countries’ own part and often with international support. The case studies show that national policies do not follow the above-mentioned paths *per se*, but that new and innovative measures are being implemented in a bottom-up global climate policy framework – in many instances involving various kinds of (domestic) market instruments.

This view was confirmed in discussions with experts and policy makers over the course of the project, in which participants (some involved in the negotiations surrounding the NMM under the UNFCCC) relayed that the negotiations on the NMM have been

overtaken by more nationally-driven initiatives such as NAMAs. Such national initiatives underscore the relevance of economic instruments for climate policy, as developing countries in particular need to consider the financial aspects of mitigation action. The discussions reflected the broad perception that the CDM was a major achievement that provided a solid basis of lessons learned, tools and data for future climate policy instruments. Despite the current market situation, the CDM is perceived to have potential – though in its current form, it will be most important to least developed countries (LDCs). Some speculate that the CDM may continue as an MRV mechanism, although not necessarily with a carbon pricing component; others expressed the view that further reform of the CDM is necessary to retain its relevance.

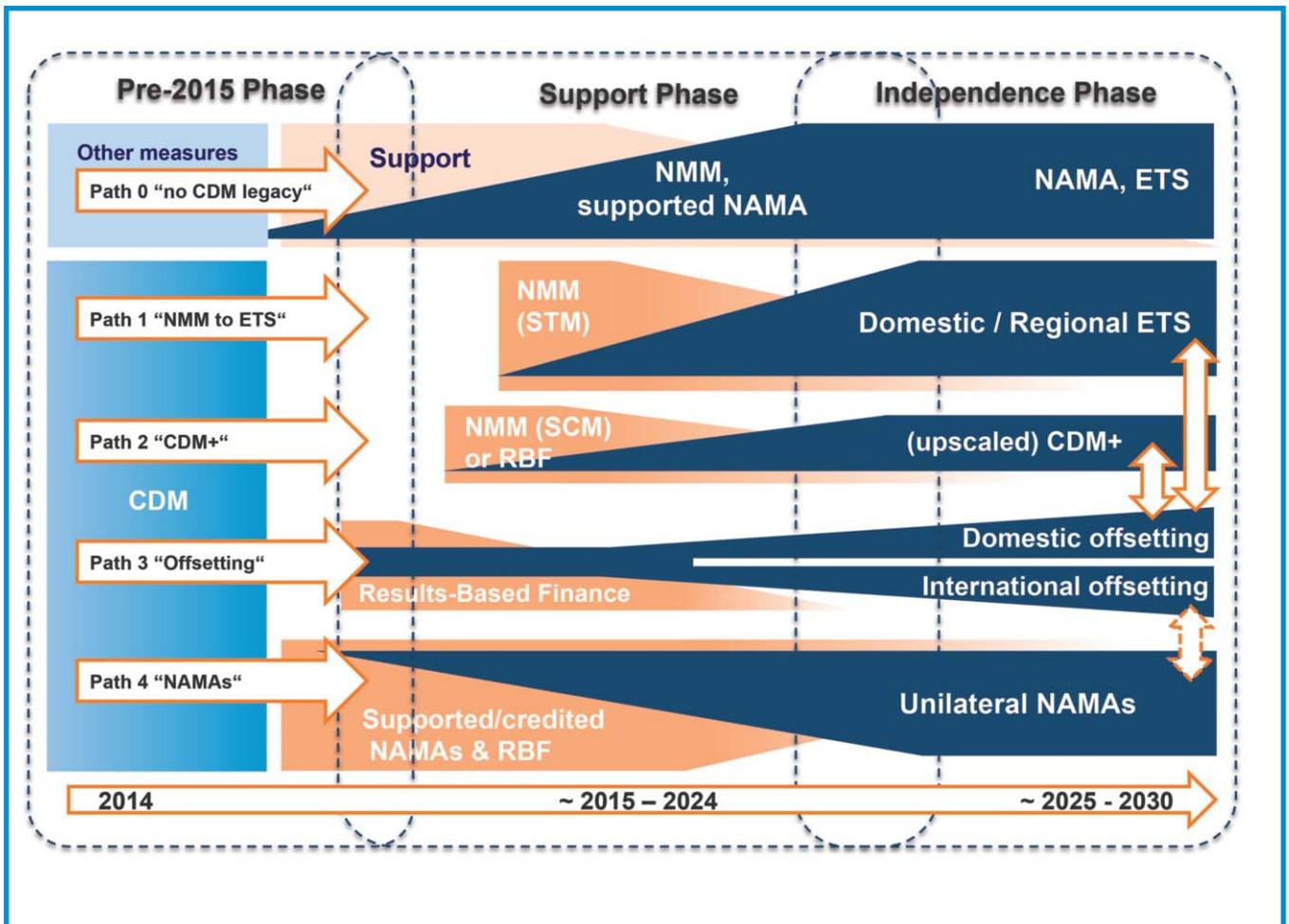


Figure 1: Pathways for transition from the CDM to future climate policy instruments

Reflecting on the discussions held as part of this project, and given current situation global climate policy, we see the following trends emerging:

Generally the CDM (in some cases, voluntary markets) has played an important role in helping to lay the foundation for further evolution of climate policies, not least by setting standards, building capacity, and developing a basic understanding of accounting and MRV. This is a general trend that can be observed in most countries. Even in countries not involved with CDM or JI, such as Turkey, voluntary markets greatly influenced by the CDM activities have helped shape domestic climate policies.

Many countries have opted to continue CDM activities as domestic offsetting programmes, thereby cre-

ating a source of (domestic) demand from non-Annex 1 countries. Many CDM activities in China are beginning to transition to the domestically-driven CCER system (cp. "CER or CCER" elsewhere in this issue), and this is likely to accelerate as emissions trading is implemented nationally (see below). Elements of the CDM (notably several methodologies) along with some projects are being adapted for the Thai Voluntary Emission Reduction Program (T-VER). CDM credits without international buyers can be used for compliance in the future South Korean ETS. CDM activities will further serve as the basis for domestic offsetting to offset liabilities under the future South African and Mexican carbon tax systems.

