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# ***Carbon Finance – Perspectives for Financial Institutions***

## ***Training Session #2***

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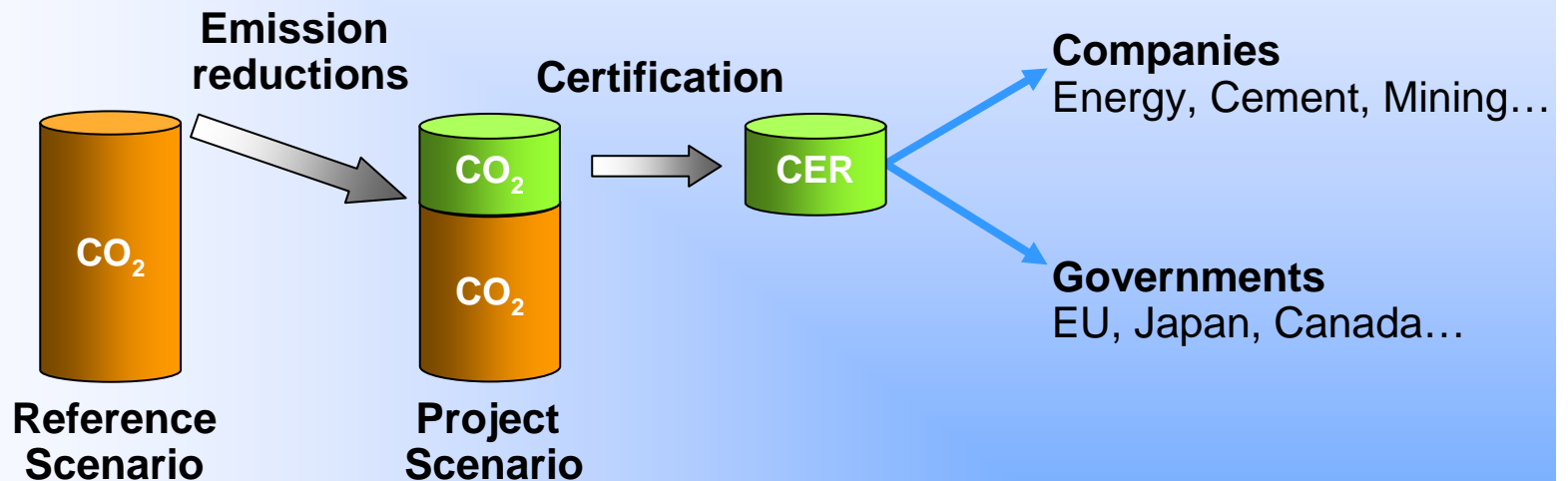


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# The Clean Development Mechanism – Reminder of the “Basic Mechanics”

**Sellers: Developing  
(Non-Annex I) Countries**

**Buyers: Industrialised  
(Annex I) countries**



⇒ *Non-Annex I emission reductions “on behalf of” Annex I buyers...*

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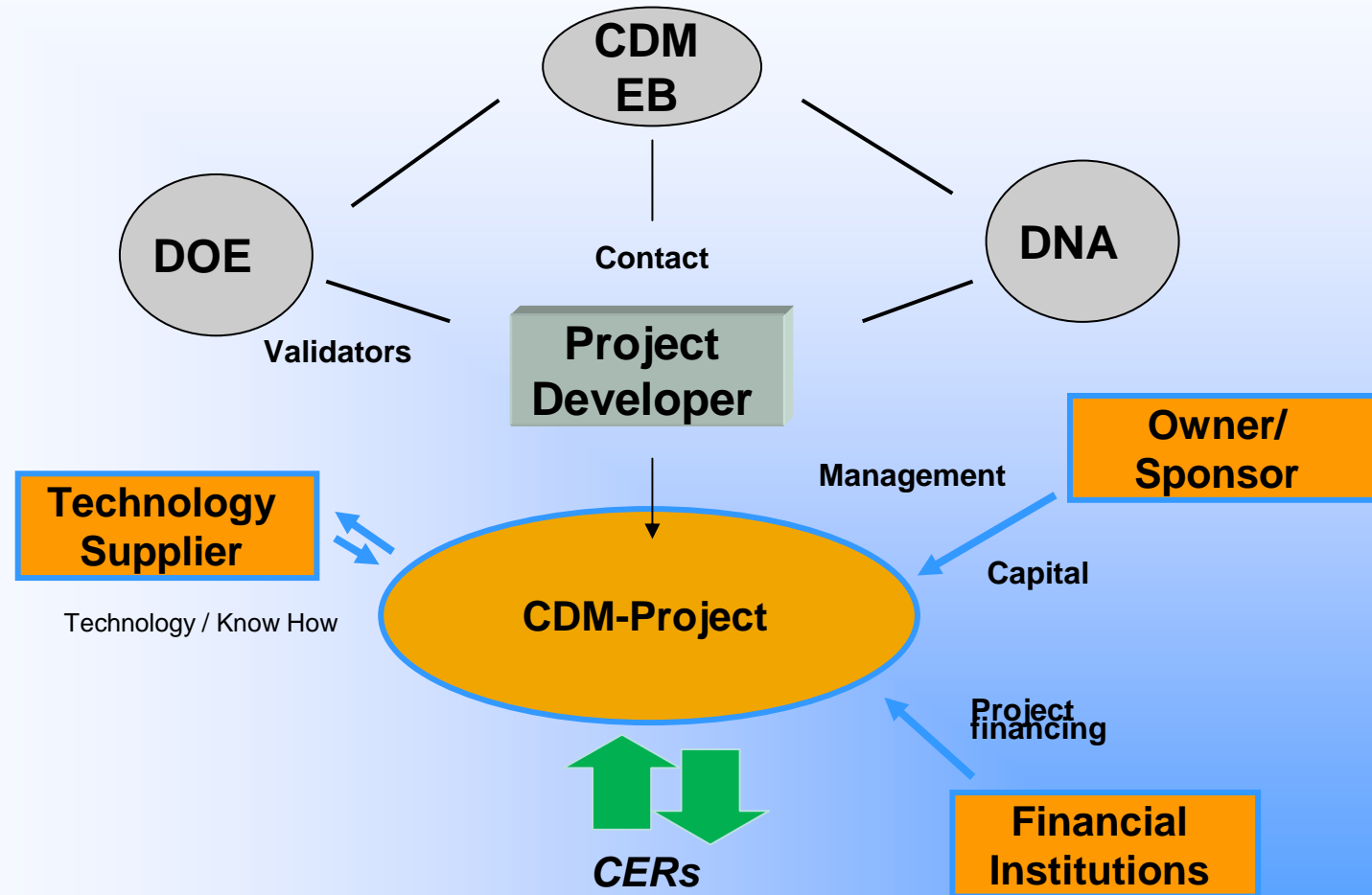


