

Challenges for Renewable Energy Finance



**Seminar on Food Security, Climate Change and Energy Issues:
South-South Opportunities**

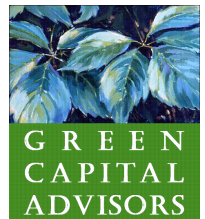
Presentation by Mr. Peter Jones

May 5th, 2010

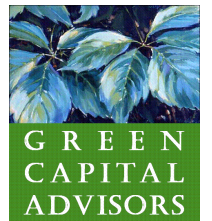
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Outline of Talk

1. Opportunities for Renewable Energy
2. Challenges for Renewable Energy Finance
3. Role of National EXIMs and Development Finance Institutions
4. GCA Overview

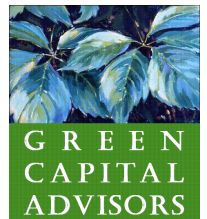


OPPORTUNITIES FOR RENEWABLE ENERGY



Opportunities for Renewable Energy

- ❑ Renewable energy can be defined by what it is not: not fossil fuels, nor making fossil fuels more efficient
- ❑ Countries need to have a national energy strategy which defines role of renewable energy in meeting the energy demand
- ❑ The estimation of renewable energy demand:
 - Households
 - Industry
 - Transportation
 - Municipalities



Trade-off between renewable and conventional energy sources

□ Price

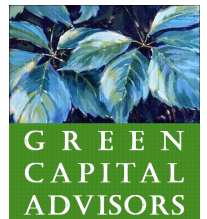
- As long as fossil fuel supply does not reflect the full cost of negative externalities, the price of renewal energy sources compared to conventional sources is not as attractive

□ Technology risk

- Many of the technologies are fairly new and therefore have a limited track record of reliability

→ ***Incentives help increase the uptake of renewable energy technologies, or***

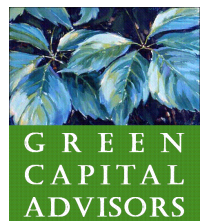
→ ***Disincentives for fossil fuels can make the choice of renewables more favourable***



Creating incentives for renewable energy in the international context

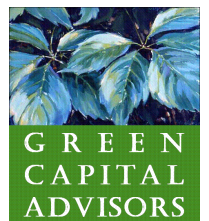
- ❑ Industrialized nations have pledged \$30bn in climate financing to emerging markets to promote climate friendly projects for both climate mitigation and climate adaptation

- ❑ The Kyoto framework was designed to incentivize the choice for renewable energy in emerging markets through the CDM mechanisms
 - CDM projects can be at all levels: households, industry, transportation and municipalities



RE projects can generate an additional revenue stream

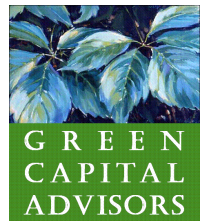
- ❑ While all energy projects are designed to generate power, renewable energy projects also can produce carbon credits.
- ❑ Carbon credits can be sold for hard currency to industrialized countries to meet their GHG reduction targets.
- ❑ One of Kyoto's major innovations is the notion of "carbon credits" as an internationally tradable commodity.



Introduction:

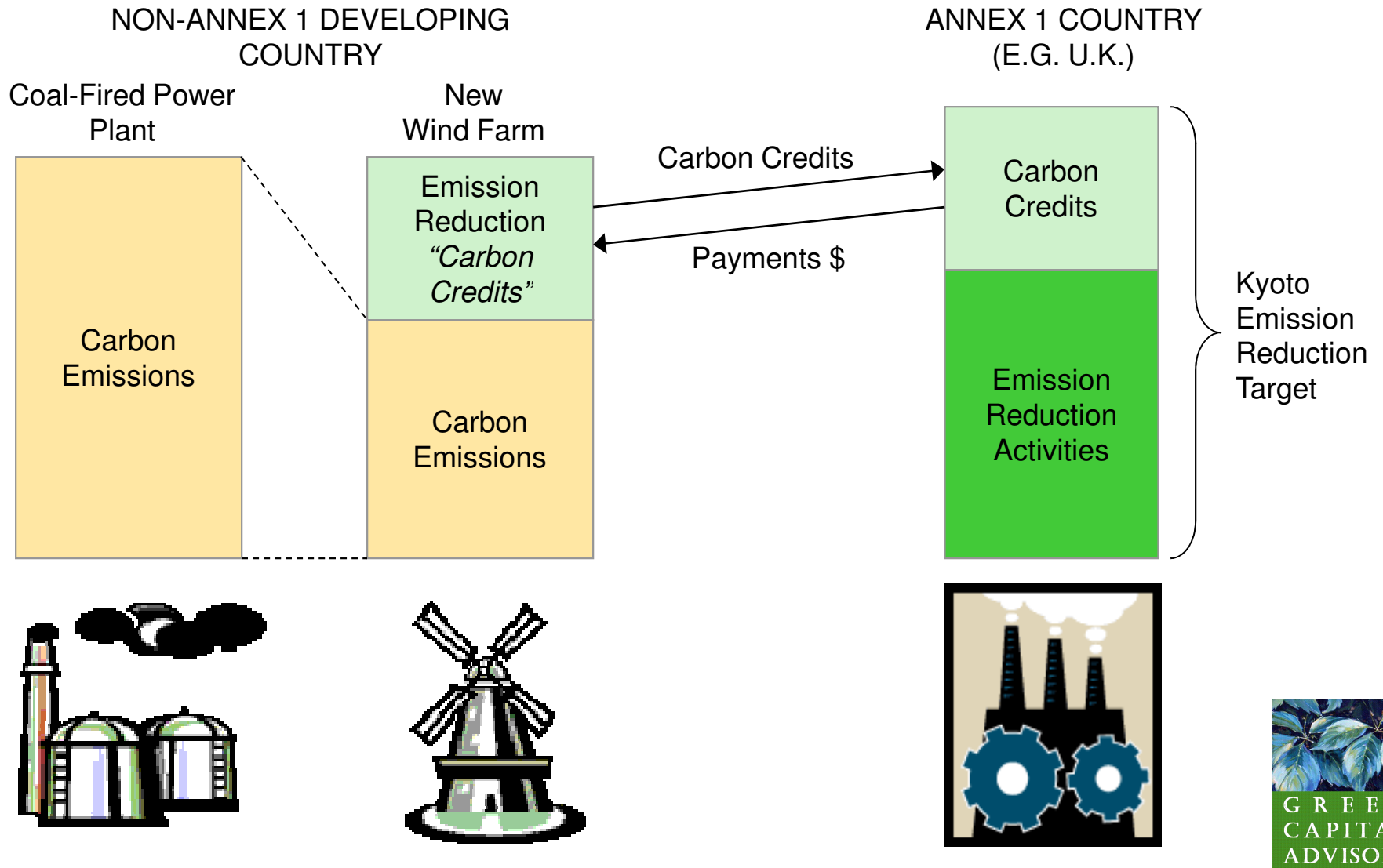
What is a Carbon Credit?

- ❑ A carbon credit is created when a new “green” project displaces a conventional, less-green energy source, or when the energy efficiency of an existing project is enhanced, i.e. documents emission reductions relative to a baseline
- ❑ The greener the project, the less carbon emitted, and thus the more carbon credits generated.
- ❑ These carbon credits can be measured, packaged, and sold to a carbon emitter to help meet an emission target.



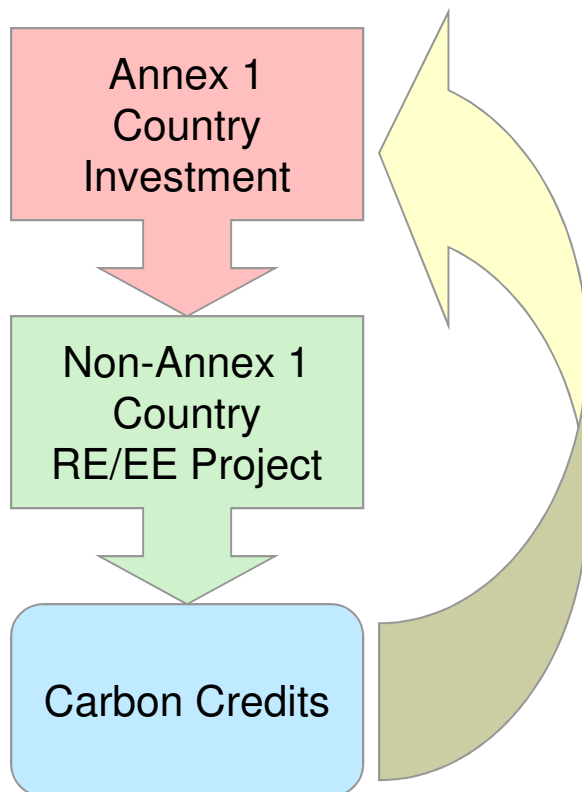
Introduction:

What is a Carbon Credit?



CDM:

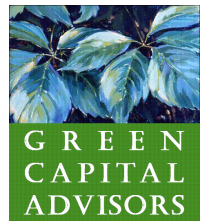
Unlocking Economic Value



- ❑ The creation of carbon credits can unlock new and significant sources of economic value from RE/EE projects.
- ❑ In Non-Annex 1 countries, this value is realized via Kyoto's Clean Development Mechanism (CDM).
- ❑ CDM seeks to spur project-based partnerships between Annex 1 and Non-Annex 1 countries, by facilitating cross-border financing and investment.

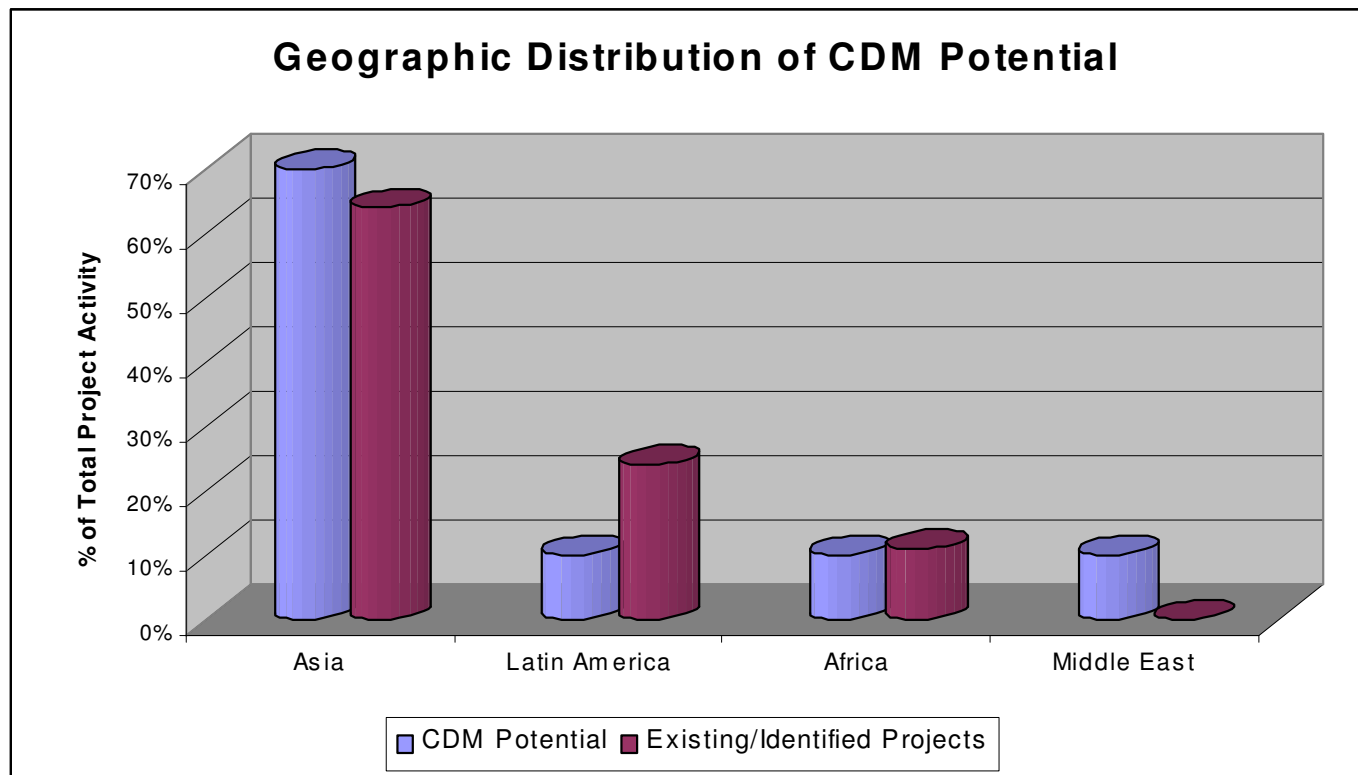
The Opportunity

- ❑ Carbon credits can enhance a project's commercial viability and investor returns.
- ❑ Carbon credits continue to rise in value, and future demand for credits is expected to far exceed supply.



CDM: Market Potential

Asia dominates potential sources of CDM market supply, with a forecasted market share of 70%.



Source: World Bank Carbon Finance Business

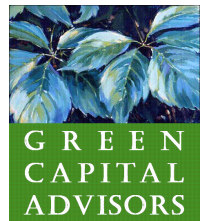
The Carbon Market

- ❑ Over \$140 b traded in 2009
- ❑ Dominated by EU-ETS
- ❑ CDM market about 10% of total
- ❑ Prices are highly volatile
- ❑ Average spot CER price US\$16.6 (€11.9) in 2009
- ❑ Long-term prices will depend on establishment of compliance regime beyond Kyoto
- ❑ Monetization of long-term CDM contracts is limited, so financing is a key constraint

Monetizing Carbon Credits via Emission Reduction Purchase Agreements

- ❑ ERPAs are the standard approach for monetizing carbon credits from RE projects.
- ❑ Not unlike PPAs for power projects, ERPAs are long-term undertakings for hard currency payments over time in return for carbon credits generated by a project.
