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Carbon Finance: Risk and Chances for China

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Climate Focus



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Content

- China and the Carbon Market
- Impact of Carbon Finance on Projects
- Financial Engineering to Secure Underlying Financing
- Challenges and Opportunities



China's Potential

- Coal baseline
- Rapid industrialization
- Low energy efficiency infrastructure
- Favorable investment conditions

=> Estimated Potential: 48% of the CDM Market



CDM and the Carbon Market

- Compliance tool for Annex I countries
- Channels additional funds into sustainable development
- Integrates developing countries into the Kyoto compliance regime
- Unique mechanism under an international treaty
- Includes private action and access to private capital
- Each Euro in CDM leverages 5-10 times the underlying project investment



What Kinds of Projects/Sectors?

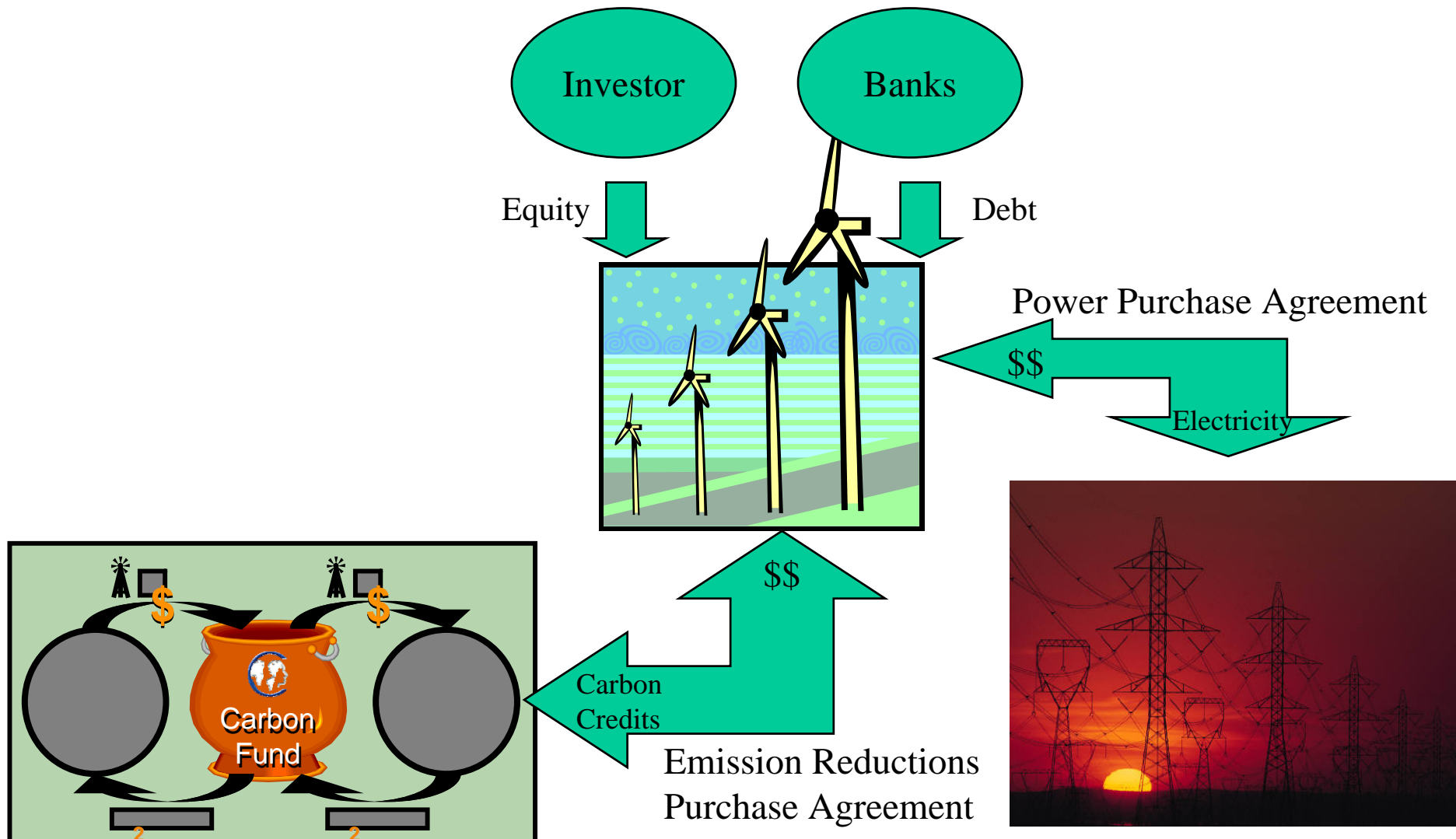
- Renewable Energy Projects
 - Geothermal Power Plants
 - Wind Parks
 - Hydropower – large and small
- Waste-to-energy projects:
 - Municipal Solid Waste clean up transforming poorly managed dumps to sanitary landfills, recycling, and gas capture and power generation
 - Agribusiness Waste to Energy: Rice Husk Power Plants (1-10MW); Palm Oil waste to energy projects.
- Community and agroforestry
- Large Scale Energy Efficiency
 - Plant efficiency upgrade and alternative materials
 - Oil and Gas industry efficiency improvements
- Coal Bed Methane
- Transport
- Industrial Gas Incineration N₂O, HF₂₃