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# CDM - Institutional Architecture under the Current Regime



⇒ Lots of actors, lots of interactions....



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## ***The Executive Board (EB)***

- **Ten members (fixed) and ten alternating all with specialized technical expertise.**
- **Key responsibilities:**
  - Review & approve new methodologies related to baseline and monitoring plans.
  - Accreditation of Designated Operational Entities (DOEs).
  - Develop and maintain a CDM Project Registry.
  - Issue CERs.
  - Establish panels.

**⇒ *The “regulator” of the CDM.***



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# ***CDM Project Developer***

- **Key responsibilities:**
  - Prepare Project Design Document (PDD).
  - Propose/select baseline methodology and ensure additionality criteria.
  - Obtain all permits and approvals from DNA.
  - Secure project financing.

*⇒ The very core of every CDM project.*



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## ***Designated Operational Entities (DOE)***

- **Third party mandated by EB. Project developers choose the DOE they wish.**
- **Key responsibilities:**
  - Validate proposed CDM projects on basis of set criteria.
  - Verify emission reductions in GHG from CDM projects.
  - Medium of communication between EB and project developer.

***⇒ The independent validators and verifiers of the CDM .***



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## ***Designated National Authority (DNA)***

- **Mostly based in Ministry of Environment, Energy, or other relevant institution.**
- **Responsibilities include:**
  - Issue Letter of Approval to project.
  - Help link domestic project developers and owners to international carbon market
  - Establish national CDM regulations, strategy, and criteria for sustainability and approval.
  - In some countries, promote CDM projects.