- ❑ ERPA counterparties are typically high-quality AAA-rated, such as OECD Governments, multilateral carbon funds, or major transnational firms.

CHALLENGES FOR RENEWABLE ENERGY FINANCE



Barriers to Renewable Energy Investment

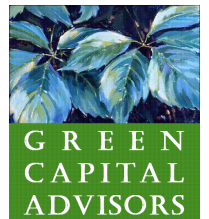
- ❑ Distorted prices; lack of price clarity
 - Subsidies and externalities
 - Absence of long-term price signal (esp. for carbon)
- ❑ Shortage of *long-term* capital
- ❑ Risk (real and perceived):
 - Country and political risk
 - Regulatory risk
 - Technology risk
 - Resource risk
 - Familiarity with technology
- ❑ Knowledge and institutional capacity
- ❑ Intrinsic barriers

The Challenge is therefore to Mobilize Investment

- Reducing barriers to economically viable investments
- Financing incremental investment cost
 - Internalizing externalities
 - Mitigating risk (low-carbon projects riskier than BAU)
 - Buying down incremental costs
 - Mobilizing funding for adaptation

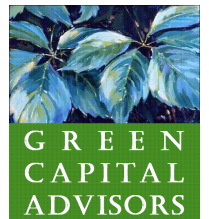
Major investment in renewable energy technologies

- Existing technologies can enable substantial reductions at reasonable cost, but need to mobilize funding by:
 - Removing barriers & improving policy environment
 - Internalizing external costs & reducing fossil fuel subsidies
 - Buying down incremental cost
- Funding for mitigation, adaptation, resilience only covers a fraction of the need, so:
 - Need to leverage existing financial and policy instruments
 - Need to assign a clear and adequate price to carbon