Rules of the Kyoto Protocol and the Marrakesh Accord

- **Project Objectives:**
 1. Create **real, verifiable, and additional** emission reductions (ERs)
 2. Provide **Sustainable Development benefits (SD)**
- **Project Design Document (PDD)** meets Project objectives under the CDM with three annexes:
 1. Estimate emissions?
 - **Baseline Study (BLS)**
 - **Emission Reduction (ERS)**
 2. Prove **real** ERs and SD benefits?
 - **Monitoring Plan (MP)**

Nature of Carbon Finance Contract





Impact of Carbon Finance

- Increased cash flow boosts IRRs
 - ~1% to 4% for renewables/EE
 - 5-20% for CH4
- High quality cash flow reduces risk
 - OECD - sourced
 - \$- or €- denominated
 - Investment-grade payor
 - Eliminate currency convertibility or transfer risk
- Financial engineering helps access capital markets

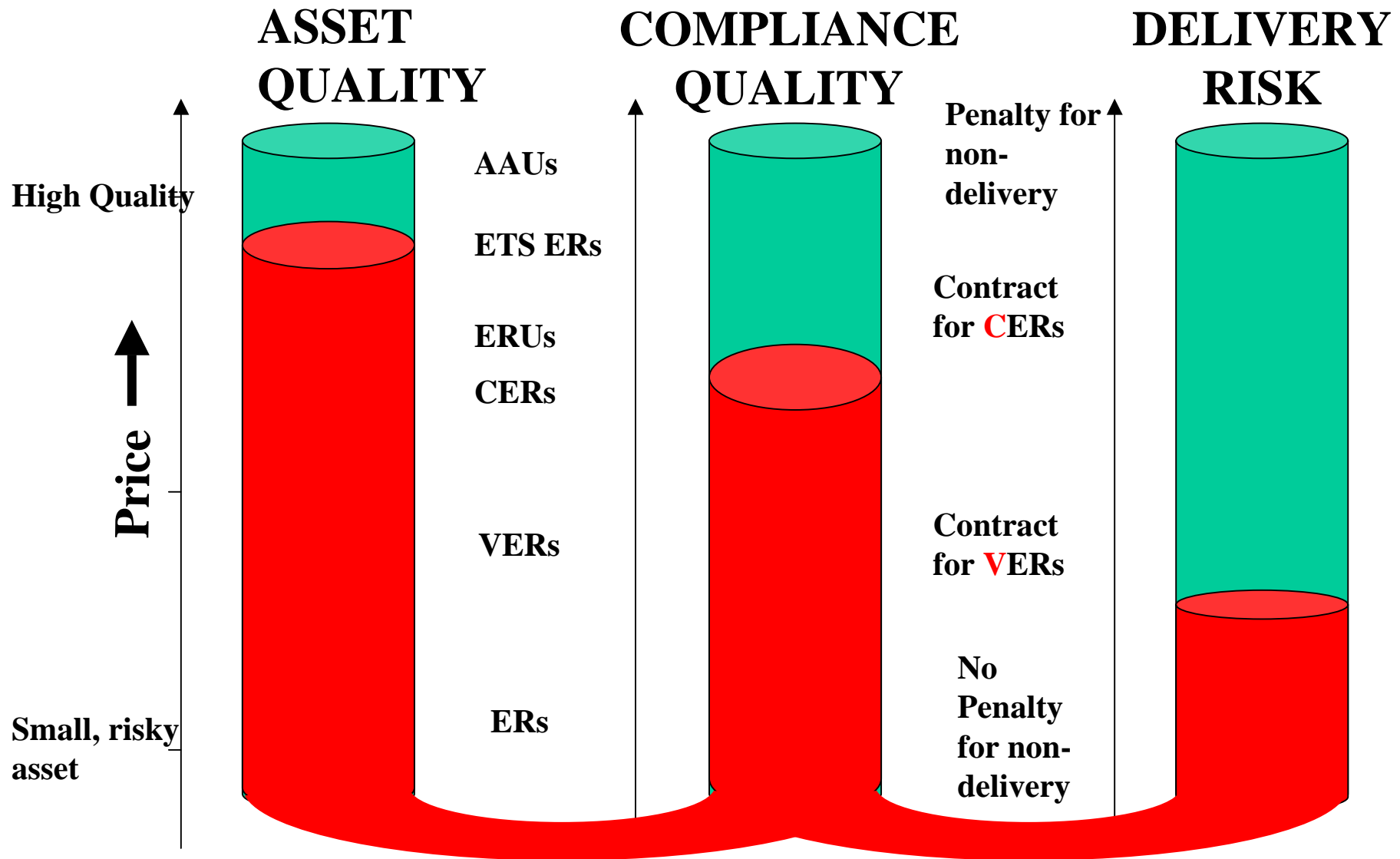


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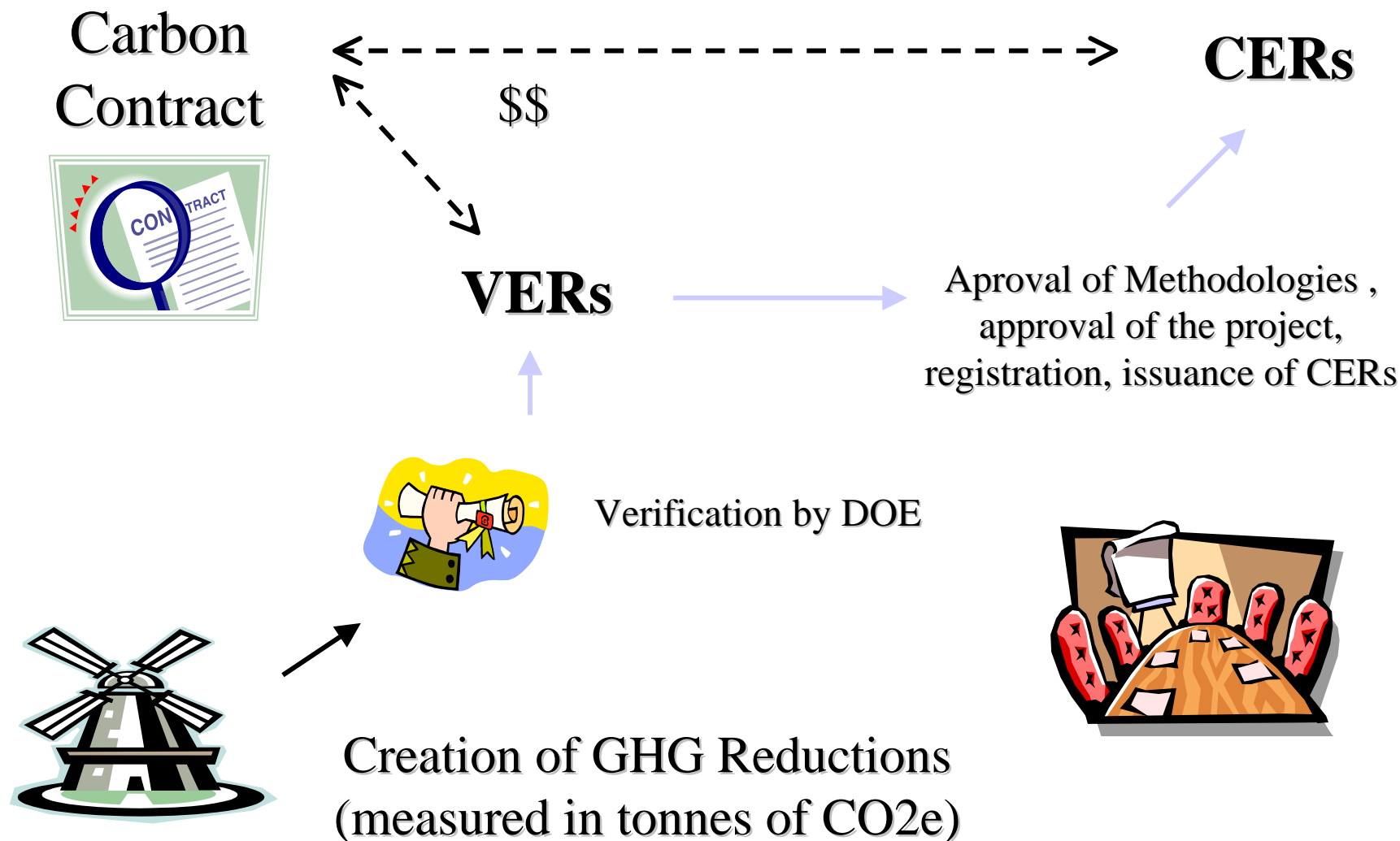
Risk Assessment