Interest in moving directly towards the implementation of a domestic emissions trading system without a sectoral trading/crediting mechanism or NMM as a stepping-stone: emissions trading is a prominent element of several countries' activities as implementing partners of the World Bank's Partnership for Market Readiness (PMR), with China and Kazakhstan as prominent examples. In China, some CDM activities such as supply side energy efficiency projects have already been integrated into the scope of pilot schemes. This is likely to be expanded under the national scheme after 2016. Other countries are developing emissions trading and baseline and crediting schemes on a voluntary basis, as is the case with the Nusantara Carbon Scheme (NCS) in Indonesia and the Voluntary Emissions Trading Scheme (V-ETS) in Thailand.

A number of countries are opting for a carbon tax. Some discussants mentioned that for many developing countries, the implementation of a carbon tax may be easier than emissions trading and provides policy makers with the basic MRV provisions should they later want to transition to other policy instruments. Mexico, South Africa, and Chile have all opted for carbon taxes. Some countries have developed innovations such as allowing offsetting from domestic CDM projects for carbon tax liabilities, possibly at much higher prices than the current market rates.

In the absence of an NMM, countries are focusing on existing support vehicles under multilateral climate policy, where NAMAs play a prominent role. The NAMA concept continues to evolve, but it has already become an important instrument as a progressive national mitigation framework. Most NAMAs are being developed without a clear perspective of tradable credits or allowances, and many do not include a market-based approach (though the option is not ruled out). These processes are not necessarily linked to the CDM legacy of the respective countries, though in some cases the CDM has provided a starting point. In Colombia, NAMA activities in the transport sector build directly on CDM transport experience. In countries like Indonesia and Vietnam, there is a focus on

NAMA readiness. In Vietnam, new and different sectors are being studied for NAMA activities, where line ministries initiate sector-wide learning processes that were attractive under the CDM.

## Conclusion

The abstract possibility of an NMM, under an uncertain post-2020 architecture with uncertain demand, is not likely to play a decisive role for mitigation efforts in the short or medium term.

While it is a positive signal that a number of countries are independently taking action and that support is being made available, it is clear that a multilateral approach would facilitate accountability and efficiency in global mitigation action. A multitude of national and regional incentive schemes, MRV requirements and trading approaches would increase the complexity and opacity of mitigation efforts, making international development and climate finance more difficult.

A multilateral approach to incentivise and account for mitigation action, to build capacity, and to foster ambition would facilitate a clearer understanding of the Lima and Paris architectures. However, to play a constructive role, any such measure would need to recognise the diverse policy landscape.

In negotiating and designing the NMM (especially with regard to net mitigation), and in deciding what to do with the current CDM institutional framework, Parties need to consider the extent to which a top-down approach is a viable solution, or how a broader approach which allows both centralised supervision and bottom-up activities (as under the Framework for Various Approaches (FVA)) can be reconciled to effectively drive mitigation in this increasingly "fragmented" world.

# CER or CCER?

## China's Emerging Carbon Offset Market

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At the UN Climate Change Summit held in New York on September 23, 2014, China's vice premier Zhang Gaoli claimed that China, the world's biggest greenhouse gas (GHG) emitter, will take firm action on climate change and announced that it will make every effort to reach its carbon dioxide emissions peak as early as possible. Only shortly thereafter, on November 12 in Beijing, US president Barack Obama and his Chinese counterpart, Xi Jinping, unexpectedly unveiled a secretly negotiated agreement between the United States and China to lower GHG output. Under the deal, China committed for the first time to cap its carbon emissions by 2030. In addition, China plans to increase its use of renewable energy to 20 percent within that timeframe. In return, the United States agreed to double the pace of the cuts in its emissions, reducing them to between 26 and 28 percent below 2005 levels by 2025.

Although these commitments still fall short of what is needed to fight global warming, and while it also remains unclear whether the two countries are able to fulfil their new GHG reduction promises, this historic bilateral agreement has the potential to change the rules of the game for UN climate change negotiations. And it might unblock the road for a legally binding global agreement on climate protection in Paris at the end of 2015, and the establishment of a global carbon market.

### The Existing Framework for Climate Policy and Carbon Markets in China

In recent years, China has strongly increased its climate protection efforts. Its 12th Five Year Plan (2011-2015), for example, sets out the country's commitment to gradually develop a carbon trading market. In October 2011, the National Development and Reform Commission (NDRC) designated two

provinces (Guangdong, Hubei) and five cities (Beijing, Chongqing, Shanghai, Shenzhen and Tianjin) for subnational mandatory emissions trading scheme (ETS) pilots. To date, Shenzhen, Beijing, Shanghai, Guangdong and Tianjin have completed their first compliance period. By contrast, covered companies in Hubei and Chongqing will be required to surrender China allowances (the certificates used in the Chinese ETSs) for their 2014 emissions in 2015 only because of their delayed starts in April and June 2014, respectively.

In addition, the NDRC also announced its plan to establish a national ETS under China's 13th Five Year Plan (2016-2020). The preparatory work is under way and includes the following main tasks:

- Establishment of required national ETS legislation
- Monitoring and evaluation of existing pilots
- Decision between alternative national ETS approaches (top down, bottom up, combination)
- Set-up of basic ETS design and framework (scope, cap, allocation of emission allowances, monitoring, reporting and verification (MRV), compliance, enforcement etc.)
- Introduction of supportive flexibility mechanisms (banking, borrowing, price management, offsetting, linking, etc.)
- Installation of required ETS infrastructure (registry, reporting system, trading platform, etc.)
- Institutional capacity building (NDRC, local DRCs, liable entities, etc.)

