

Carbon Finance in supporting ElectriFI

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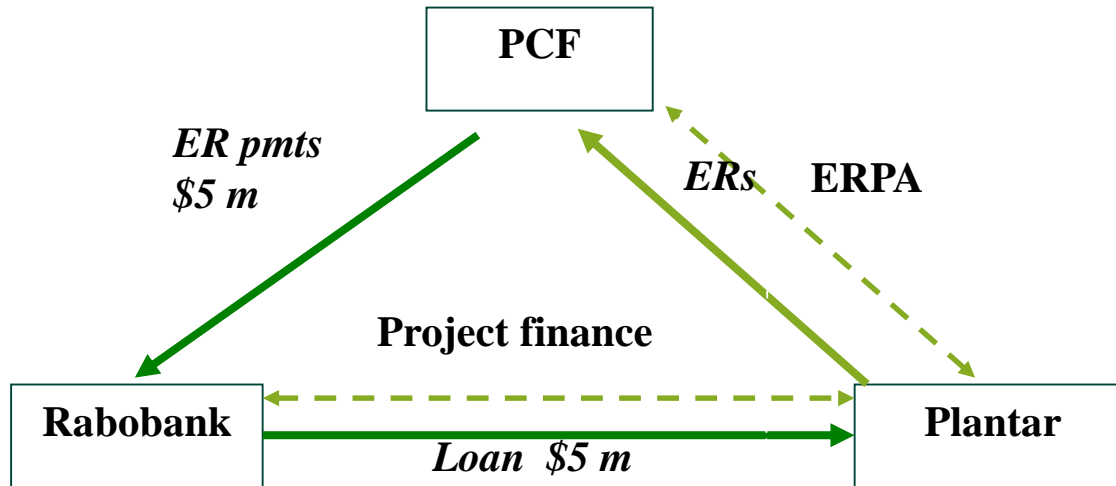
Empowering Rural Electrification

Workshop

29 - 30 September 2014 - Venue: Hotel Le Plaza Brussels

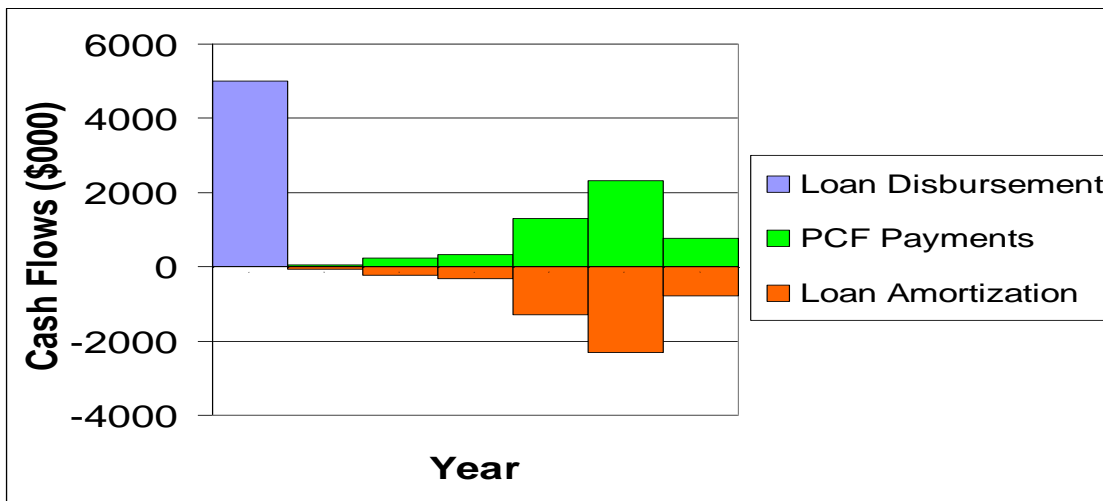
ER enabling project viability

Plantar (BR)