- Project Risks (financial, technical, counterparty related)
- ER/CER risks (eligibility, baseline, methodologies)
- Host Country Risks (general + carbon related)

Pricing and Risk



Creation of CERs





Bankability of ERPAs

What does bankability of an agreement mean?

Maximize the value of the agreement
(for a lending institution) through the
elimination of (perceived or real) risk.



What makes a carbon contract sustainable (and bankable)?

- Clear identification of risks
- Fair risk assessment and, subsequently, distribution of risks
- Clear understanding of responsibilities allocated in the agreement
- Fair sharing of price risk
- Robust and clear contractual framework
- Sufficient flexibility
- Agreement on dispute settlement procedures



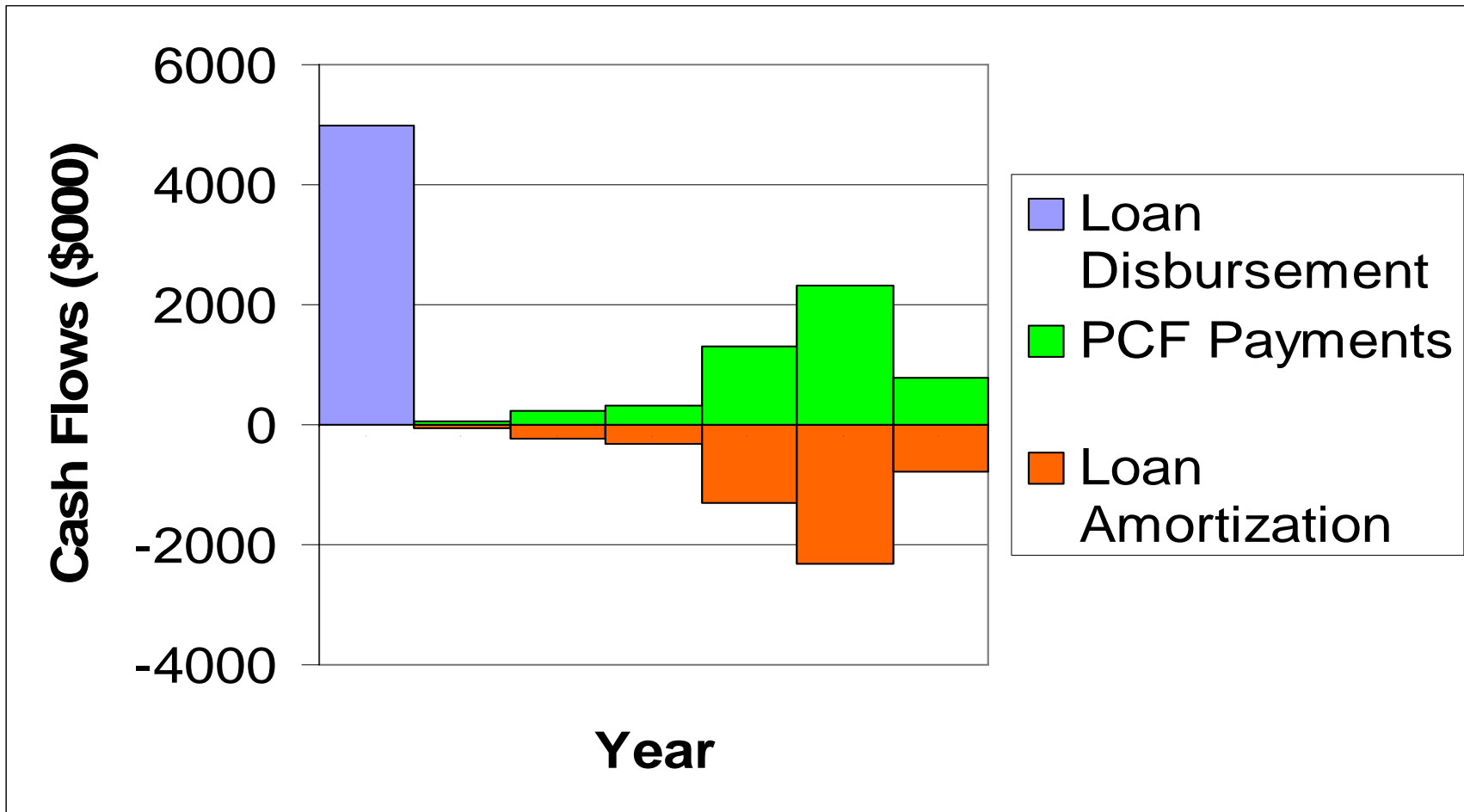
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Financial Engineering Solutions

- Constraints to lending:
 - Emerging market risk
 - Capital cost and intermittency (RE)
 - KP risk
 - Valuing ER cash flows
 - Risk aversion
- Solutions:
 - Structured finance to maximize leverage
 - Credit enhancement

