



# **Carbon Financing of Bioenergy projects in Africa**

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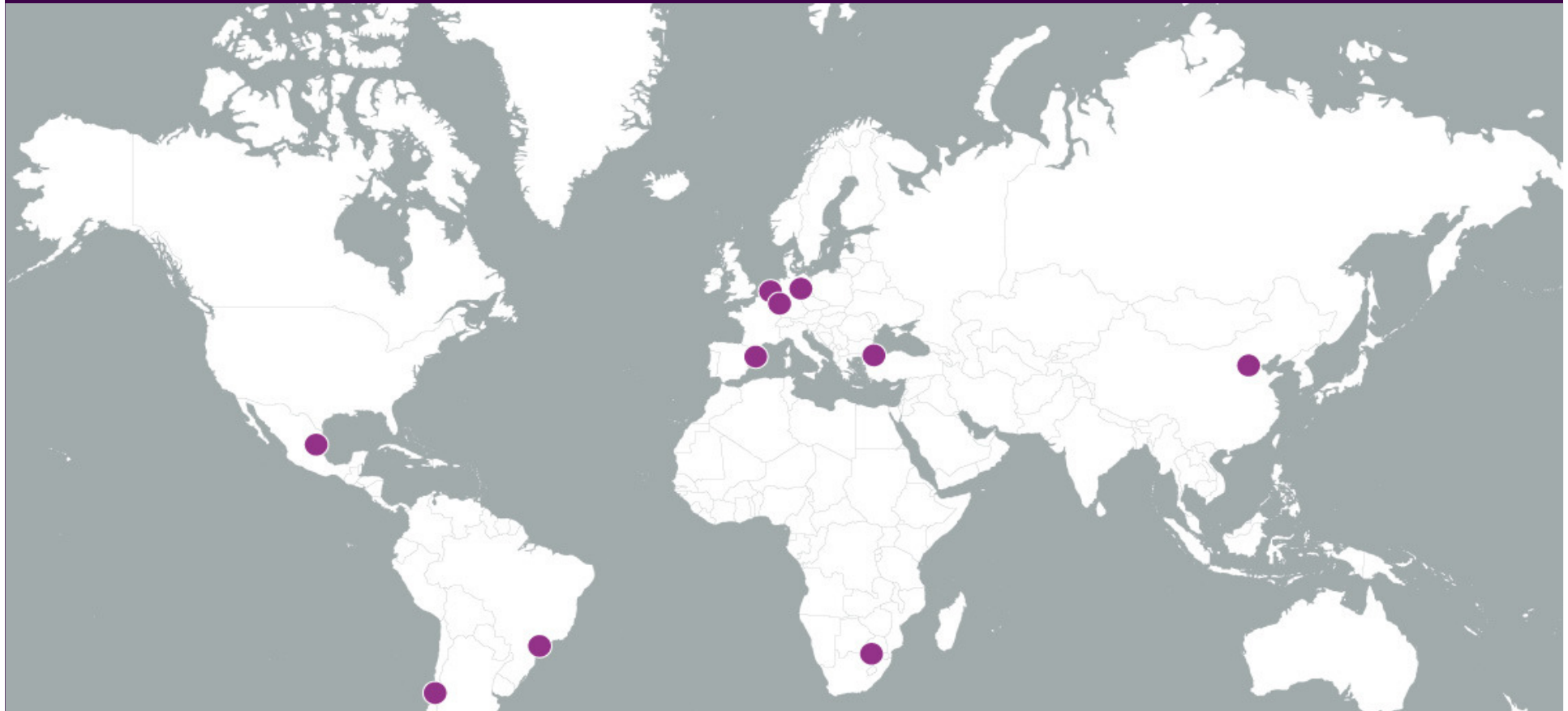
OUR MISSION: A SUSTAINABLE ENERGY SUPPLY FOR EVERYONE

## What we do

- Identify and initiate potential carbon reduction projects all over the world.
- Participate in CDM, JI and voluntary projects as credit originators on a success fee basis.
- Use our financial and technical expertise to deal with all aspects of emission trading.



