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Post Kyoto Emission Reduction Purchase Agreement Dynamics.

Date: 31th of January 2013 By: Henk Sa and Lodewijk Nell

Summary

By **extending** the first Kyoto commitment period **till 2020**, **COP18 in Doha** resulted in a bit more clarity regarding the future of the **global carbon market**. Nevertheless, the uncertainty over the past few years has led to the **fragmentation** of the global carbon market in which a wide range of industrialised and developing countries developed independent **regional and domestic markets**. These markets all have different **designs and market dynamics** which have led to a wide range of prices that one could obtain for a CER generated in South Africa. Historically, project developers signed a so called **ERPA** to secure the **long-term off-take of the CERs** from their project(s) and (in most cases) had the buyer pay for the registration and verification of the project(s) under the CDM. Due to the fragmentation of the carbon market this has now become a **risky model** for project developers as they might find themselves in a situation where they have forward sold their CERs into a specific market like for example the European ETS, **at a price far below** what they could have realised in a **different market**.

Background

EcoMetrix Africa operates at the forefront of the fight against climate change and specializes in climate change mitigation activities applied in Southern Africa. In addition to providing strategic climate change mitigation advice, one of its main activities is the development of projects and Programmes of Activities (PoAs) under the Clean Development Mechanism (CDM). This paper looks at the implications of the fragmentation of the global carbon market at the end of the first commitment period of the Kyoto protocol on Emission Reduction Purchase Agreements (ERPA's) for Certified Emission Reductions (CERs).

CDM activity in South Africa

With the exception of Russia (an Annex 1 country within the Kyoto protocol), South Africa historically lagged behind in comparison to its developing country peers within the BRICS group (Brazil, Russia, India, China and South Africa) when it came to the registration of CDM projects and the issuance of CERs from these projects. However, in recent years there has been a substantial uptake of projects under the CDM. This could be clarified as the result of increased exposure on the topic via for example COP17 in Durban and the introduction of incentives by government either penalising the emission of Greenhouse Gasses (GHGs) or rewarding the reduction of the GHGs being emitted. A good example of the latter is the Renewable Energy Independent Power Producer Programme (REIPPP) as launched by the South African government in 2010.

When looking at a snapshot of the South African CDM pipeline it becomes apparent that although the number of registered project and PoAs is still rather limited (24 projects and 5 PoAs) the number of projects and PoAs in the

process of being registered is substantial (62 projects and 43 PoAs). The table below provides a more detailed overview of the different types of project within the CDM pipeline.

	CDM project type	In the CDM process	CER/year	Status
Projects	Biogas	4	• 96,962	• 2 registered, 1 requesting registration
	Methane destruction	5	• 857,003	• 1 registered, 2 validation
	N2O abatement	5	• 2,188,210	• 5 registered
	Landfill gas to energy	11	• 1,808,074	• 6 registered
	Biomass	12	• 1,457,689	• 5 registered, 5 validation
	Energy efficiency	32	• 5,094,494	• 3 registered, 26 validation
	Renewable energy	33	• 8,512,963	• 2 registered, 7 requesting reg., 21 val.
	Total:	**102**	• **20,015,395**	• **24 registered, 62 still in the process**
PoAs	Biogas	1		• 1 validation
	Methane destruction	1		• 1 validation
	Landfill gas to energy	2		• 2 validation
	Biomass	3		• 3 validation
	Solar water heaters	8		• 3 registered, 1 requesting reg., 3 val.
	Energy efficiency	15		• 1 requesting registration, 13 validation
	Renewable energy	20		• 2 registered, 1 requesting reg., 17 val.
	Total:	**50**		• **5 registration, 43 still in the process**

Table 1: Snapshot of South African CDM pipeline[1]

Due to the open nature of a PoA (e.g. an almost unlimited number of CDM activities can be added over time) it is impossible to estimate the potential CER volume that a PoA could generate over time. However individual CDM projects provide detailed information on the expected volume of CERs that a project can generate once registered and operational. When accumulating these CERs forecasts the total potential CER production within South Africa could add up to just over 20 million CERs for CDM projects only.

When looking at the pipeline it becomes apparent that the largest activity for both CDM projects and PoA lies within the renewable energy sector. In addition to the introduction of the REIPPP as mentioned earlier, this uptake in CDM activity was also triggered by the change in eligibility criteria for selling CERs into the European Union Emission Trading Scheme (EU ETS). In the course of 2010 it became apparent that the EU ETS will only accept South African CERs from CDM projects and programmes with a registration date before the 1st of January 2013.