***⇒ The country-level focal point for the CDM.***

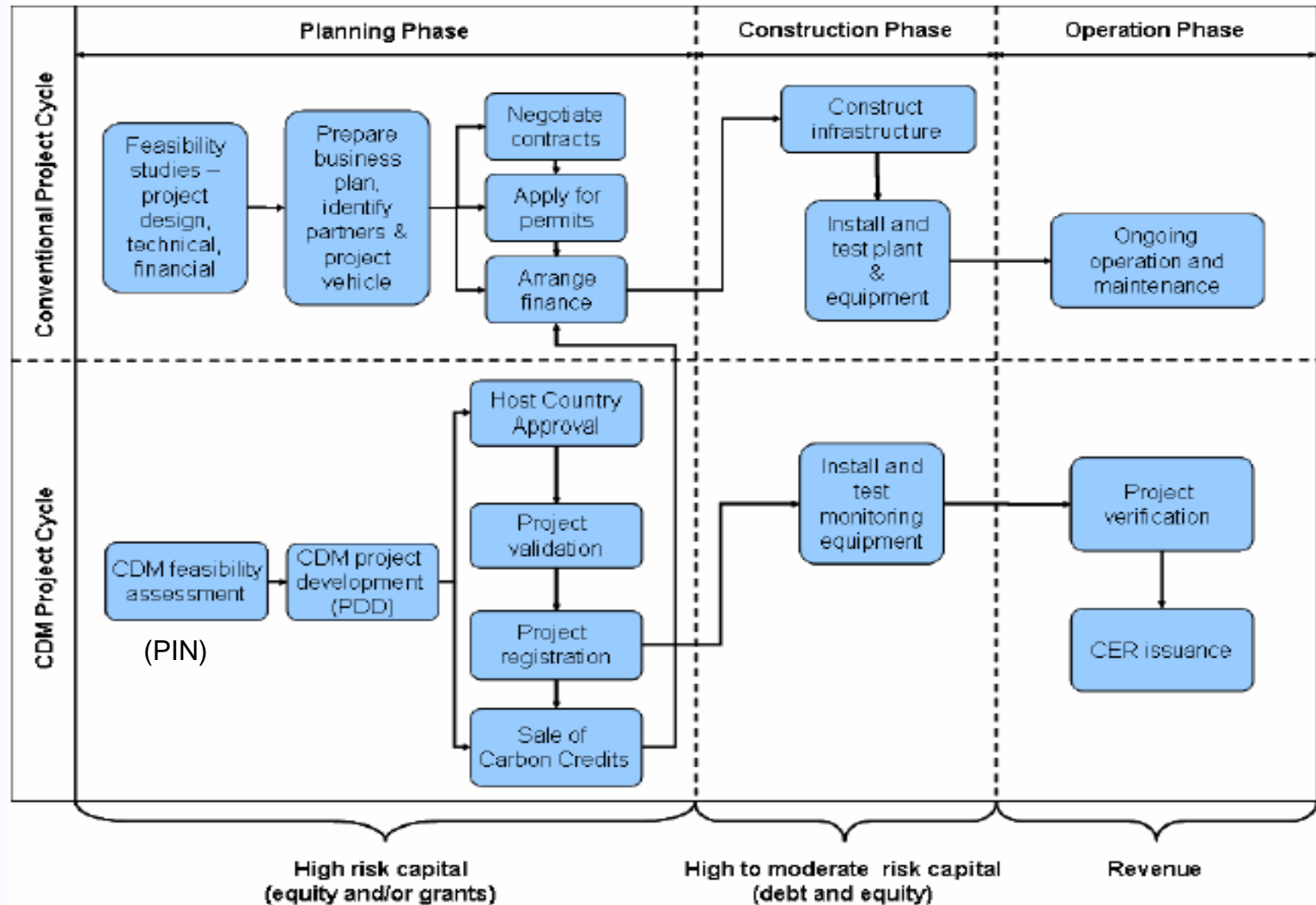


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# The CDM Project Development Cycle - Comparison w/ conventional project