## OneCarbon offices around the world



| Brazil: Sao Paulo | Chile: Santiago de Chile | China: Beijing | Germany: Cologne, Berlin |  
Mexico: Saltillo | Netherlands: Utrecht | Spain: Barcelona | South Africa: Johannesburg |  
Turkey: Istanbul |

## Latest developments

- June 18th, 2009: **OneCarbon** is purchased by **Orbeo**
- Approval by the EU anti-trust commission obtained



- **OneCarbon** and **orbeo** are complementary businesses
- We share vision and values
- We want to address climate change and accelerate global sustainable development



## orbeo: market solutions and project expertise to fight climate change

- **July 3<sup>rd</sup>, 2006**: Creation of **orbeo**, a joint-venture between **Société Générale** and **Rhodia** dedicated to CO<sub>2</sub> markets, purely dedicated to the emissions credit market.
- A **unique combination** of industrial and financial expertise capitalising on:
  - Two large **CDM projects** developed by Rhodia (~**100 M tons CERs** / Credit Emission Reduction Units, over 2007-2012)
  - Société Générale's CO<sub>2</sub> **trading and risk management know-how**
- A leading market participant on the CO<sub>2</sub> global markets and a **counterparty of choice** for both buyers and sellers of carbon products:
  - Bring **liquidity** to the market and develop a strong expertise in **CO<sub>2</sub> instruments**
  - **Develop** sophisticated and varied **structures** around carbon instruments for the benefit of all players on this market
- **orbeo**
  - A **regulated Investment Services Provider** (Investment Firm category) duly authorised by the French banking authorities to provide financial services
  - A French Société par Actions Simplifiée, with a share capital of EUR 30,246,000.00





# List of awards

## MARKET SURVEY 2007

Environmental  
Finance

PUBLICATIONS

**Best Trading Company  
Kyoto Project Credits**

Runner up  
Best Trading Company  
EU ETS

DECEMBER 2007

UK



**Best Trading Company for  
European ETS allowances  
(EUA)**



Awarded to:



FEBRUARY 2008

UK



**Emissions Europe  
House of the Year**

Awarded to:



JUNE 2008

UK



**First place  
EU ETS Options dealer**

Second place  
Primary CERs dealer  
Secondary CERs dealer

Awarded to:



AUGUST 2008

UK



**Best Trading Company for**

- EUA
- EUA options
- Primary CERs
- Secondary CERs



Awarded to:



FEBRUARY 2009

UK



NEFCO, an international finance institution established by the five Nordic countries, administers the NEFCO Carbon Fund, a global carbon fund

242,000 primary CERs  
over the period 2009-2012

Sold by:



SEPTEMBER 2008

FI



NEDO is Japan's largest public R&D management organization for promoting the development of advanced industrial, environmental, new energy and energy conversation technologies.

9,769,000 CERs  
over the period 2007-2013,5

Sold by:



MARCH 2007  
& APRIL 2008

JP



Within a consortium of buyers led by ECF, **orbeo** has purchased 1,100,000 CERs from Yang Quan Coal Industry (Group) Co., Ltd. The transaction was arranged by Natixis Environnement & Infrastructures.



DECEMBER 2006

CN



**Excellence in  
emission markets  
awarded to:**



In recognition of its excellence to address emission reduction management through **orbeo**.

DECEMBER 2006

UK

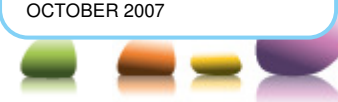


**Best Carbon  
Reduction Project**

Awarded to:



OCTOBER 2007





# The Kyoto Mechanism is based on basic economic principles

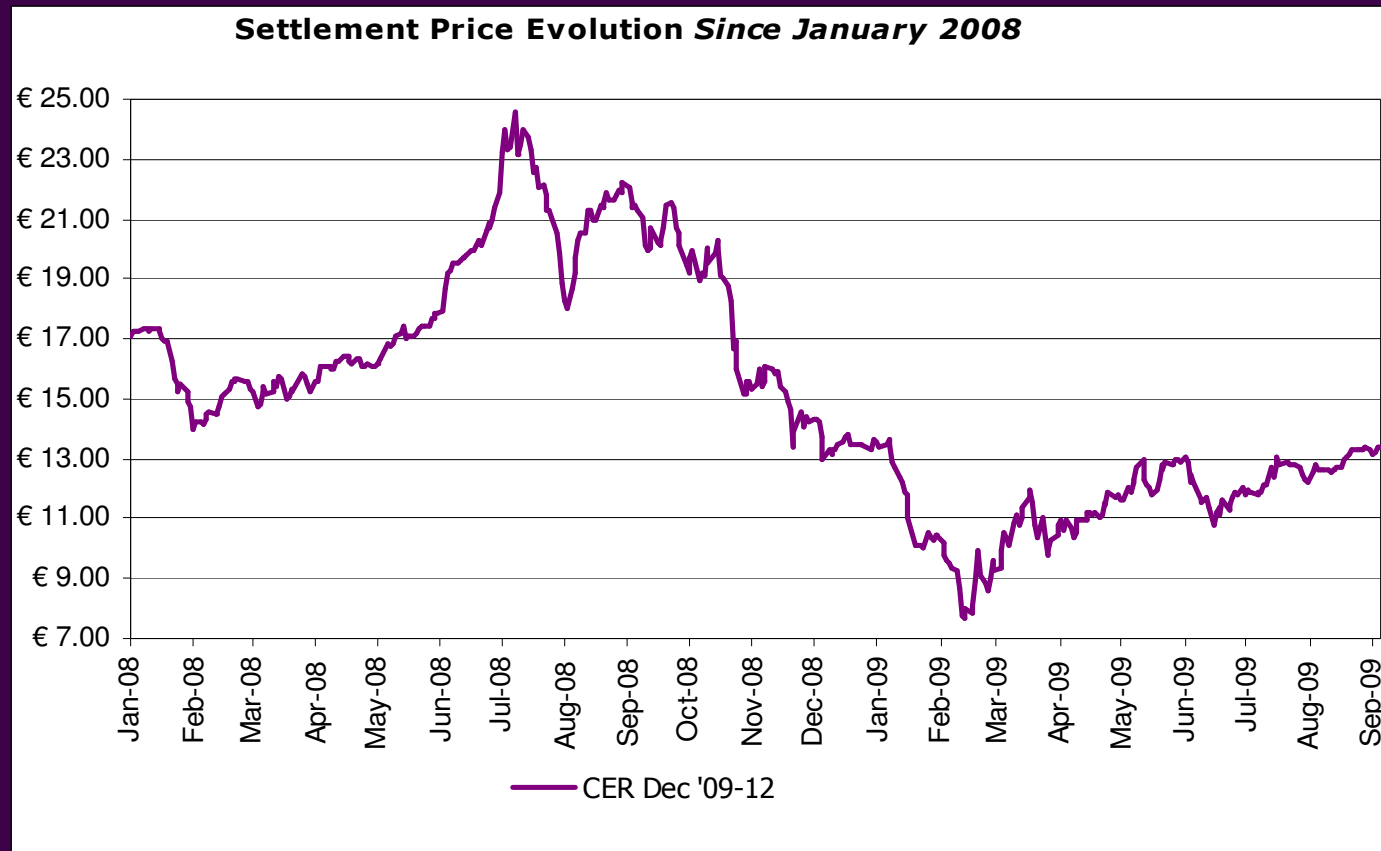


Emission Reductions should be achieved where they are the **cheapest**

Set targets and the **market** will work out the most cost effective way to meet the target

Emission Reductions have a monetary value

# The secondary CER market price





# Secondary CER price forecast

	CER supply	2009 (est)	2010 (est)	2011 (est)	2012 (est)
Barclays	1309	10.5	12	16	16
COER2	1350	11	13	14.5	16
New Energy Finance	1381	9	7	7	8
Point Carbon	1254	12	13	14	16
Sagacarbon	1345	12	13	12	12
Société Générale	1500	11.2	14.1	18	18
Deutsche bank	1350	"Slightly less than EUAs"			
UBS	1600	EUA price minus €2.00			
Unep/Risoe	1243	No price forecast published			
<i>Average forecast</i>	<i>1,370</i>	<i>10.95</i>	<i>12.02</i>	<i>13.58</i>	<i>14.33</i>