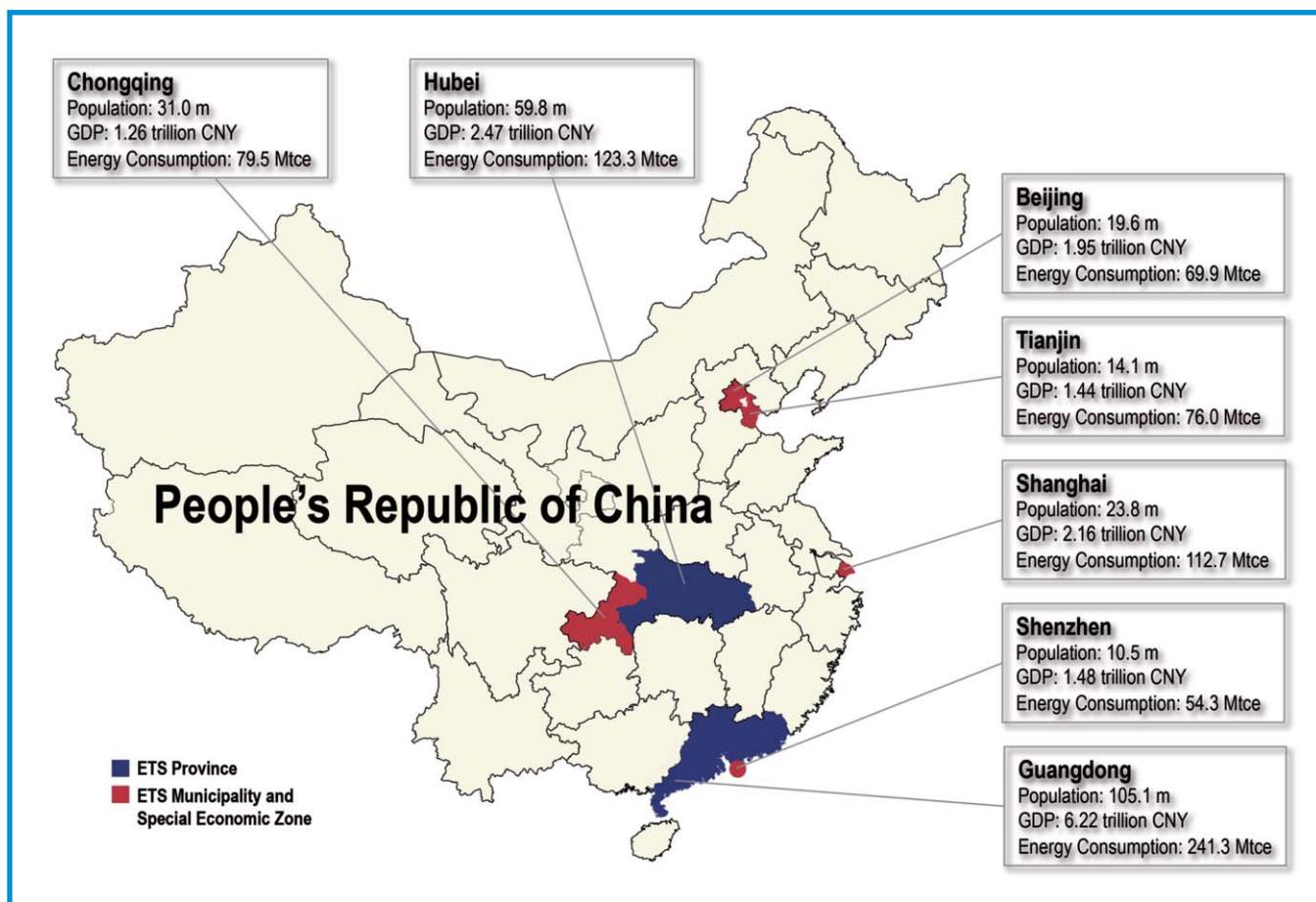


Figure 1: Location of the Seven Chinese Pilot ETS

Source: SinoCarbon Ltd: Decision Making and Policy Choice in China ETS, May 8-9, 2014, modified by UPM.

In parallel to the development of the mandatory schemes, the NDRC released a regulation on voluntary carbon offset trading in June 2012. This scheme will promote a viable Chinese voluntary carbon market with reliable, internationally recognized standards.

These three market-based cornerstones of climate change mitigation shall help China to slow down the rapid growth of its carbon emissions in the most cost efficient way.

Once fully operative, the Chinese ETS is widely expected to be the largest in the world. As a result, it is not only the liable GHG emitting entities with compliance obligations that are preparing for emissions trading. Many other domestic and foreign busi-

nesses, such as investors, commodity traders and consultants, are now trying to become early participants and future leading players in China's upcoming carbon markets.

## The Chinese Carbon Offset-Market: Opportunities and Constraints for CDM Project Developers

As all seven regional pilots and China's nation-wide ETS accept carbon credits stemming from Chinese offset projects (China Certified Emission Reductions, CCERs) for compliance use, the emerging Chinese car-

bon offset market might open up attractive new business opportunities and become a safe harbour for many distressed CDM project developers in China who are suffering from the collapse of CER prices in the EU ETS and high NDRC floor prices for CERs. These firms could, firstly, develop and commercialise dedicated new CCER emissions reduction projects, and, secondly, get the much needed fresh CER demand – provided, that is, that CDM CERs can be converted into CCERs eligible for compliance purposes in the new Chinese schemes.

NDRC offset eligibility criteria apply for all of China's pilot carbon markets. CCERs from GHG emission reduction projects constructed after February 16, 2005 are eligible if the projects are:

1. Developed using methodologies approved by the NDRC (Category I)
2. Approved as CDM projects by the NDRC, but have not been registered by the CDM Executive Board (Category II)
3. Approved as CDM projects by the NDRC and their emissions reduction is generated before the effective date of CDM registration (Category III)
4. Registered with the CDM, but have not had any CER issuance yet (Category IV)

However, there are certain offset limitations in terms of allowed CCER compliance share relative to cap, project types, start of commercial project operation, CCER vintages and local origin that vary between the pilot ETSs. Beijing's ETS, for instance, has issued very strict requirements for CCER compliance use. These state that:

1. The eligible CCERs should be generated from January 1, 2013 onwards
2. The usage ratio of CCERs from non-Beijing projects should be less than 2.5 percent of the total amount of allowances allocated to compliance entities; CCERs from projects in the surrounding areas of Hebei and Tianjin are preferred because these have signed cooperation agreements for climate change mitigation with Beijing
3. CCERs from HFC, PFC, N<sub>2</sub>O, SF<sub>6</sub> and hydropower projects are not accepted

4. CCERs generated by the liable compliance entities in Beijing are not eligible

As the graph below shows, in 2013, the seven pilots combined for a total GHG emissions cap of 1,246 MtCO<sub>2e</sub> (almost 60 percent of the EU ETS Cap), with the two provincial schemes of Guangdong (388 MtCO<sub>2e</sub>) and Hubei (325 MtCO<sub>2e</sub>) accounting for the highest allowance allocation and the special economic zone of Shenzhen (33 MtCO<sub>2e</sub>) for the lowest. The share of total GHG emissions covered by the pilots ranges from 35 percent for Hubei and 60 percent for Tianjin.

CCER eligibility rules determine that in the Shenzhen, Guangdong, Tianjin and Hubei pilots, the share of eligible offset CCERs is 10 percent of total allowances allocated in each ETS. Chongqing accepts 8 percent CCERs and Shanghai and Beijing only 5 percent. This means that the total amount of eligible CCERs for all the seven ETS pilots is 111.5 MtCO<sub>2e</sub>. While Shenzhen, Shanghai and Tianjin do not have any restrictions on local CCER origin, Beijing's ETS requires that 50 percent of eligible CCERs should be generated in Beijing. For the Guangdong ETS 70 percent of CCERs need to be produced locally, whereas Hubei and Chongqing even determine that 100 percent of CCERs have to originate from within their administrative boundaries. In effect, the remaining amount of eligible CCERs for unrestricted compliance use in the seven pilot schemes shrinks to just 40.2 MtCO<sub>2e</sub>.

Notwithstanding, many CDM project developers in China are considering to switch from CDM CERs to CCERs. Two foreign company examples are Australian Climate Bridge and Finnish GreenStream. Both firms do not own covered GHG emitting facilities, but they have recently been granted permission to trade both CCERs and China Allowances in the pilot schemes and their emissions exchanges. They are now analysing their CDM project portfolio to find out which of their Chinese CDM projects are suitable for CCER conversion.

The most important factors for entering the Chinese carbon offset market are certainly time and cost for CCER project development, and the expected price relations of CERs to CCERs in the short, medium and longer term. Also, perceived access hurdles to the Chinese carbon market, the quality of the legal and regulatory environment for emissions trading in China, as well as ETS design, management and performance will need to be taken into account.

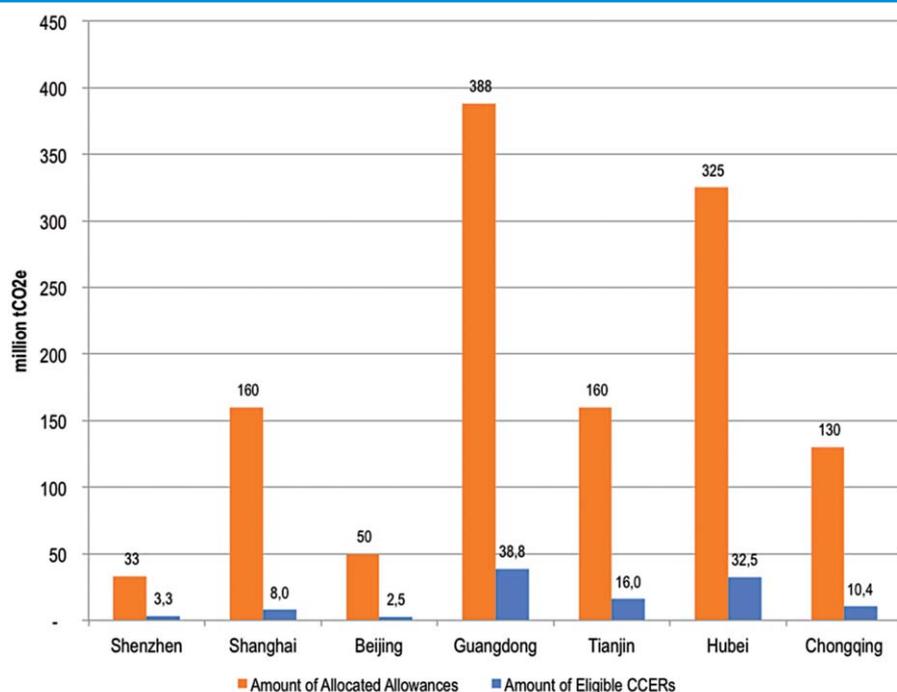


Figure 2: Initial Year Allowance Allocation and Amount of Eligible CCERs of the Seven Chinese Pilot ETS

Source: PMR (<https://www.thepmr.org/>); ICAP (<https://icapcarbonaction.com/>), modified by UPM.

## CCER Project Development and Pipeline

The CCER project development cycle is very similar to the CDM procedure with the main stages being third-party validation, NDRC registration, third-party verification and CCER issuance. There is one important difference though: CCER projects from the categories I-III can generate credits from the start of project operation, but not before February 16, 2005. By way of contrast, CDM projects and category IV CCER projects can only produce credits after successful registration.

The time needed for CCER project development from validation start until successful registration by the NDRC is still hard to estimate. The decisive bottleneck appears to be the NDRC approval meeting. According to data from the China Certified Emission Reduction Exchange Platform (CCER EIP) for those CCER projects registered so far, it took between 87 days and more than 250 days. On average, a time span of 200 days until successful registration should be a realistic assumption for the CCER project categories I, II and III. Category IV projects are

a different case. As the CDM EB and the NDRC do not allow double counting of credits under the CDM and CCER regime, as this would reward developers twice for the same emissions reduction, these projects have to de-register with the CDM EB before applying for CCER project approval from the NDRC. However, the de-registration mechanism of the CDM EB is not yet in place. As a result, these category IV projects still face difficulties in registering as CCER projects and it is not possible to quantify process duration for the time being.