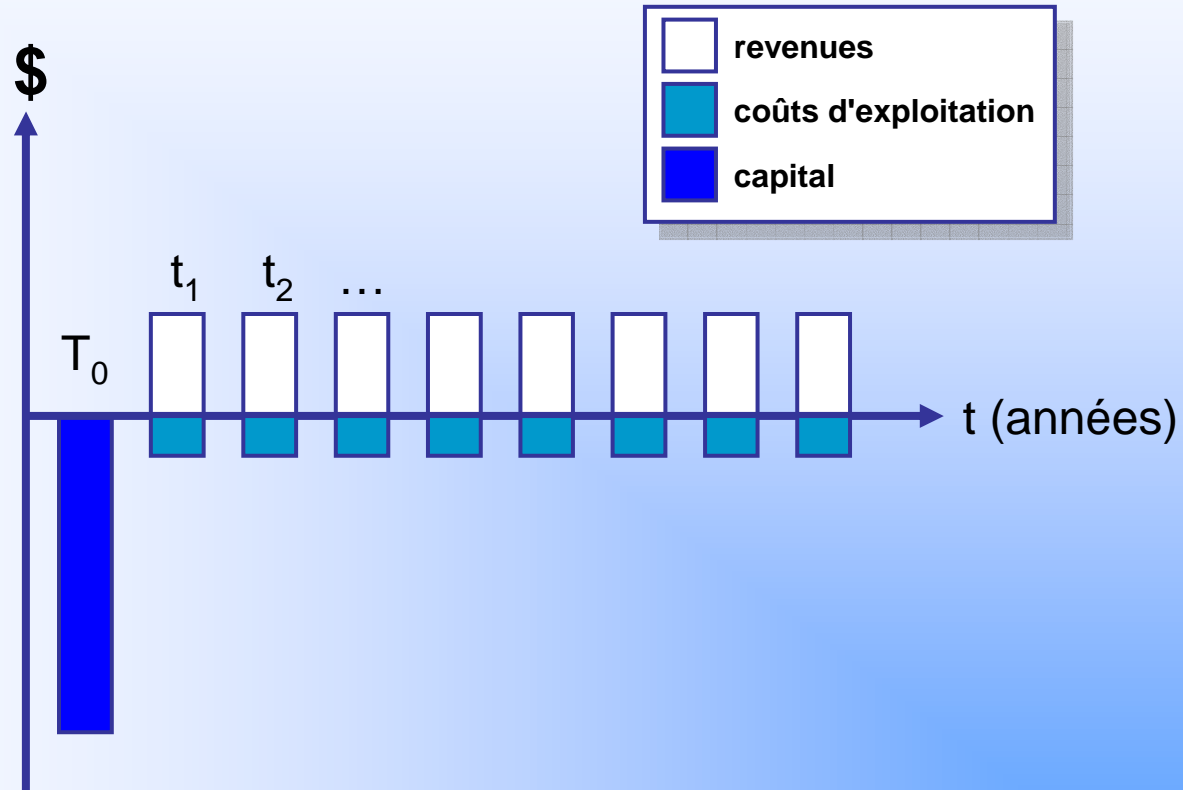


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# Carbon Project Finance – Analysis of conventional project

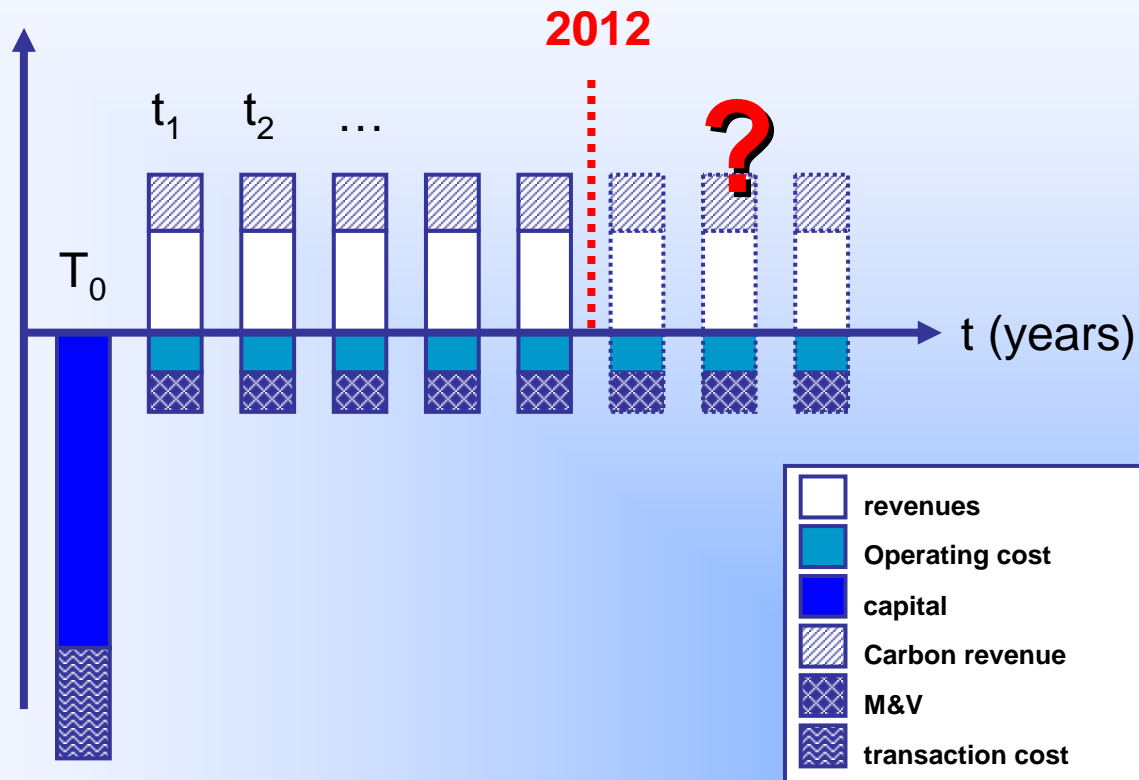


$\Rightarrow IRR > \text{Min rate? } NPV > 0?$



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# Carbon Project Finance – Analysis of CDM project