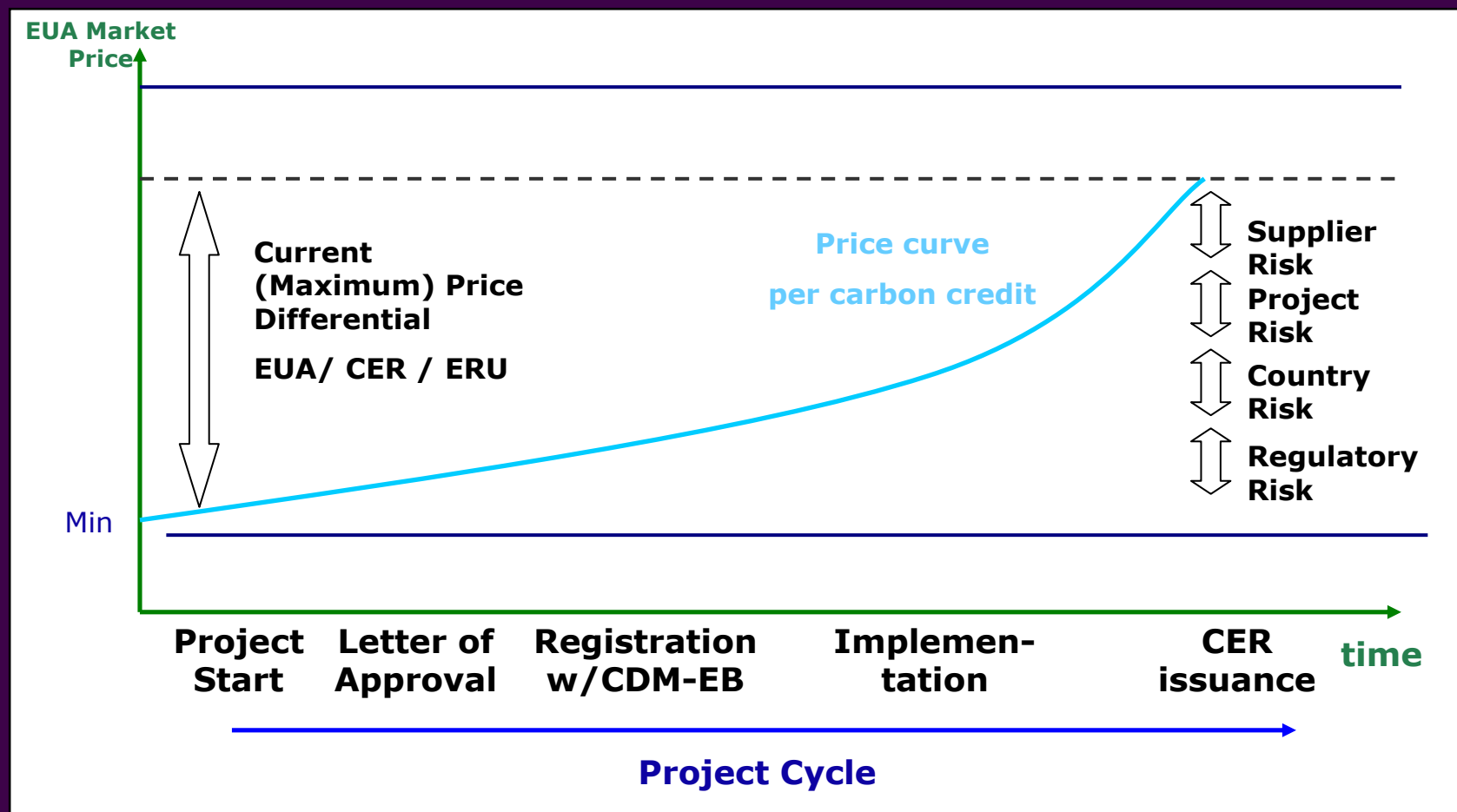
# Primary CERs

- Primary CER is what the project owner gets
- There is a spread to Secondary CERs
- Mainly OTC: data only in ranges available

Primary CER/ERU prices		
Monthly average, as of 3 July, 2009		
Category	CDM price	Jl price
1	€ 7.50-9	€ 5-7
2	€ 8-9	€ 8-9
3	€ 9.5-10.5	€ 8-11
4	€ 11-11.5	

1. Project is still at concept/prospect stage or has developed PIN  
2. Project has developed a PDD and the PDD has been submitted to DOE for validation  
3. Project has been registered by the EB and has received an LoA from the host country  
4. Project has been issued with CERs

# Time of sale matters a lot



## The commercial decision first

The central trade-off:

**how much risk you are willing to take?**

- are you speculating with your CERs, or ensuring a minimum value?
- more risk, can give higher rewards while standing the chance you lose everything
- if you need financing sell early and hedge against price risks but that has its price (directly or indirectly)