To provide an estimate of project development cost, UPM has had numerous consultations with several

Designated Operational Entities (DOEs) with NDRC accreditation for the validation and verification of CCER projects. For the project categories I and II, the validation cost is around CNY 60k (EUR 7.8k), whereas the verification cost can be calculated with around CNY 30k-50k (EUR 3.9k-6.5k). For the project categories III and IV, the validation cost will be approximately CNY 30k (EUR 3.9k), since, so far, onsite visits are not requested for registered CDM projects. The verification costs range between CNY 40k-50k (EUR 5.2k-6.5k).

According to UPM research and the project database of the CCER EIP, the following nine DOEs have been accredited by the NDRC and qualify for the validation and verification of CCER projects:

The five DOEs, CQC, CEPREI, CEC, CCSC and CTI are also accredited CDM DOEs and have rich experiences in CDM project validation and verification.

According to the CCER EIP database, as of November 3, 2014, 413 CCER projects were at the validation stage. Of these, 88

projects (21 percent) have already been registered by the NDRC but, so far, no CCERs have been issued. All of the registered CCER projects have been validated by CQC, CEPREI and CEC.

The lion's share of projects at validation are renewables projects (315 projects), followed by methane recovery (67), energy efficiency (20), fuel switch (7), forestry (2) and transport (2). The renewables projects are dominated by wind power (133), hydro power (81), solar power (66) and biomass (33). Geothermal energy only plays a minor role with two projects.

In terms of geographical distribution of the ongoing 413 CCER projects, 71 projects (17 percent) are located in the seven pilot scheme jurisdictions, whereas 342 projects (83 percent) are implemented in other Chinese provinces or municipalities.

The following table provides a closer look into the CCER project development pipeline and upcoming CCER issuances.

While the NDRC has chosen a cautious approach and CCER project registration is only progressing slowly, the recent NDRC approval of nearly 90 CCER projects should give a major boost to the Chinese offset market. In this context, the NDRC

also announced that the CCER project registry and the registries of the seven pilots will have been linked by the end of this year. Thus, market participants will be able to start trading the first issued CCERs within the next few months.

However, the short time between CCER issuance and launch of the interlinked registry systems on the one hand, and the deadline of the pilot's compliance periods on the other, may affect CCER trading activity. Depending on the share of eligible CCERs, the geographical origin, project type and vintages of issued CCERs, various CCER prices will emerge in the pilots, a situation which is similar to current pricing of different quality CERs ("Green", "Grey", pre-2013 and post-2012 vintages, etc.) in the EU ETS.

## Current and potential CCER demand, supply and pricing

Despite the young market stage and still limited liquidity, China allowances have been traded quite actively in the seven pilots, with an aggregated total trading volume of nearly

**Table 1: DOEs accredited for the validation and verification of CCER projects**

No.	Registration Date at NDRC	DOE Name
1	2013.6.13	China Quality Certification Center (CQC)
2	2013.6.13	China Electronic Product Reliability and Environmental Testing Research Institute (CEPREI)
3	2013.9.2	China Environmental United Certification Center Co., Ltd (CEC)
4	2014.6.20	Foreign Economic Cooperation Office, Ministry of Environmental Protection (FECO)
5	2014.6.20	China Classification Society Certification (CCSC)
6	2014.6.20	SinoCarbon Innovation & Investment Co., Ltd (SCII)
7	2014.8.19	Shenzhen CTI International Certification Co., Ltd (CTI)
8	2014.8.19	China Academy of Agricultural Sciences (CAAS)
9	2014.8.19	Research Institute of Forestry Policy and Information, Chinese Academy of Forestry (RIFPI)

Source: China Certified Emission Reduction Exchange Information Platform (CCER EIP, <http://cdm.ccchina.gov.cn/ccer.aspx>), modified by UPM.

Project Category	CCER projects in validation			Registered CCER projects			CCER projects requesting issuance			CCER projects with issuance review	
	Number of CCER Projects	Annual ER (tCO <sub>2</sub> e)	One time ER (tCO <sub>2</sub> e)	Number of CCER Projects	Annual ER (tCO <sub>2</sub> e)	One time ER (tCO <sub>2</sub> e)	Number of CCER Projects	Annual ER (tCO <sub>2</sub> e)	One time ER (tCO <sub>2</sub> e)	Number of CCER Projects	One time ER (tCO <sub>2</sub> e)
I	203	18.941.086		21	1.293.684		5	380.341			
II	25	389.061									
III	166		61.638.001	67		33.774.444	34		21.915.164	14	10.457.393
IV	19	1.745.653									
<b>Total</b>	<b>413</b>	<b>21.075.800</b>	<b>61.638.001</b>	<b>88</b>	<b>1.293.684</b>	<b>33.774.444</b>	<b>39</b>	<b>380.341</b>	<b>21.915.164</b>	<b>14</b>	<b>10.457.393</b>

Table 2: Validation, Registration and Issuances Requests by CCER Project Category (I-IV) as per October 31, 2014

Source: (CCER EIP), modified by UPM.

29 MtCO<sub>2</sub>e and an average unit price of CNY 44.17 (EUR 5.77) between their respective starting dates and October 31, 2014. The largest trading volumes were handled in the provincial ETS pilots of Guangdong and Hubei. With regard to allowance pricing, Shenzhen had the highest average price with CNY 66.85 (EUR 8.74) whereas Tianjin ranks at the bottom with CNY 20.67 (EUR 2.70). In contrast to allowances trading, only three CCER deals have been made public so far, with unit prices spanning from CNY 20 (EUR 2.61) to CNY 7.5 (EUR 0.98).

The development of daily China allowance prices in the seven pilots over time shows high volatility with a maximum of ffl CNY 120 (EUR 15.68) a year ago in Shenzhen and a minimum of < CNY 17 (EUR 2.22) in the case of Tianjin at the end of July 2014. While Tianjin has only had a few trades so far and Chongqing did not yet have any deals at all, a convergence of allowance prices towards the CNY 40 (EUR 5.23) mark can be seen in the last few months.