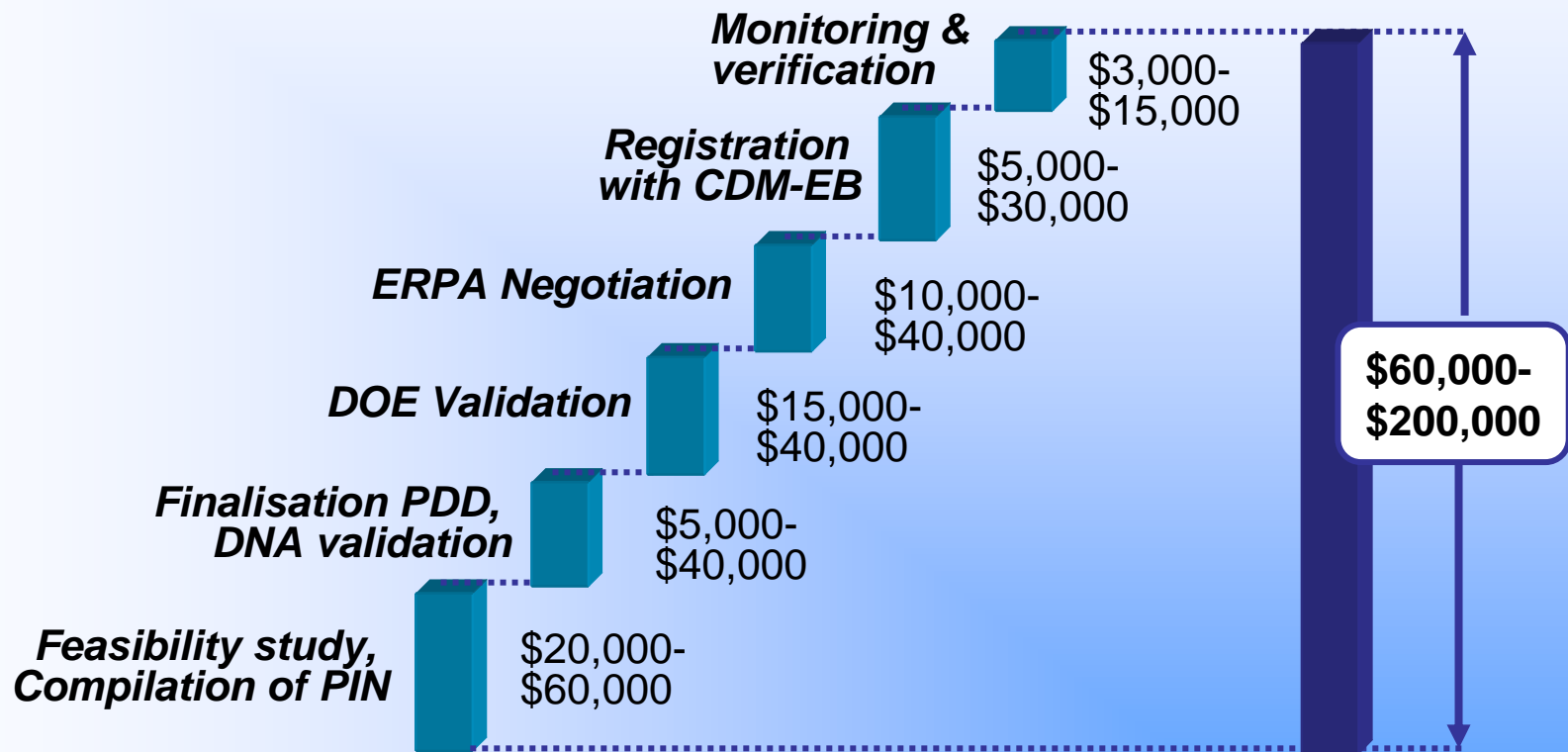
⇒ Do additional layers result in (risk adjusted) improvement of IRR and NPV?

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# CDM Transaction Cost – Empirical Values



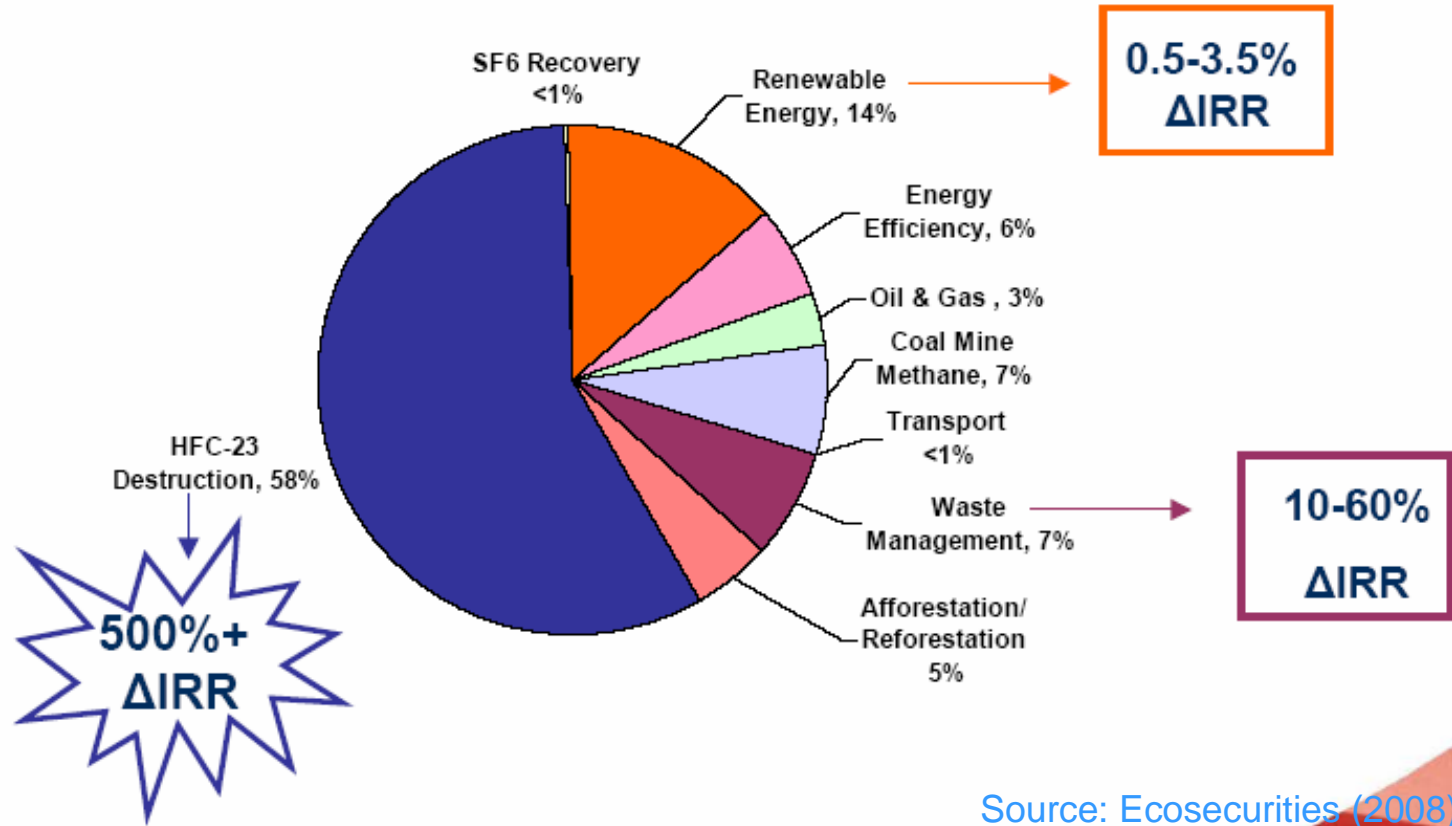
⇒ Brokerage fees, participation of host country, etc.  
not included!