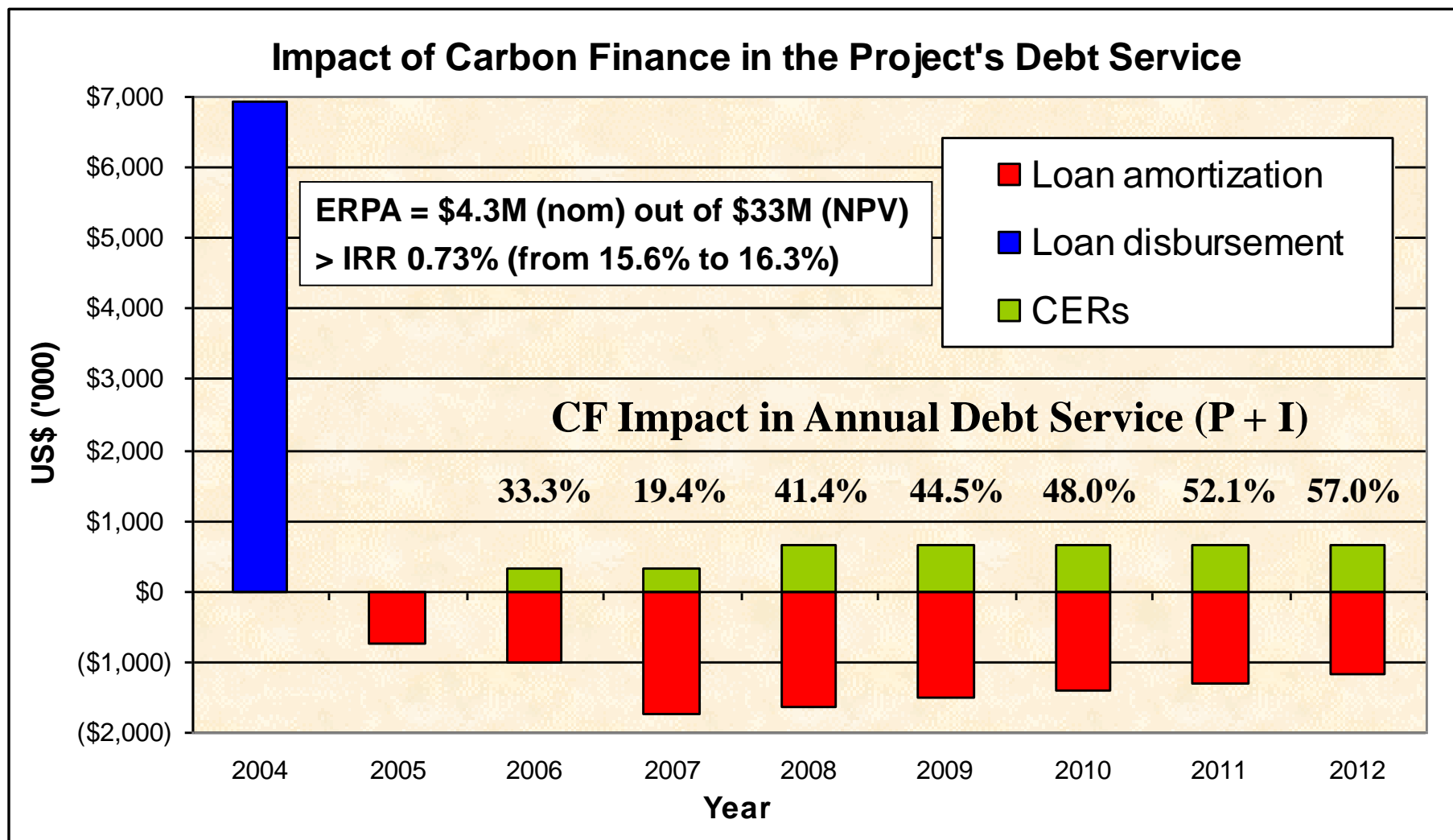
Dream scenario!

- *Project: 7-y investments, \$0 revenues = non-bankable!*
- *ER value = loan principal (full amortization)*
- *ER payments offshore offsets Sovereign Risk*
- *VER offsets Regulatory Risk*
- *Loan DS mirrors ER delivery schedule*



ER securing underlying finance

Abanico hydro (EC)



*Modest quantitative value, but ER pledge met IIC (IADB)
investment criteria as an “enhanced PPA”*

Impact of Carbon Finance

INCREMENTAL IRR - CARBON FINANCE

Renewable Energy

ER Prices	Purchase period				
	5y ('08-'12)	7y	10y	14y	21y
\$5.00	0.5%	0.6%	0.8%	1.0%	1.2%
\$10.00	1.0%	1.4%	1.7%	2.1%	2.3%
\$15.00	1.6%	2.1%	2.7%	3.1%	3.3%
\$20.00	2.2%	2.9%	3.6%	4.1%	4.5%

Impact per Unit
\$3.16 / MWh
\$6.33 / MWh
\$9.49 / MWh
\$12.65 / MWh

>8%

INCREMENTAL IRR - CARBON FINANCE

Solid Waste

ER Prices	Purchase period				
	5y ('08-'12)	7y	10y	14y	21y
	0.58 tCO ₂ e/tSW	0.74 tCO ₂ e/tSW	0.93 tCO ₂ e/tSW	1.11 tCO ₂ e/tSW	1.29 tCO ₂ e/tSW
\$5.00	17.9%	24.1%	29.2%	31.7%	32.8%
\$10.00	52.3%	59.1%	62.4%	63.5%	63.8%
\$15.00	88.2%	93.3%	95.4%	95.9%	96.0%
\$20.00	123.7%	127.3%	128.6%	128.8%	128.9%

Impact per Unit
\$41 / MWh
\$82 / MWh
\$124 / MWh
\$165 / MWh

*tSW = ton solid waste

INCREMENTAL IRR - CARBON FINANCE

HFC23

ER Prices	Purchase period				
	5y ('08-'12)	7y	10y	14y	21y
\$5.00	110.8%	112.3%	112.7%	112.7%	112.7%
\$10.00	176.7%	177.3%	177.4%	177.4%	177.4%
\$15.00	227.3%	227.6%	227.7%	227.7%	227.7%
\$20.00	270.0%	270.2%	270.2%	270.2%	270.2%

*65% tax applied on carbon revenues

Impact of Carbon Finance

- **Quantitative impact:** Additional annual streams > P, L, IRRs
 - Modest incremental IRR in RE / EE
 - \$5-\$10 per MWh (~\$0.5M per MW) in RE / EE
- **Qualitative impact:** High quality cash flow and contract
 - VERs (no regulatory risk; bankable)
 - OECD buyers (investment-grade, creditworthy payers)
 - Hard currency (\$ or €) denominated
 - Long-term contract with fixed price (no fluctuation)
 - Payments abroad eliminate currency convertibility and transfer risks
 - Nature of asset difficult Conf. Expropr. National. + CF risks
- **The lender's risk still related to the company's ability to perform**

ER enabling project viability

Monetization: **frontload future carbon receivables**; ERPAs pledged for loan's repayment (project, structured trade, or corporate finance):

- ✓ **Project finance:** No collateral value; CO2 to face and match terms of DS ($> P, L$, DSCR)
- ✓ **Venture capital fund:** CO2 to boost investment's IRR / ROE
- ✓ **Suppliers' credit / structured trade & commodity finance:** CO2 as a reliable "good"; key role for insurers, ECAs in securitizing the future receivables

CF revenue streams + Financial engineering allow access to capital markets and enhances project bankability ...

... if frontloaded and if investment barriers can be transposed!

Thank you



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