## Then the legal form: an ERPA

- Formulate your CER price exposure
  - fixed price
  - floating price
  - upside sharing
- Secure Bankability
- Potential collateral for loans
- May generate upfront payment

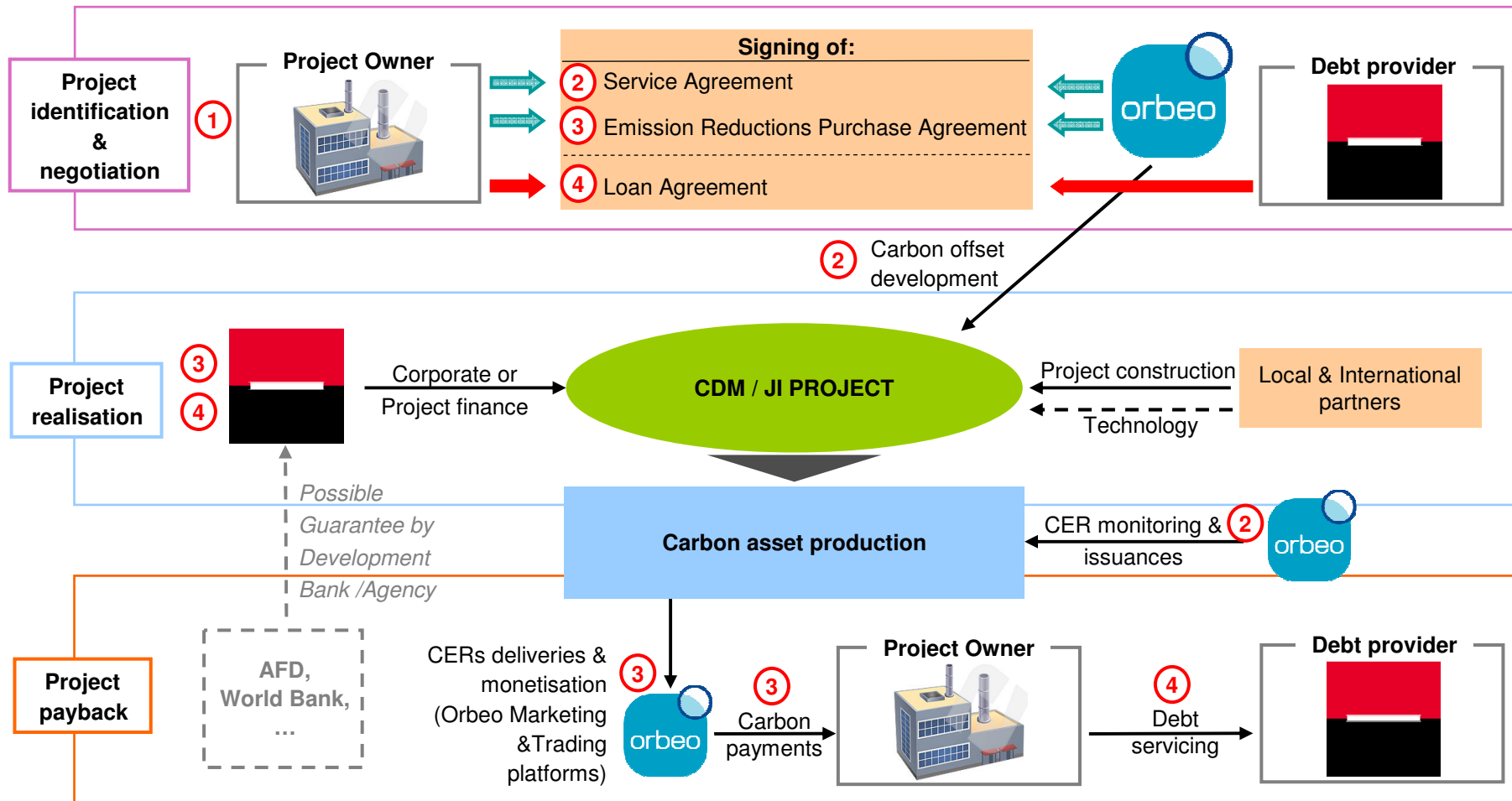
## Financing tools for CDM projects

- equity provision
- carbon loan
- grants & subsidies
- upfront payment
- Structured sales (sell a part early on, and a part later)

→ All types need ERPA as collateral!