With a view to recorded 2013 compliance rates in the pilots, Shanghai has achieved 100 percent, Shenzhen 99 percent, Guangdong 98.9 percent, and Tianjin 96.5 percent, whereas Beijing has not yet made its compliance results public and Hubei and Chongqing have postponed the first compliance deadline to 2015 because of their late start.

As of November 2014, it remains difficult to provide a reliable outlook on CCER supply, demand and pricing for the seven ETS pilots in China, and even more so for the announced national carbon market. This is due to many uncertainties, such as the future ETS scope, the tightness of allowance allocations going forward, the prospective compliance response of liable entities, and also the behaviour of CCER project developers in the coming years.

Based on current CCER project applications, approximately 25 million CCERs should be issued before June 2015 to be used for compliance in 2014. With a total number of eligible CCERs of approximately 110 million units for all the seven schemes, this

	Shenzhen	Shanghai	Beijing	Guangdong	Tianjin	Hubei	Chongqing	Total All ETS
<b>Starting Date</b>	Jun 18, 2013	Nov 26, 2013	Nov 28, 2013	Dec 18, 2013	Dec 26, 2013	Apr 2, 2014	Jun 19, 2014	
<b>Traded Volumes (tCO<sub>2</sub>e)</b>	1.749.517	1.617.680	2.060.126	14.456.068	1.066.903	7.900.909	145.000	28.996.203
<b>Turnover (CNY)</b>	116.949.243	63.225.003	101.909.031	791.340.324	22.052.467	180.713.834	4.457.500	1.280.647.402
<b>Average Price (CNY)</b>	66,85	39,08	49,47	54,74	20,67	22,87	30,74	44,17
<b>Average Price (EUR)</b>	8,74	5,11	6,46	7,15	2,70	2,99	4,02	5,77

Table 3: Aggregated Trading Volumes and Average Allowance Prices of the Seven China Pilot ETS between Starting Date and October 31, 2014

Source: IdeaCarbon (<http://www.ideacarbon.org>), modified by UPM, CNY/EUR exchange rate from October 31, 2014.

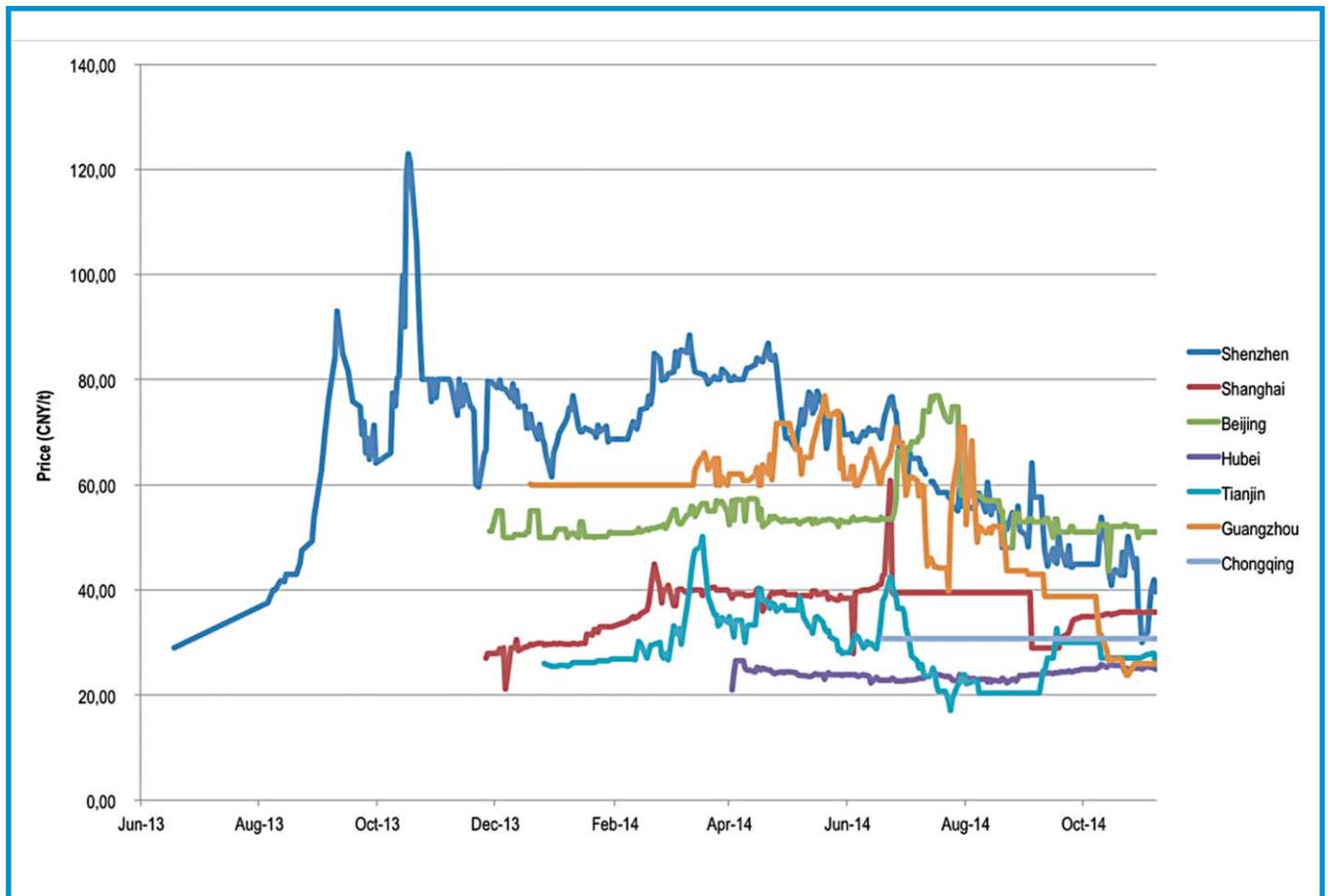


Figure 3: Allowance Prices of the Seven China Pilot ETS between Starting Date and November 7, 2014

Source: Tanjiaoyi (<http://www.tanjiaoyi.org.cn/>), modified by UPM.

means that the pilots would be strongly undersupplied with offsets for the compliance year 2014. For compliance in 2015 and after, it can be estimated that between 40 and 60 million CCERs will be issued per year. If the pilot's CCER offset demand stays at the current level, there will still be a significant CCER shortage supporting CCER prices.