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# CDM Revenues – Empirical Values



⇒ HFC, NO<sub>2</sub>, Methane destruction as “low hanging fruits”.

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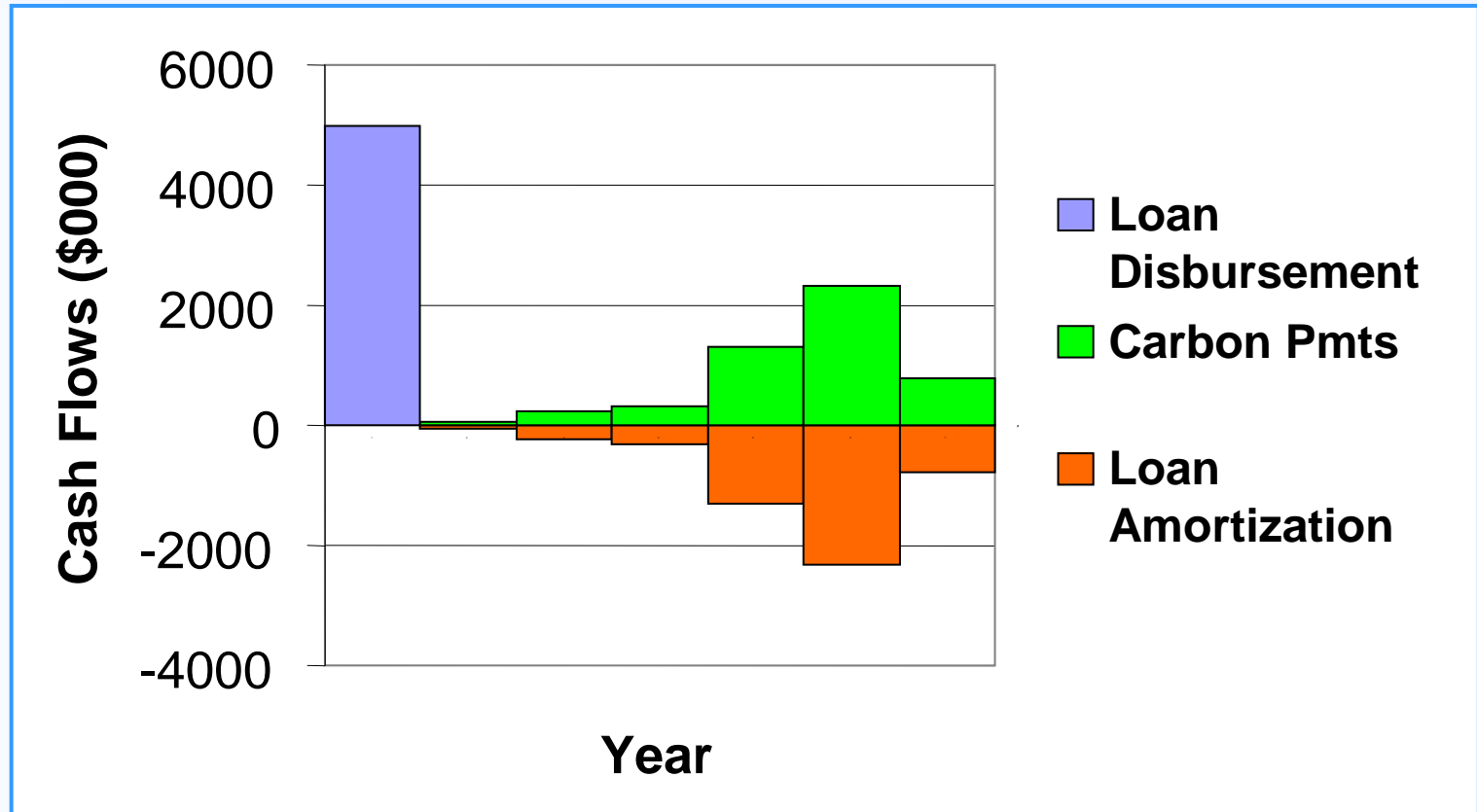