Carbon market fragmentation

During the 18th Conference of Parties (COP18) in Doha, the parties which had ratified the Kyoto protocol agreed to extend the current mechanisms and caps until 2020. Although this resulted in a bit more clarity regarding the future of the global carbon market after 2012, the uncertainty over the past few years has led to the fragmentation of the global carbon market in which a wide range of industrialised and developing countries developed independent regional and domestic markets.

The first commitment period under the Kyoto protocol came to an end on the 31st of December 2012 and although the parties to the protocol have agreed in Doha to extend the current mechanisms and caps until 2020 this market

[1] **Source**: UNFCCC, UNEP Risoe and EcoMetrix analysis, January 2013.

uncertainty has contributed to the low price levels for CERs on the international market, however it has also given rise to a wide range of domestic and regional markets that are open (subject to different entrance criteria) for CERs. The diagram below provides an overview of the different regional and domestic markets that a South African generated CER could sell into.

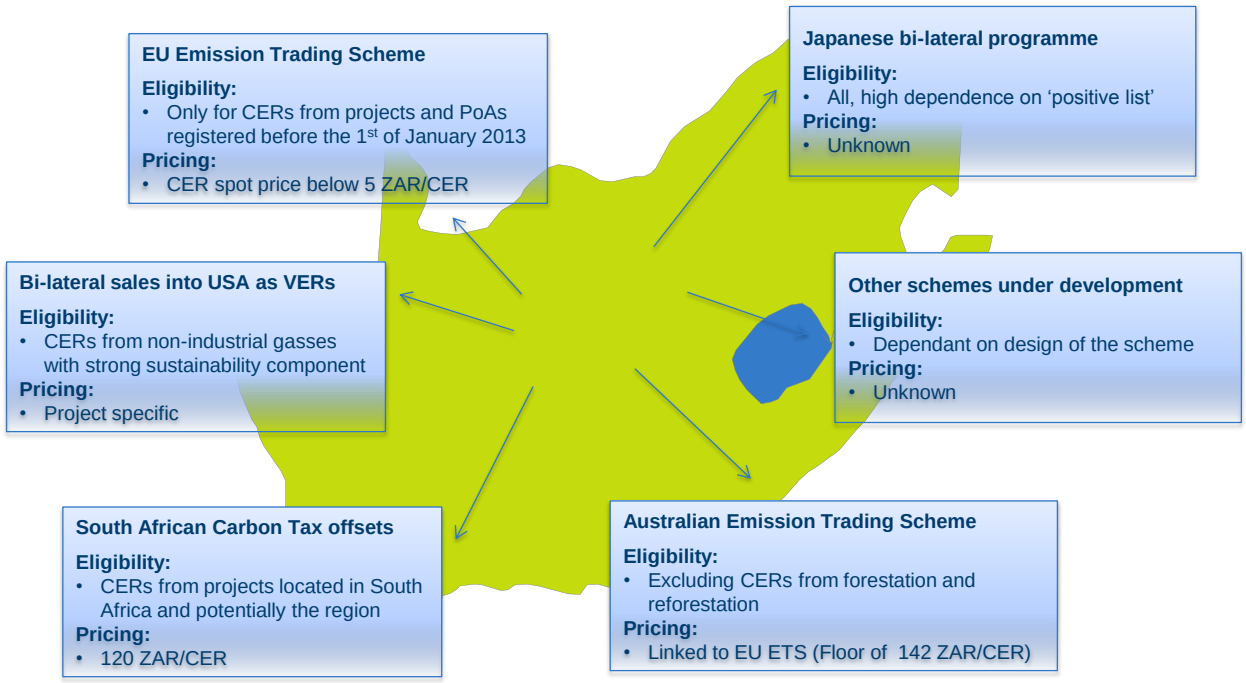

Figure 1: Markets for South African CERs.[2]

The markets included in the figure above are not exhaustive as there are a wide range of markets currently under construction all over the globe. The latter is exactly what is causing a substantial risk imposed on project developers when they consider the forward sale of their project's CERs via a so-called Emission Reduction Purchase Agreement (ERPA).

Emission Reduction Purchase Agreements

In essence an Emission Reduction Purchase Agreement (ERPA) is a contract between a project developer and buyer of CERs in which the long-term supply of CERs by the project developer and the long-term off-take of the CER by the buyer is agreed. Globally the majority of ERPA's was signed between project developers in developing countries and compliance buyers in the European Union.

Although there is an endless variety of ERPA's the most common once used in the market where so called 'fixed price' and 'floating price' EPRAs. Under a fixed price ERPA the project developer and the carbon buyer upfront agreed on a fixed price per CER that would be paid upon delivery of these CERs into the account of the buyer. A floating price ERPA defined the price per CER upon delivery of the CER into the buyers account at a percentage of the spot price for a CER on a pre-defined exchange.