However, due to the early stage of the Chinese offset markets, even major regulatory adjustments and fundamental changes in the CCER supply and demand pattern cannot be ruled out. Therefore, interested CDM project developers and other market participants should closely monitor the developments in China's carbon offset regulation and market activities to be best prepared for any scenario.

## The Chinese Carbon Offset Market in Context and Perspective

For a fair assessment of China's carbon market endeavours and its related offset mechanisms, the unique Chinese situation must be taken into account. China is the first country worldwide with a single party government to take steps towards developing a nation-wide carbon market. No other ETS around the globe is being built with a mixture of top-down and bottom-up approaches that combine a national carbon market framework with provincial- and city-scale pilot schemes. Also, as the world's largest developing country in terms of population and GDP, the dimension of China's challenge to reconcile environmental sustainability with the enormous resource needs of its fast-growing economy is unparalleled. Thus, as is reflected by China's new climate target to

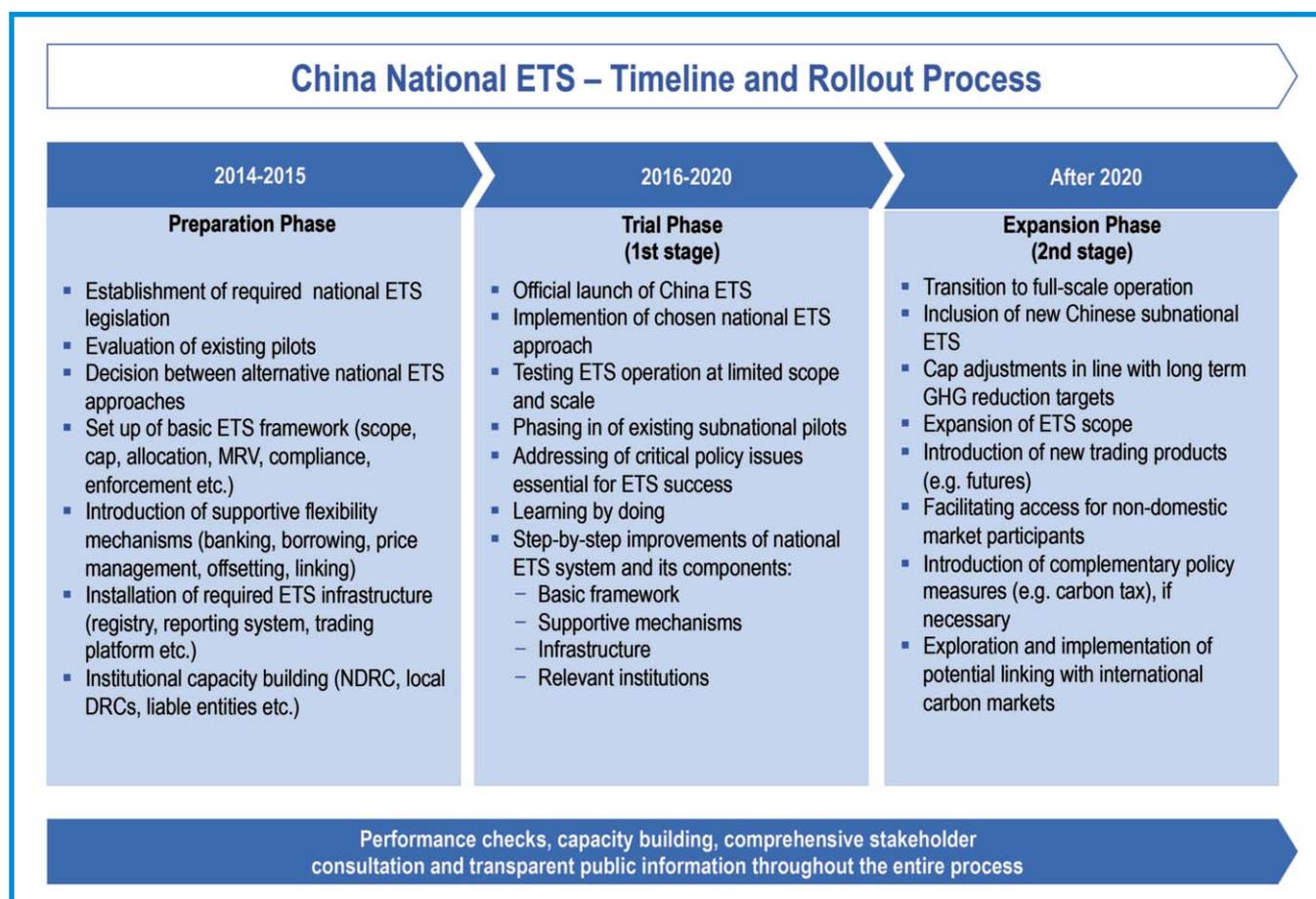


Figure 4: Timeline and Rollout Process of China's National ETS

Source: ADB: *Experience and Lessons from China Pilot ETSs and the way forward for China establishing a national ETS*, October 2014; BASF: *China Emissions Trading System. Experience and Expectations*, 26.09.2014, modified by UPM.

reach its carbon emissions peak by 2030, no drastic cutback of China's absolute GHG emissions will be possible soon.

Despite these difficult circumstances, China has made considerable progress and has gained valuable experience on its way towards establishing a robust, effective and cost efficient national ETS. Nonetheless, it must be stressed that China's carbon market is still in its infancy. Therefore, much ETS capacity building has yet to be done and, as setbacks will occur, the rollout expectations should be kept realistic. Due to the complexity of the set-up task and the considerable number of critical issues still to be solved, China's national ETS might well be launched between 2016 and 2020, but it will most likely not become fully operative before the end of the decade. Whether China's national ETS will be further supplemented by a carbon tax or even stricter command-and-control policy measures

will depend on whether emissions trading will start to deliver the desired results or if further action needs to be taken to speed up GHG abatement and reduce China's carbon emissions to safe levels.