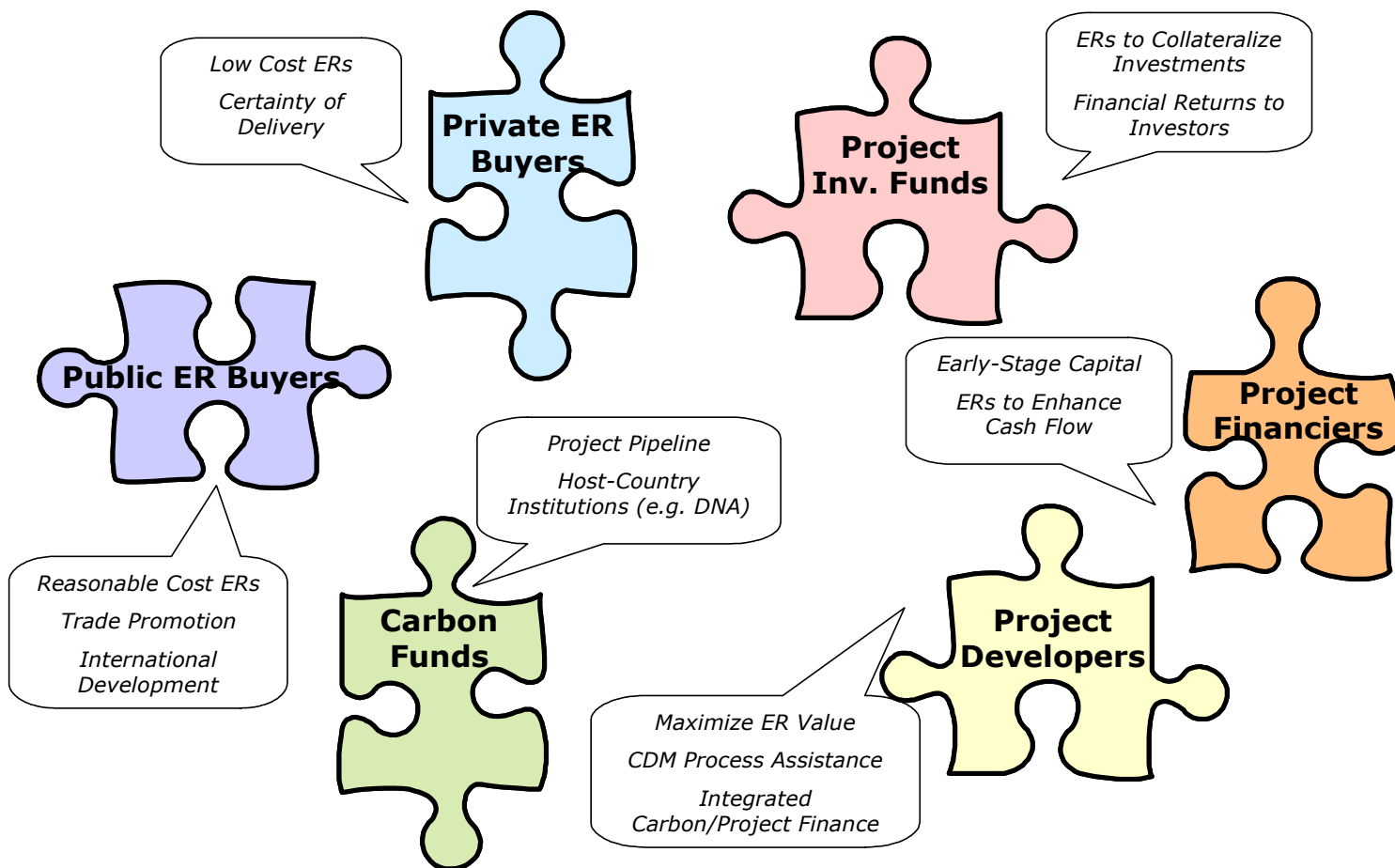
Challenges in Unlocking Carbon Credit potential

- ❑ Many RE projects are small, which makes it relatively more costly to monetize the associated carbon credits.
- ❑ Approving CDM projects requires institutional and administrative capacity in host country.
- ❑ Long project lead times. Continued uncertainty regarding CDM market potential post-Kyoto (i.e., post-2012).
- ❑ Bottlenecks in CDM approval process, but these are being addressed.