# Deal structure: a tripartite cooperation *Project Owner / Orbeo / Local SG*





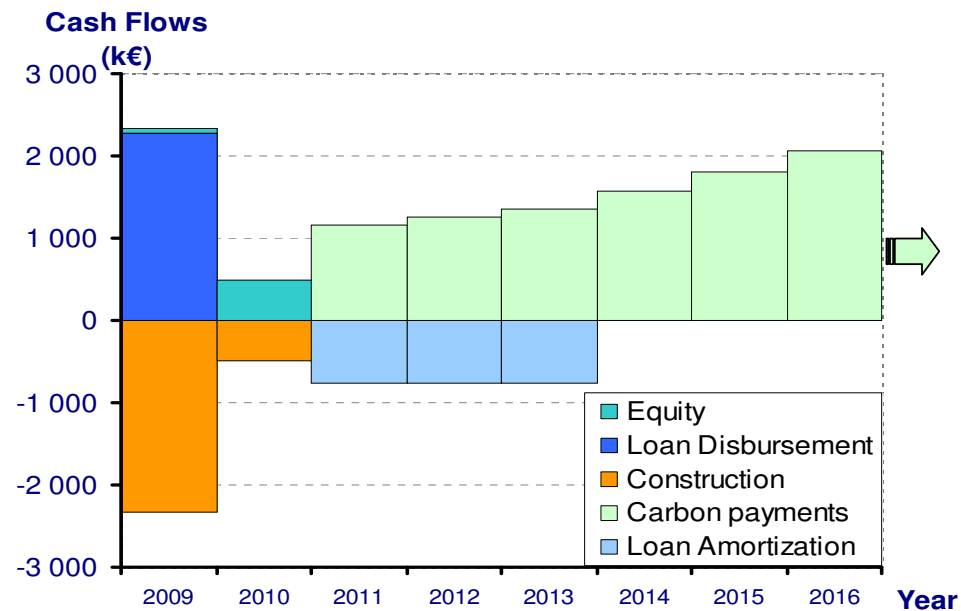


## Loan agreement details & cash flow

**ORBEO**, together with one of the local **SG Branch**, can structured a customized transaction to match the Project Owner's needs and expectations, benefiting from **ORBEO** analysis and knowledge of the Project.

Possible terms:

- **Progressive disbursement periods** based on real expenses during construction phase,
- **1 or 2 years grace period** to generate first carbon credits (CERs),
- **Reimbursement schedule matches expected carbon revenue flows** (CER deliveries monitored and monetized by ORBEO),
- **Attractive conditions** due to Orbeo's knowledge of the Project (due diligence)





# Local SG Countries: at the heart of Orbeo's business

## AFRICA

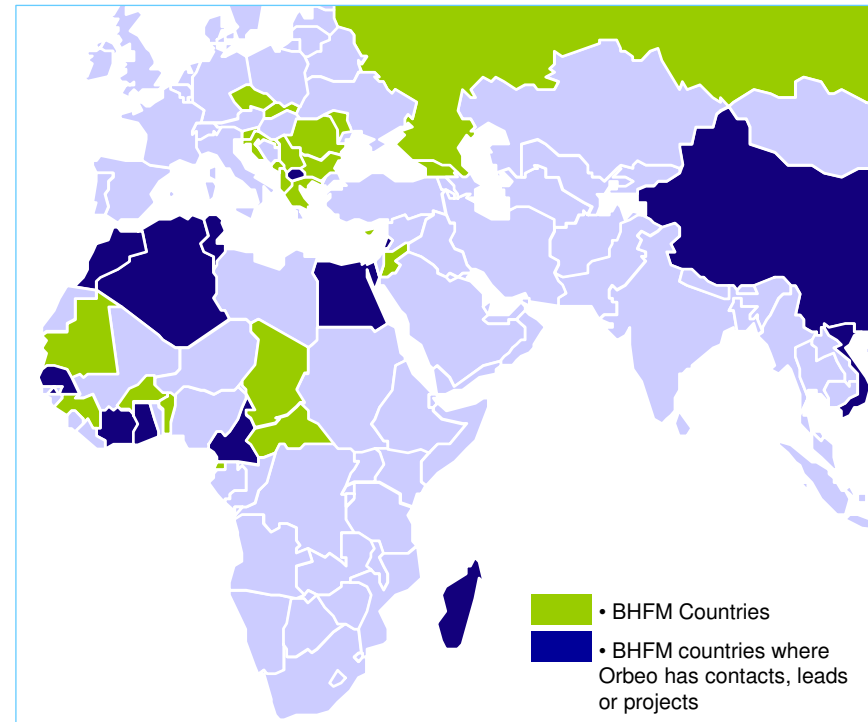
- Benin (SGBBE)
- Burkina Faso (SGBB)
- Cameroon (SGBC)
- Chad (SGT)
- Equatorial Guinea (SGBGE)
- Ghana (SG-SSB)
- Guinea (SGBG)
- Côte d'Ivoire (SGBCI)
- Madagascar (BFV-SG)
- Mauritania (SGM)
- Senegal (SGBS)

