
Carbon Measurement, Verification and Sale

John Palmisano

China Horizon Sustainable Energy

June 2008

Carbon measurement, verification and sale

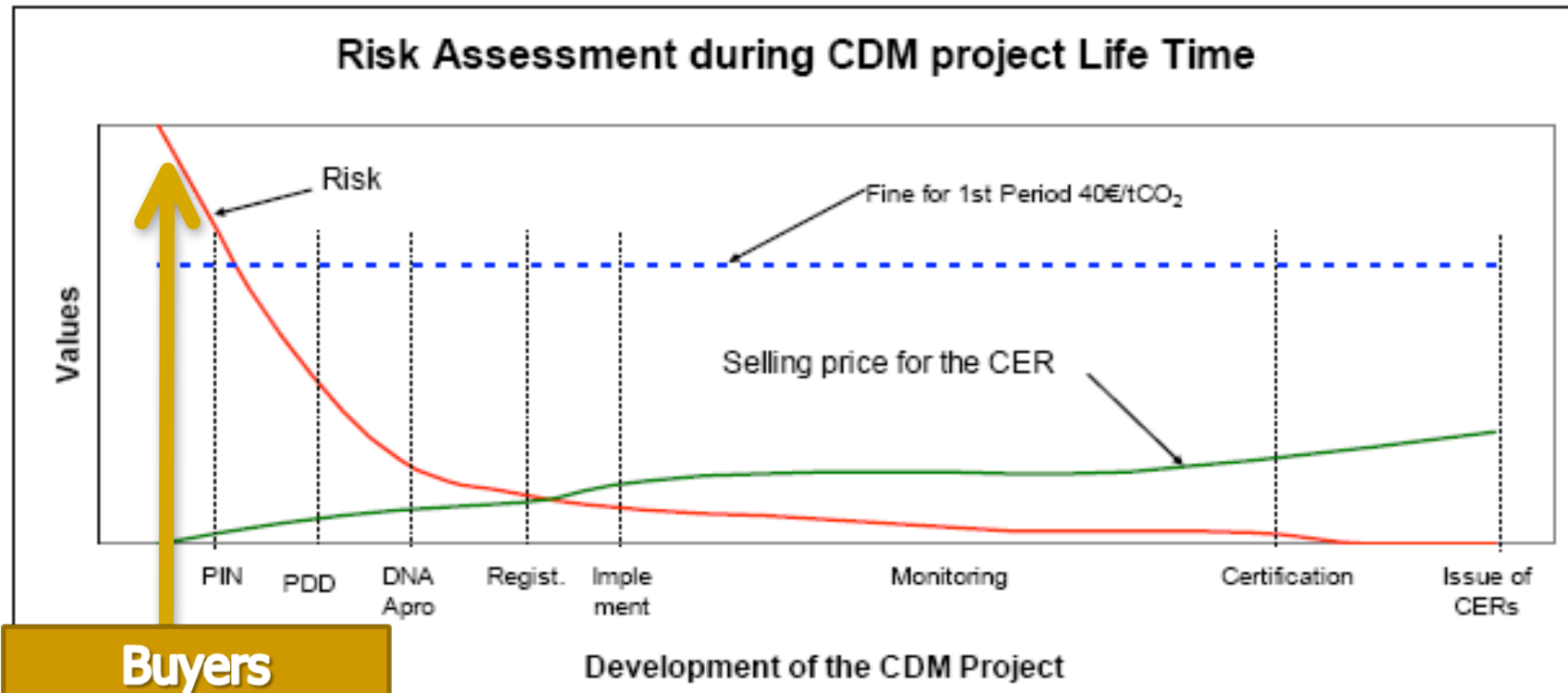
- Background on emissions trading
- Who gets credits or allowances
- What are VERs
- Baselines from which to measure carbon, which is the best baseline to use?
- pCDM
- What is happening in the US and what does this mean...AB32, RGGI, pre-emption
- Who is authorized to be an independent verifier of emissions reduction?
- Which one of the certification programs is preferred?
- Which one of the registries is applicable?
- How to sell GHG credits?
- Interaction with the Chicago Climate Exchange (CCX)

A quick history of emissions trading

- 1976-OIR
- 1977-CAAA
- 1982-82 ETPS
- 1990 Title IV
- 1990 RECLAIM
- Then the Kyoto Protocol