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## Carbon Asset as Security - Tool to leverage commercial debt



⇒ ER payments often used to amortize commercial loans.



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# ***Challenges for financing a CDM project***

## **•Project size**

- 48% of projects in CDM Pipeline are small-scale
- Typical financing <\$20 million

## **•Uncertainty post-2012**

- Less than 6 years of reliable CER revenue
- Every 7 months delay = 10% reduction in reliable revenue

## **•High risk**

- Country risk, technology risk, CDM-specific risks (etc)

## **•New market**

- Awareness & methods take time to develop

*⇒ The key challenge for almost any CDM project.*



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# ***Challenges for financing a CDM project***

## ***Preferences of financial sector:***

- Banks, equity investors, insurers prefer large scale projects to maximise absorption of transaction cost
- Carbon funds focus on compliant CERs
- ECA focus on “export benefits”

## ***Needs of SMEs/project developers:***

- ⇒ Flexible and risk tolerant sources of capital
- ⇒ Up-front carbon buyers
- ⇒ Funding for small-scale projects

***Large gap b/w supply and demand for funding.***



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# ***The Carbon Project Financing Challenge - The SME's Perspective***

## ***“Intellectual” Challenge***

- Understanding what investors and lenders are looking for in a “bankable” project
- “Thinking like a banker”, investor or buyer of CERs

## ***“Sourcing” Challenge***

- Seeking financing from a variety of local and international sources

## ***“Packaging” Challenge***

- Finding the right risk/reward balance for every financier

***Cost of raising capital 20-30% higher compared to  
traditional project finance.***





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# ***The Carbon Project Financing Challenge - The Financier's Perspective***

## ⇒ ***Investment environment concerns***

- Traditional country risk + additional concerns about institutional/regulatory exposure

## ⇒ ***Project viability concerns***

- Traditional project risk + additional concerns about new technologies, non-traditional feedstock, non-traditional purchasers, new stakeholders

## ⇒ ***Carbon revenue concerns***

- Enhancement of revenue stream and ROI, but how volatile? How long into the future?

***Traditional Risk/Return Analysis insufficient.***



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## ***Sources and types of finance available***

- **Planning phase**
  - Carbon funds (equity, advance on purchase)
  - Private sector CDM developers (equity, advance on purchase)
  - Project hosts (equity, public sector budgets)
  - Government/donors (grants, technical assistance)
- **Construction phase**
  - Lenders (debt – secured or unsecured)
  - Investors/private sector CDM developers/project hosts (equity)
  - Mezzanine finance providers (hybrid debt/equity)
  - Equipment suppliers (lease or credit)
  - CER buyers (advance on purchase)

⇒ ***Few of these sources available in Sub-Saharan Africa.***



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## ***Typical approaches to financing***

- **Third party CDM project developer**
  - Equity/advance on purchase for project development
  - May also be able to provide equity for construction (or arrange other finance)
  - (Advance) purchase of CERs: contract may facilitate other financing
- **Project host**
  - Own equity/public funds for project development
  - Own equity/public funds or secured loan for construction
- **Conventional non-recourse project financing**
  - Not applicable to project development
  - Bank debt + equity (e.g. project host, developer or other investors) for construction
  - Large projects only

***⇒ Reality in Sub-Saharan Africa: No project w/o significant equity contributions from project sponsor.***



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## ***UNEP approach to mobilising the finance community***

- ⇒ Project development support provided in **close cooperation with leading carbon buyers**
- ⇒ Delegates of **local financial institutions** present at all capacity building activities
- ⇒ Sponsoring of **deal making opportunities** to enhance interaction between investors and developers
- ⇒ Supporting developers in providing **sound financial data and analysis**
- ⇒ 3 major African events **addressing the African banking community** (May 07 - Anglophone Banker's workshop; January 08 - Francophone Banker's workshop); Sept. 08 African Carbon Expo.