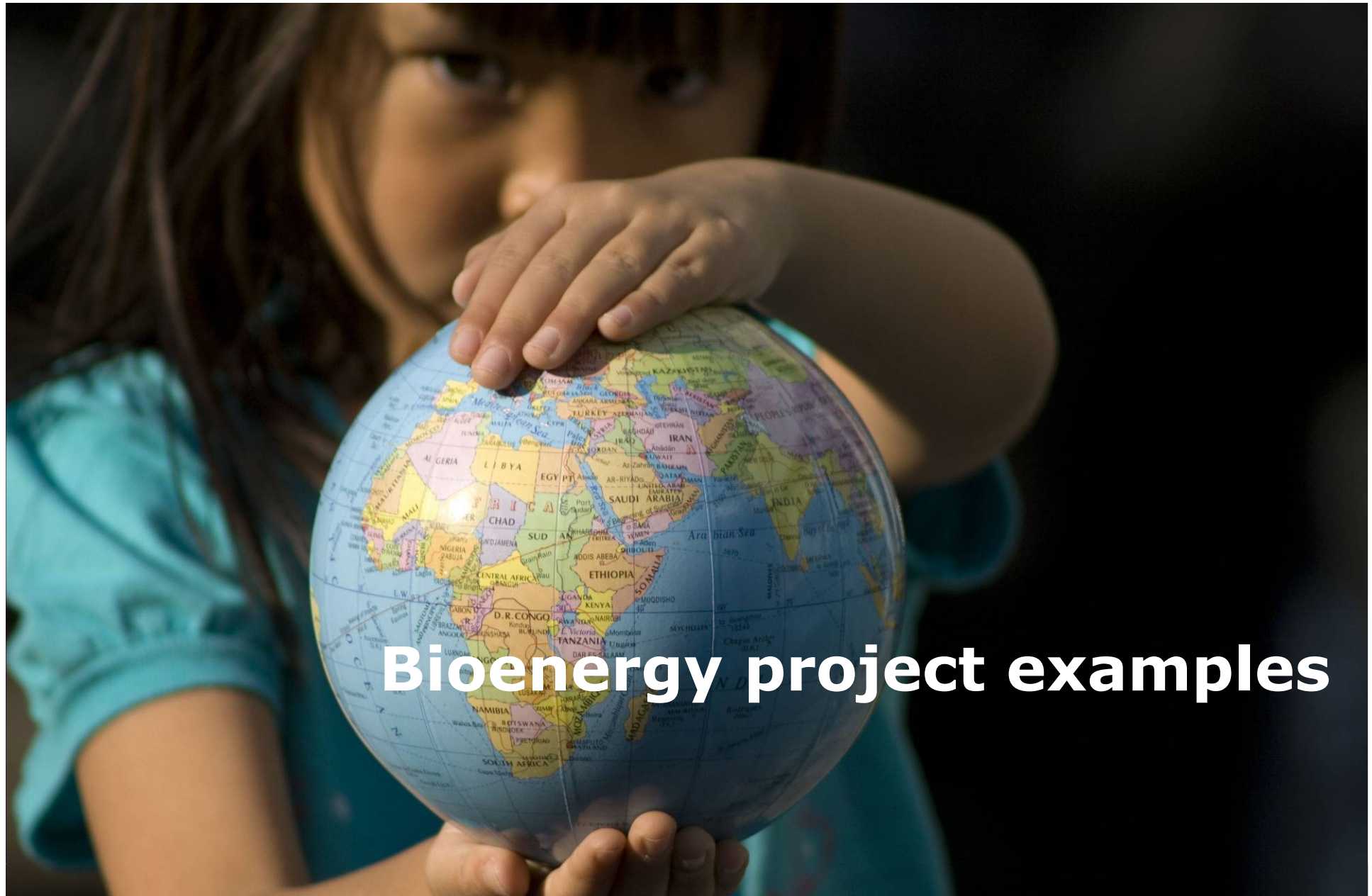
## MEDITERRANEAN BASIN

- Algeria (SGA)
- Egypt (NSGB)
- Jordan (SGBJ)
- Lebanon (SGBL)
- Morocco (SGMA)
- Tunisia (UIB)