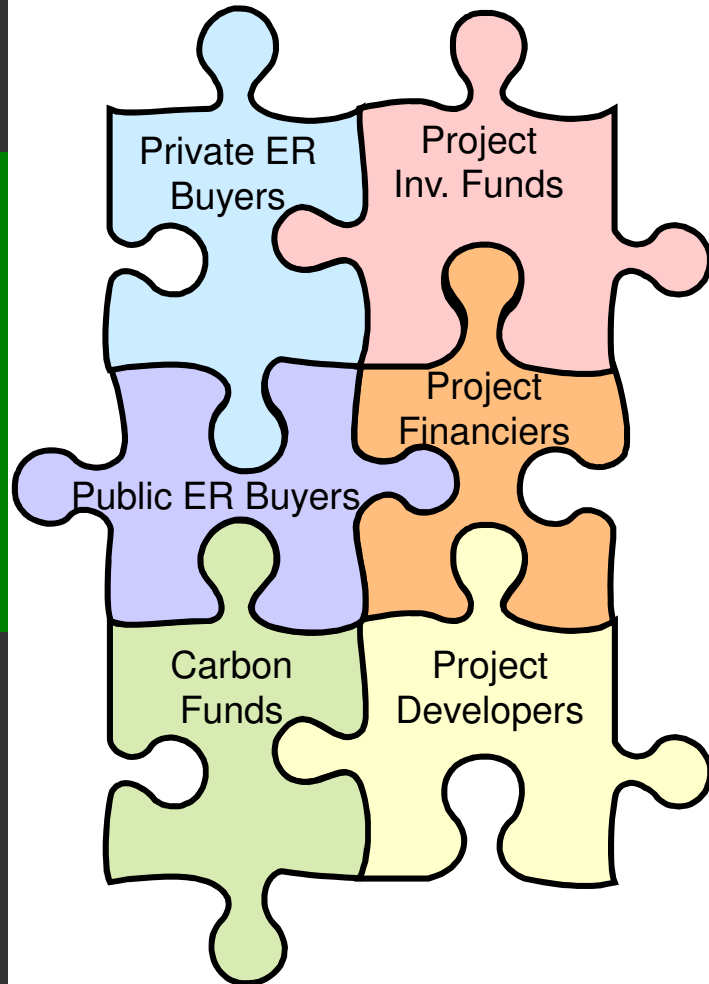


Challenges in Unlocking Carbon Credit potential

Further, the needs and motivations of key market players differ, and sometimes conflict.



Challenges in Unlocking Carbon Credit potential



Thus, the main challenge is to help catalyze activity by aligning market needs and motivations via financial and non-financial mechanisms.

Financing Households

- ❑ Incentives via schemes to provide grants or interest free loans, e.g. solar water heaters.
- ❑ Need to ensure that subsidy is distributed efficiently via existing channels to ensure efficiency.
- ❑ Difficult to capture carbon credits given the very small size of individual projects but can be done on programmatic basis.

Financing Industry

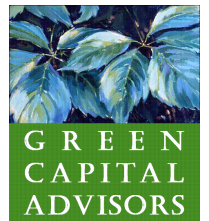
- ❑ SMEs already face challenges in accessing capital – both equity and debt.
- ❑ Incentivizing SMEs to choose renewable energy is similar to schemes for households but possibility exists that surplus power can be generated.
- ❑ Large companies can benefit from a favourable feed-in tariff scheme for surplus power to go back into grid.

Financing transportation

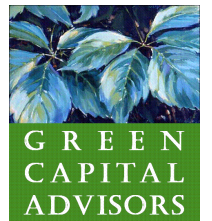
- ❑ Developed countries are focusing on petrol alternatives, such as biofuels
- ❑ Emission standards are imposed
- ❑ “Greener” mass transit such as light rail

Financing Municipalities

- ❑ While municipalities are not typically responsible for large amounts of GHG emissions compared to industry, they have an important role in GHG reduction initiatives.
- ❑ For example, all municipalities have landfills sites, and these are high profile sources of GHGs. They also have significant potential for generation of carbon credits when gas capture projects are installed.
- ❑ Any one municipality on its own may have limited financial and technical capacity to monetize carbon credits from such activities, but a regional or national effort can create economies of scale.