⇒ ***Financial sector engagement key part of CDM capacity building approach.***



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# Challenges and opportunities for the Carbon Finance in Africa

Strengths	Weaknesses
<p>Rich in energy sources</p> <ul style="list-style-type: none"> <li>– the world’s best solar resources</li> <li>– huge wind potential (1.2 TW)</li> <li>– big geothermal energy potential (2.5–6.5 GW)</li> <li>– large hydropower capability (0.1 TW)</li> <li>– traditional biomass &amp; charcoal</li> <li>– Africa holds: oil (9.5%), coal (5.6%) and NG (8%) of the world’s proven economic recoverable reserves</li> </ul>	<p>Low average of energy consumption</p> <ul style="list-style-type: none"> <li>• energy consumption               <ul style="list-style-type: none"> <li>– 1.5 koe / day in Africa (50% biomass)</li> <li>– 10.6 koe / day in EU-15</li> </ul> </li> <li>• electricity consumption               <ul style="list-style-type: none"> <li>– 515 kWh / year in Africa</li> <li>– 2,326 kWh / year world average</li> </ul> </li> </ul>
<p>Agriculture</p> <ul style="list-style-type: none"> <li>– cereals, coffee, fruits,</li> <li>– edible oils</li> <li>– livestock, fish</li> </ul>	<p>unequal energy consumption</p> <ul style="list-style-type: none"> <li>– 70% of oil consumed in 4 countries (Egypt, Algeria, Libya, and South Africa)</li> </ul>
<p>Minerals</p> <ul style="list-style-type: none"> <li>– phosphates, gold, diamonds, copper, uranium, manganese, iron, cobalt, bauxite, zinc</li> </ul>	<ul style="list-style-type: none"> <li>– 60% of the NG consumed in Algeria, Libya, Egypt, and Nigeria</li> <li>– 93% of the coal produced on the continent consumed in South Africa</li> </ul>



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# Challenges and opportunities for the Carbon Finance in Africa

Strengths	Weaknesses
<b>DNAs Status</b>	
<ul style="list-style-type: none"> <li>• 35 African Countries have created their DNAs</li> <li>• Modalities and procedures are in place</li> </ul>	<ul style="list-style-type: none"> <li>• Most of African DNAs are not operational</li> <li>• M&amp;P are not implemented               <ul style="list-style-type: none"> <li>➤ Only 7 countries have issued letters of approval</li> </ul> </li> </ul>
<b>CDM Prospects in Africa</b>	
Africa will capture CDM benefits if it takes advantage of opportunities:	<ul style="list-style-type: none"> <li>• Africa will capture CDM benefits if it succeeds in developing capacities</li> </ul>
<ul style="list-style-type: none"> <li>• Programmatic CDM – to leverage small size projects</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of capacities both institutional &amp; individual</li> </ul>
<ul style="list-style-type: none"> <li>• Voluntary Carbon Market</li> </ul>	<ul style="list-style-type: none"> <li>• Risky political and economic environment</li> </ul>
<ul style="list-style-type: none"> <li>• Post Kyoto Regime</li> </ul>	
<ul style="list-style-type: none"> <li>• International cooperation</li> </ul>	



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# ***Why should you love Carbon Credits?***

## **Carbon Credits are...**

- **Issued by supranational entities or governments**
  - Sovereign assets – AAA quality
- **Exchange of hard currency**
  - Euro, US\$, JPY...
- **Easily transferable**
  - Non-physical asset transferred via International Transaction Log
- **Exchangeable on a growing number of marketplaces**
  - EU ETS, US CCX, Japan...
- **Purchased by creditworthy counterparts**
  - Mostly big industrials, multinationals, governments

***Safe, sound, sexy...***



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## ***What's in it for you?*** ***Opportunities for Financial Institutions***

- **Opportunity for new services and revenue generation opportunities, spin-off businesses.**
- **Complement/Strengthening of Bank's engagement in infrastructure projects.**
- **Cash flow enhancement: Carbon revenues can lift unattractive projects in viability zone.**
- **Corporate Social Responsibility: Put you money where your mouth is...**

**⇒ *A wealth of new products and opportunities...***





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# ***What's in it for you?*** ***Financial Innovation & New Products***

<b>Carbon Markets</b>	Structured emission products, carbon funds, emission price indexes, EUA/CER swaps, voluntary credits, avoided deforestation/REDD, synthetic portfolios, carbon securitisation
<b>Equities</b>	Portfolio screening, SRI funds, Low-carbon technology stocks, index products
<b>Bonds</b>	Portfolio screening, forestry bonds
<b>Private Equity / Venture Capital</b>	Carbon venture capital, carbon-driven principal investing
<b>Real Estate</b>	Energy efficiency/green building real estate investment trusts
<b>Hedging Instruments</b>	Weather derivative products, catastrophe bonds, insurance products

Source: Merrill Lynch (2008)

**⇒ *Participate in creating the next generation of carbon-related products for your clients.***



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**Thank you!**  
**For more info : [www.cd4cdm.org](http://www.cd4cdm.org)**