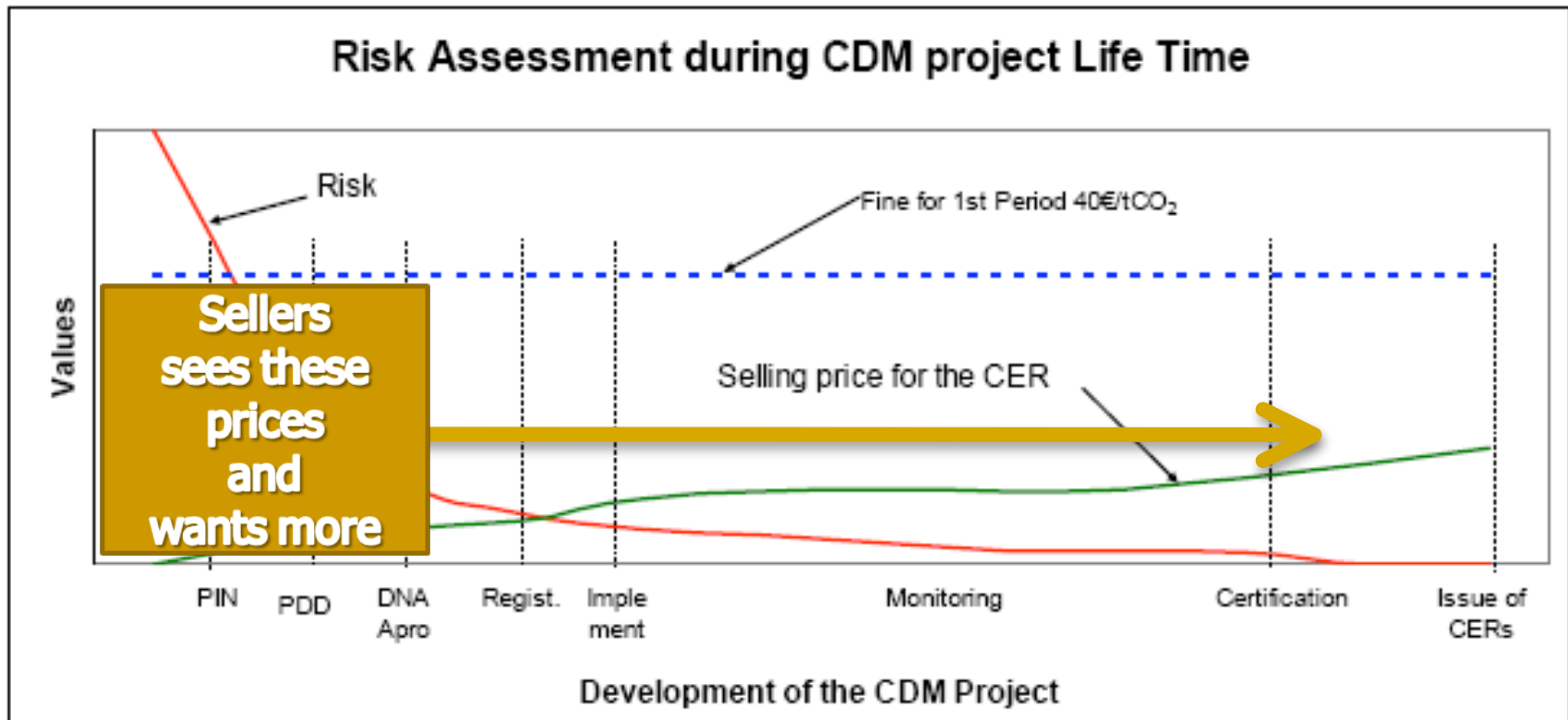
The essential set of issues for
developers....risks, risks, risks