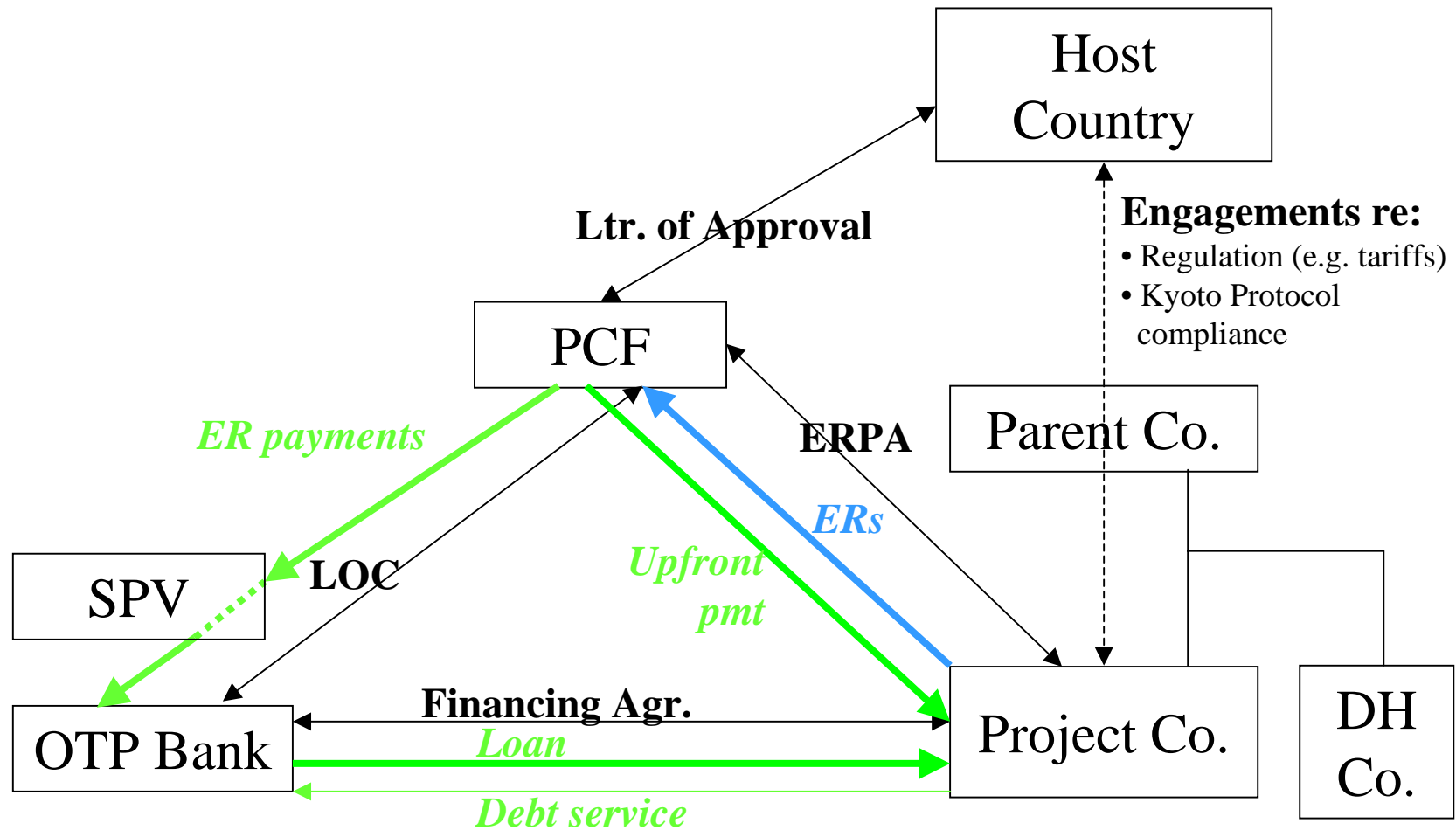
Example 1: PCF Plantar Project

ER payments are used to amortize commercial loan.



Source: World Bank

Example 2: PCF Hungary Pannonpower Biomass



Source World Bank



5Y of Carbon Contracts – What is it worth?

- **Additional Income Stream** – A CDM Contract secures an additional income stream for the project
- **Additional Environmental Benefits** – A CDM Contract monetizes the global environmental value of a project
- **Additional Knowledge Generation** – Developing a CDM Contract provides a learning experience to all parties
- **Additional Due Diligence** – A CDM Contract leads to additional scrutiny and risks assessments of the project
- **Forming Additional Partnerships** – A CDM Contract broadens the stakeholder basis and the support for a project



Challenges

- Complexity of the CDM project cycle
- High transaction cost
- Registration cost
- Fee-sharing arrangements
- Confidentiality of dispatch and other relevant data
- Pressure for low cost near term expansion in the power sector
- Cautious assessment of CDM related risks



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Domestic Requirements for a successful CDM

- Transparent institutional set-up
- Domestic approval procedures
- Efficient approval process
- Awareness
- Capacity and knowledge in the local market
- Access to underlying financing
- Management of risks (country + project)



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Opportunities

- Promoting of clean energy and technology
- New and additional funding
- Private sector driven market
- Technology transfer
- Local and international environmental benefits
- Leverage financing in sustainable development
- Foster technological renovation

- Mitigation of the adverse effects of climate change



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- Questions?

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For World Bank project examples:

www.carbonfinace.org

CDM Project Cycle – The documentation