## EUROPE

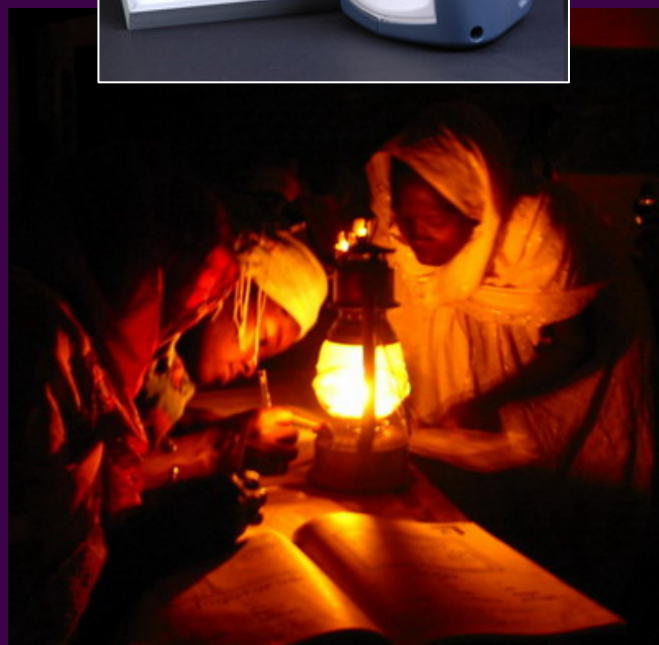
- Albania
- Croatia
- Czech Republic
- Greece
- Moldavia
- Romania
- Serbia
- Slovakia
- Slovenia
- Bulgaria
- Cyprus
- Georgia
- Macedonia
- Montenegro
- Russia





# Bioenergy project examples

## D. Light, Renewable lighting source in India and Eastern Africa



### **Project details**

- Renewable lighting sources in rural households.
- Incorporation of the latest solar technologies.

### **Location**

India, Tanzania and further rollout

### **Carbon credits (CERs)**

Avoided GHG Emissions estimated at 130,000tCO<sub>2</sub>e/yr.  
Total volume expected up to 2012:520,000 GS CERs.

### **Status**

- One of the First Programmatic Project to be submitted to the UNFCCC.
- Gold Standard.
- Commissioning Date: April 2009
- Status of the CDM project: In validation .
- Expected Date of registration: Q4.2009.

# Biomass utilisation

## Numar, Costa Rica: fuel switch

- biomass waste from palm oil plants
- Installed capacity: biomass boiler of 35 t steam/h at 35 bar
- Started operation in April 2007
- The CO<sub>2</sub> reductions are estimated at 37,000 ton CO<sub>2</sub>e/y for 7 years, twice renewable.





# EECOPALSA, Gold Standard Small Biogas project in Honduras



## Project details

- Biogas capture in the Palm oil sector.
- Installed capacity: 1.3 MW.

## Location

Yoro, Honduras.

## Carbon credits

- Avoided GHG emissions estimated at 25,000 tCO<sub>2</sub>e/yr.
- Total volume expected up to 2012: 175,000 GS CERs.

## Status

- Gold Standard.
- Operational since 2006.
- Registered to the UNFCCC in September 2006.
- The project has delivered its first credits in June 2007.

This project won the Edie Award for Environmental Excellence in 2007, in the category carbon reduction.

# Nanchang - Landfill Gas-to-Energy project in China



## Project details

- Landfill gas-to-energy plant.
- Installed capacity: 3 MW.

## Location

Province of Xinguan, China.

## Carbon credits

- Avoided GHG Emissions estimated at 150,000 tCO<sub>2</sub>e/yr.
- Total volume expected up to 2012: 800,000 CERs.

## Status

- Operational since December 2007.
- Registered April 2009



## For further questions:

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