The Problem: Who takes the risk



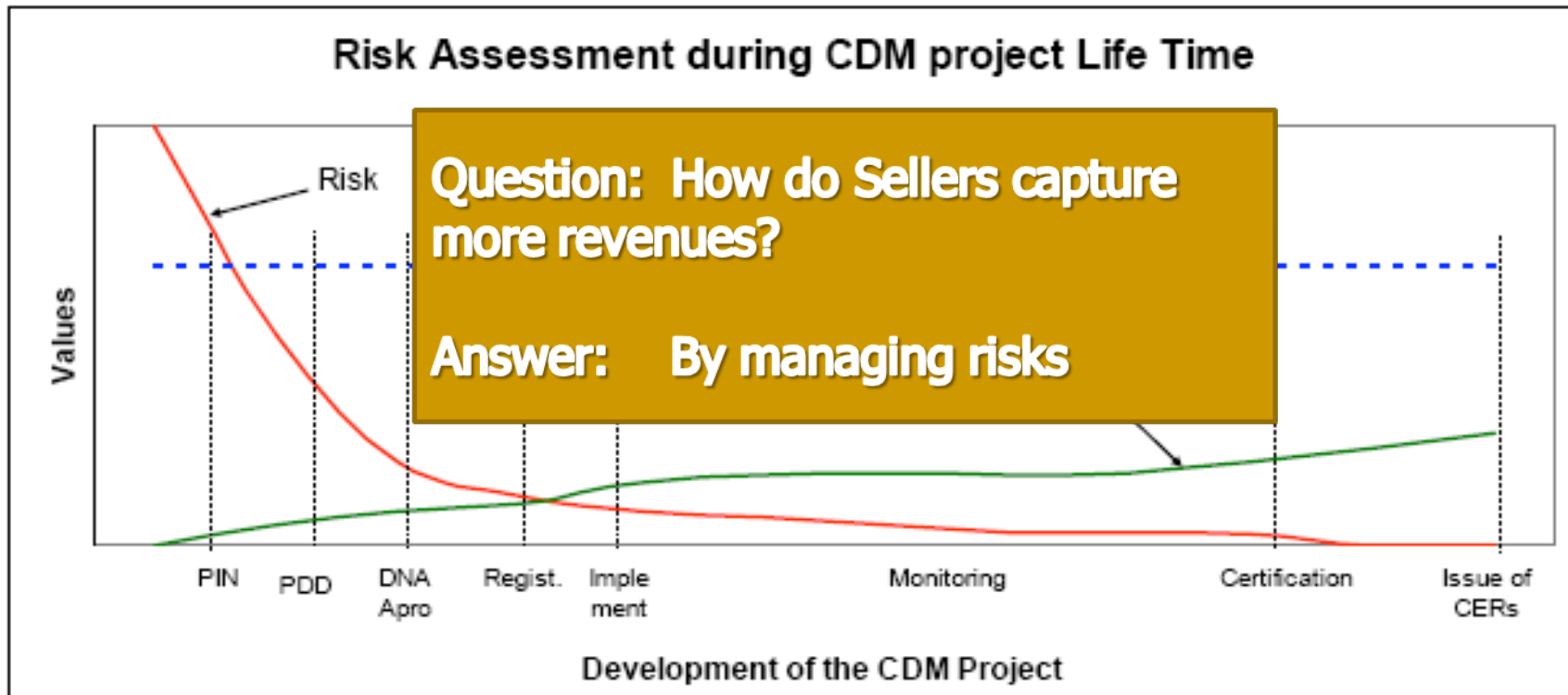
Risks decrease and prices increase as projects advance

The Problem: Who takes the risk



Risks decrease and prices increase as projects advance

The Problem: Who takes the risk



Type of Risk	Category	Sub-category	Degree of Confidence	Risk Management Mechanisms	Risk Transfer Products	Who Owns the Risk?	
						3rd Party	China Horizon
Operating Risks	China Horizon Project Evaluation, Selection & Design			Risk Reduction (Avoidance)			
	Project Design	A&E		PE Certification	E&O Coverage	A&E Firm	◀
	Project Design	Geology		3rd Party verification	E&O Coverage	Geology Firm	◀
	Project Design	PIN Project ID		3rd Party	E&O Coverage		◀
	Site Ownership & Operation	Property Damage			P&C Coverage (GHG Seller)	GHG Seller	◀
	Site Ownership & Operation	General Liabilities			P&C Coverage (GHG Seller)	GHG Seller	◀
	China Horizon Project Execution			General Oversight & Developer Relations			
	Project Risks	Oversight & Audit		Joint Insurance Company/China Horizon	??		Joint Insurance Company/China Horizon
	Project Risks	Legal (ERU Purchase Rights)		Signed Contract	Contract Frustration Coverage Business Interruption Coverage		China Horizon

Risk Management 1 of 2

Type of Risk	Category	Sub-category	Degree of Confidence	Risk Management Mechanisms	Risk Transfer Products	Who Owns the Risk?	
						3rd Party	China Horizon
	Project Risks	Disbursement of Funds		Insurance Company-administered disbursement account	??	Insurance Company	◀
	Project Risks	Technology (Design)		Proven design	?? ??		
	Project Risks	Technology (Methodology)		PDD completed PDD approved			
	Project Risks	Equipment (Delivery & Installation)		Vendor representations & warranties	Equipment vendor guarantee	Equipment vendor	◀
	Project Risks	Construction (Commencement)		Contractor representations & warranties	Construction company guarantee	Construction company	◀
	Project Risks	Construction (Completion)		Periodic construction audit	Business Interruption Insurance ?	Audit company	◀
	Project Risks	Operation		3rd Party verification and certification	E&O Coverage	Verification company	◀
	Operation & Maintenance	Equipment Risks (breakdowns)		Periodic Inspection	Equipment Performance Guarantee	Construction Company	◀
				Engineer certification	E&O coverage	Engineering company	◀
			3rd party audit	E&O coverage	Audit company	◀	