THE ROLE OF EXIMS AND DFIS

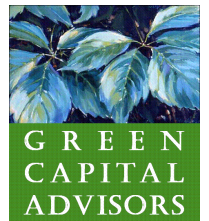


Barriers to Renewable Energy Investment

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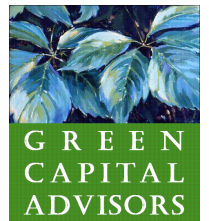
Some solutions

- ❑ **Bundling of Projects:** bundle small scale CDM projects to make them cost-effective.
- ❑ **Sellers' Pool:** develop a sellers' pool for CDM projects.
- ❑ **Use of Guarantees:** to take political, regulatory and/or legal risks.
- ❑ **Carbon Forfeiting:** develop a mechanism which provides up-front financing for "discounted" future carbon credits.
- ❑ **"Green Taxes":** develop a premium tariff for RE projects; or a carbon tax on GHG-intensive activities.



Bundling of Projects

- ❑ Single project developers trying to sell their CERs into the market often do not benefit from the best price available on the market as they negotiate with an intermediary or a buyer directly.
- ❑ For individual small scale developers or owners of CERs with only a few CERs to sell, they have little or no market power, so a program of bundling could be very useful, especially in the context of a seller's pool/fund.



Seller's Pool

- ❑ The carbon market has been very demand-driven: carbon credit buyers have actively sought sources of credits to meet their obligations.
- ❑ So-called “sellers pool” concept is designed to address this market imbalance by pooling carbon credits generated from a number of smaller projects and then auctioning the pool.

Use of guarantees

- ❑ In addition to the normal technical and project risks, there are risks that carbon credits will not be delivered because of political issues in the approval via the host country's DNA.
- ❑ A scheme to assume the risks and/or help the project developer work with the national DNA could be of value.
- ❑ Help with bankability check for projects prior to launching the CDM Executive Board approval process.

Carbon Forfaiting

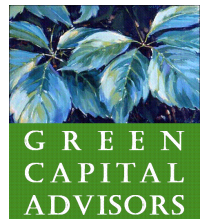
- ❑ The seller's pool/fund could offer project developers up-front financing against their future expected carbon credits, by "discounting" the related carbon credit cash flow stream.
- ❑ The concept of carbon forfaiting builds upon the well-established financial instrument used in trade finance.
- ❑ Trade forfaiting is an export finance mechanism, involving the purchase (usually without recourse to the exporter in the event of payment default or difficulties) of promissory notes or bills of exchange.
- ❑ The forfaiter buys at a discount, which partly reflects the funding costs that accrue before the due payment dates, and partly the perceived risk of the guaranteeing (avalising) bank and its home country.
- ❑ In Canada, Green Municipal Corp. has adapted this concept to the revenue stream from the generation of carbon credits. It has provided "carbon forfaiting" by offering municipalities up-front discounted payments for the rights to future carbon credits

Taxes

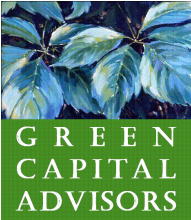
- Applying a “Green Tax” on certain GHG emission-intensive activities (i.e. power/fuel) could also provide incentives for individuals to contribute to climate change mitigation.
 - Revenues from such taxes could be allocated towards financing GHG reduction projects which otherwise would not have been viable under CDM alone.

Possible Future Directions for G-NEXID Members

- ❑ Establishment of a carbon sellers pool.
- ❑ Help mitigate risks associated with ER creation and delivery to end buyers.
- ❑ Develop mechanisms to promote or facilitate CDM projects with high socio-economic value.
- ❑ Explore opportunities for national or regional “clearing house” project assessment and prioritization to promote private sector involvement.
- ❑ Expand role and risk capacity of rural and community development banks to leverage financing sources.
- ❑ Pursue more creative roles for ODA to help catalyze worthy CDM projects or initiatives.



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 - World Bank Carbon Finance Business on a carbon delivery guarantee
 - World Energy Council on financing renewables in developing countries
 - Policy work for Environment Canada, Natural Resources Canada, Industry Canada, Canada's CDM-JI office
 - Review of Green Municipal Fund's innovative financing instruments
 - Member of task force on Financing the Development Dividend
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