[2] The Australian ETS has a floor price of 15 AUD. Conversion: AUD/ZAR, 1 : 9.49, Investec, January 2013.

At this moment in time, the CER spot price on most exchanges lies between 3 ZAR/CER and 5 ZAR/CER which makes it very difficult the reach a deal between the project developer, who hopes and wants the price to go up and the carbon buyer, who hopes that the carbon price goes up but does not want to commit to a fixed price higher than the current spot price and therefore is dependent on the price going up. Due to the persistent slum in the market, floating price ERPA's are becoming more and more common practice as they allow the project developer to share in the upside if the market price goes up over time while it does not expose the buyer to the full price risk if the market stays where it is or goes down.

In both fixed and floating ERPAs, the main benefit for project developers has generally been that the buyer (in compensation towards the project developer for committing its CER supply for a long period of time) would pay for the registration and verification under the CDM. Although this benefit remains in place to this day, it could, also in case of a floating price, result in very disappointed project developers over time as a result of the fragmentation of the carbon market. The floating or fixed price is generally based on developments in a certain market and does not incorporate any upward potential in other markets. The buyer however can and will exploit this upward potential when the opportunity arises.

In the past, the price owed to the project developer under a floating price ERPAs would be based on a percentage of the (for example) average CER spot price of the European Climate Exchange [3] (ECX) during the 5 days around the day on which the CERs where issued into the buyer account. Under this price determination mechanism the project developer and the buyer both where exposed to movement of the exchange over time. This mechanism implicitly assumes that the exchange would represent a reasonable reflection of the value of a CER at that moment in time (e.g. on that specific day the project developer would not be able to sell at a far higher price than reflected on the exchange). However, due to the fragmentation of the carbon market the risk now exists that the exchange no longer represents a fair price for a CER since it does not take into account other markets into which the CER can be sold.

Box 1 – Project developer losing out on SA carbon tax potential because of EU ETS based ERPA

A project developer agreed to sell its CERs at 70% of the ECX spot price. **100,000 CERs** of the project developer's project are issued and transferred into the buyers account in the 1st of March 2015 and on that day the ECX spot price was 50 ZAR/CER. Which means the project developer can invoice the buyer **3.5 million ZAR** (e.g. 50 ZAR/CER x 70% x 100,000 CERs). So far so good, however if the project developer had not agreed to sell his CERs to the buyer he would have been able to utilise them as offsets under the South African Carbon Tax[1] at a 120 ZAR/CER. In affect the project developer would have lost out on **7 million ZAR** (e.g. 120 ZAR/CER – 50 ZAR/CER *100,000 CERs) for that issuance alone. This loss is not the result of a lower than expected market price but rather the fact that the exchange does not reflect the true value of a CER as it did not factor in the value that could be obtained under the South African Carbon Tax or any of the other markets that have recently emerged or will emerge in the near future. In practice the buyer will (after having bought the CERs at 50 ZAR/CER) commercialise them under the carbon tax and **retain the 7 million ZAR for his account instead of the account of the project developer.**

Although one could consider agreeing on a price determination mechanism that takes into account the CER price in several of the carbon markets it becomes virtually impossible to incorporate all of the current markets and include scenarios for markets that might immerge during the period over which the CERs are sold to a carbon buyer under an ERPA. Hence, one can therefore conclude that in a developing fragmented carbon market it is unwise to enter

[3] See: http://www.ecx.eu/.

into long term commitments when it comes to the sale of CERs from a project as this might result in a situation where the project developer does not receive a fair price for its CERs.

Although **COP 18 in Doha** resulted in the extension of the first commitment period under the Kyoto protocol till 2020, resulting in a bit more clarity regarding the future of the **global carbon market** after 2012 the uncertainty over the past few years has led to the **fragmentation** of the global carbon market in which a wide range of industrialised and developing countries developed independent **regional and domestic markets**. These markets all have different **designs and market dynamics** which have led to a wide range of prices that one could obtain for a CER generated in South Africa. Historically, project developers signed a so called **ERPA** to secure the **long-term off-take of the CERs** from their project(s) and (in most cases) had the buyer pay for the registration and verification of the project(s) under the CDM. Due to the fragmentation of the carbon market this has now become a **risky model** for project developers as they might find themselves in a situation where they have forward sold their CERs into, for example the European ETS, **at a price far below** what they could have realised in a **different market**.

About the Authors

EcoMetrix Africa has been at the forefront of the fight against climate change since its inception. The EcoMetrix team is made up of a group of highly motivated and capable individuals with diverse economic and technical oriented backgrounds. This paper was written by Henk Sa and Lodewijk Nell:

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