Risk Management 2 of 2



Certifications

... has launched an organization to measure, manage and reduce its carbon footprint and make reductions year-on-year. The [Carbon Trust Standard](#) requires organizations to take action themselves rather than paying others to reduce via off-setting.

“What business and consumers both share is a desire for one, credible way to prove an organization has not only measured, but actually reduced their carbon emissions year-on-year without the use of offsetting,” said Tom Delay, chief executive of the Carbon Trust. “The Carbon Trust Standard is the only answer to this.”

The standard only covers direct emissions, according to The Guardian:

The standard covers only direct emissions from a company’s fuel and electricity use, as well as from business travel such as flights. It does not cover the emissions caused by a firm’s products, or supply chain. And companies with polluting manufacturing sites abroad would not have to count them if they sought accreditation, say, for a head office in London.

The cost of assessment and certification depends on the energy bill of the organization and whether or not it needs help gathering information on its energy use. Costs can hit 12,000 pounds.\

The standard is being supported by a number of organizations with 12 companies, including Abbey Corrugated, B&Q, Defra, King’s College London, and Morrisons, being awarded the standard at its launch. Carbon Standard says that the companies have collectively achieved an 8.4% reduction in their carbon emissions over three years, which translates into carbon savings of over 250,000 tonnes of CO2.

Carbon labels, developed by Carbon Trust in partnership with Defra and BSI British Standards, are

Rival certification procedures



Walk into a supermarket and, depending on which country you're in, you can read a label that tells you how fat a product will make you, and how much of that fat is transfer that will kill you even earlier.

That is pretty important from a public health perspective, but what about environmental health? With the US government finally admitting that carbon emissions are affecting the planet's climate, the debate over carbon labeling is heating up (no pun intended).

More than one organization has latched on to this idea. The UK's **Carbon Trust** piloted its **carbon-labeling programmed** across the UK this year. Walker's Snacks has signed up to the scheme, as has Innocent Drinks, while Tesco is also labeling some products with the Trust's mark.

Carbon Label California is similarly piloting a labeling scheme on the other side of the pond. The organization is working with the **California Air Resources Board** to try and get a voluntary carbon label in place. Co-founder Matthew Newman believes that it ¹¹ could work in concert with a cap and trade initiative, such as the one proposed by

What are VERs

- Who owns VERs
- How do you know they own them
- Pitfalls and opportunities
- Registration opportunities
- Market studies

Baselines from which to measure carbon, which is the best baseline to use?

- Complex question

pCDM

- Promotes building efficiency
- Promotes DSM

December 2007 study

Scaling Up Demand-Side Energy Efficiency Improvements through Programmatic CDM



Programmatic CDM (PoA)

Voluntary program

- > government
- > private

PoA
(Program of Activities)

- > coordination
- > incentives

CDM Program Activities

CPA

CPA

CPA

CPA

- > implementation
- > monitoring

CPA could be:

- > geographic area (municipality)
- > sector / company
- > industrial installation (large chemical plant)

Programmatic CDM Models

- Government incentives to promote voluntary standards or agreements
 - Public infrastructure investment programs
 - Technology supplier programs
 - ESCO or utility DSM programs
 - Energy efficiency financing facilities
-

Non-Residential Buildings – Emissions Reduction Potential in China

- Nationally

- Current stock

- Floor area ~13 billion m²
 - Efficiency ~360 kWh/m²
 - GHG emissions ~4 billion tonnes CO₂

- Reduction potential (technical)

□ Tons CO ₂	Retrofit	New
□ 2010	2.048E+07	1.779E+06
□ 2020	4.327E+08	1.937E+08
□ 2030	7.316E+08	8.362E+08

Other items

- What is happening in the US and what does this mean...AB32, RGGI, pre-emption
- Who is authorized to be an independent verifier of emissions reduction?
- Which one of the certification programs is preferred?
- Which one of the registries is applicable?
- How to sell GHG credits?
- Interaction with the Chicago Climate Exchange (CCX)