By finally setting a carbon cap and increasing the intended share of renewable energy use to 20 percent by 2030 in its recent bilateral climate agreement with the US, the Chinese government has sent out a clear signal to the international business community regarding its long-term objectives and expectations for China's low carbon development. This much-needed focus could trigger the required amount of domestic and foreign private-sector investment to get the Chinese carbon market off the ground.

# Looking Back at the Future

## Evolution of and perspectives for the Kyoto Protocol's project-based mechanisms

Thomas Forth

The development of the CDM, the only global project and program-based carbon market mechanism to date, took some considerable time from the early “bubble” approaches, its legal insertion into the Kyoto Protocol (KP) in 1997, reaching consensus in Marrakesh 2001 to the fundamental decision of CMP.1 in Montreal 2005. The following historical landscape of the evolution of the KP’s carbon markets shows impressively the complexity of this journey.

At the time of writing, all market mechanisms contained in Article 6, 12 and 17 of the KP and their derivatives (especially the

EU ETS), have been fraught with a number of fundamental shortcomings. The missing ambitions beyond 2012, and as a result the low demand on emission reduction generated through primary market incentives, have led both to a crisis in this first generation of carbon market mechanisms, and to shortcomings.

While the CDM was implemented with the need to build on regulations and institutions via an ongoing, parallel reform process at UN and EB level, the improvements achieved with the two other mechanisms are no longer of any significance.

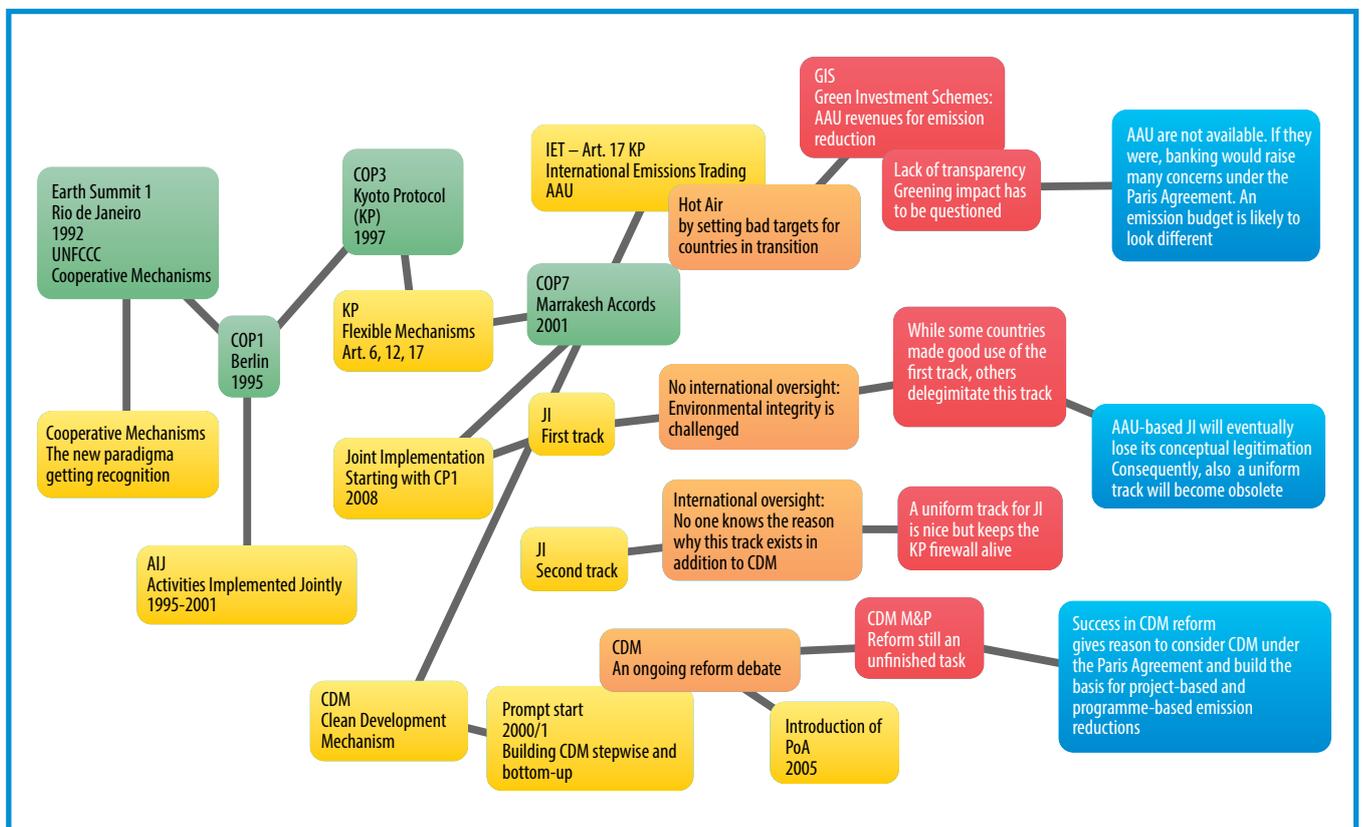


Figure 1: Evolution of flexible mechanisms over time



# CARBON MECHANISMS REVIEW



## Results-based Finance and the role of CDM

Policy Brief explains the concept of 'results-based finance' and analyses mitigation activities using the approach. Download at [www.jiko-bmub.de/1439](http://www.jiko-bmub.de/1439)

## How to define a good offset project?

New Study compares quality criteria of mitigation projects. Download at [www.jiko-bmub.de/1463](http://www.jiko-bmub.de/1463)

## Glossary

All CDM/JI-specific terms and abbreviations are explained in detail in the glossary on the JIKO website. You can view the glossary here: [www.jiko-bmub.de/459](http://www.jiko-bmub.de/459)