

Ghana case study: using carbon finance to promote improved cooking technology

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Overview

- Why efficient stoves?
- Carbon finance and cookstoves globally
- Stoves in Ghana
 - effective local partner: Toyola
 - E+Co EDS + capital
 - capital injection/understanding carbon-stove magnification effect
 - local ERPA contracts that align incentives
 - locally appropriate innovations
 - Future innovations



Why improved cook stoves?

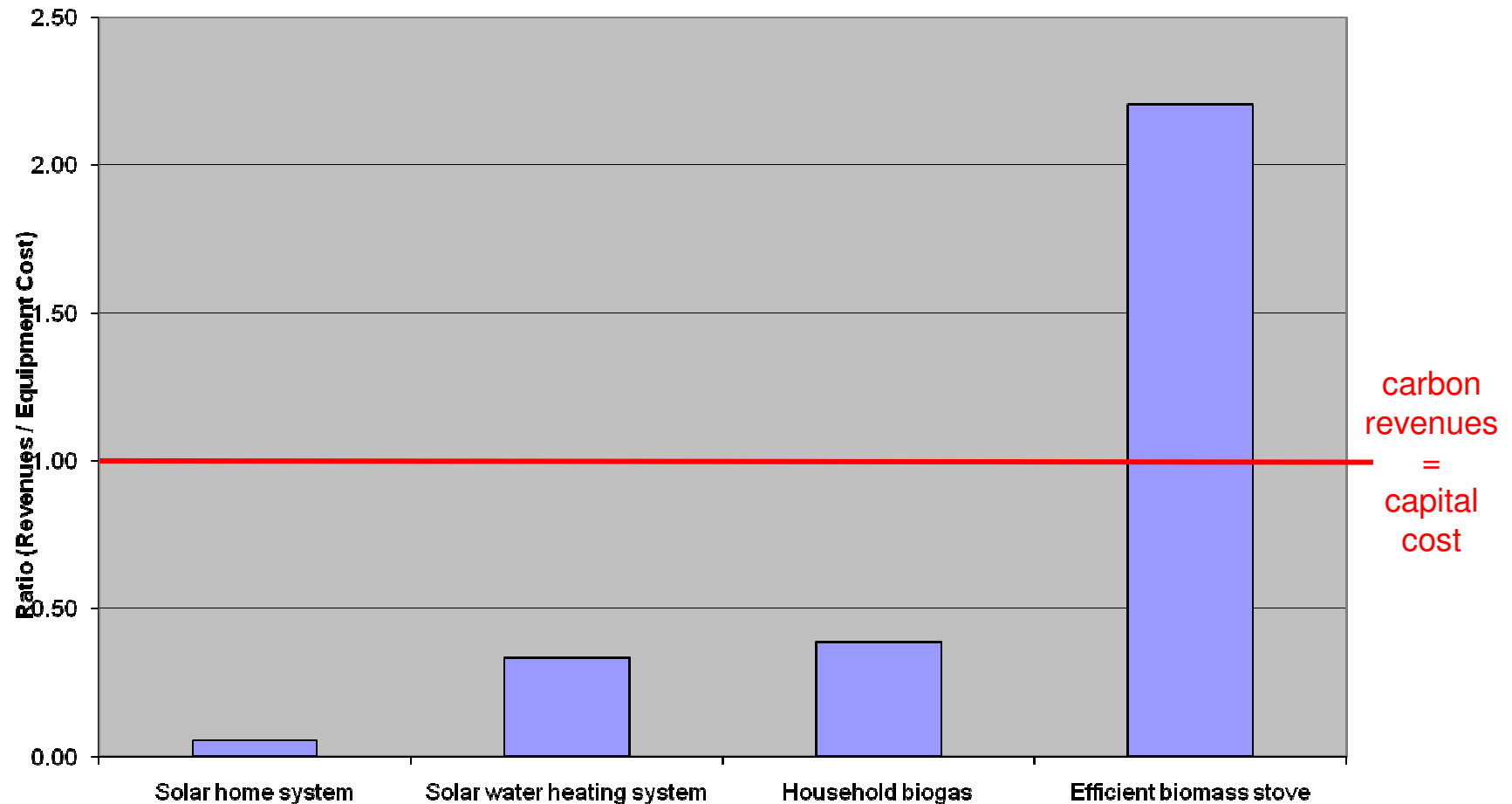
- Tremendous public health benefits
- Curb deforestation
- Slash greenhouse gas emissions
- They are profitable (if implemented effectively)



Household energy technologies and carbon finance



Ratio of Carbon Revenues During Five Years of Operation to Capital Cost of Equipment



Carbon finance and cookstoves globally

- Very new, little experience worldwide
- No projects registered under CDM*
- 3 projects registered under Voluntary Gold Standard
 - All registered in 2009: Uganda, Ghana and Mali
 - E+Co developed Ghana and Mali
 - Several other projects under voluntary schemes, not DOE approved or according to an approved methodology
- Multiple new projects in both CDM and Gold Standard pipeline
- Today, Voluntary Gold Standard is our preferred option for cookstoves. We may pursue CDM in future, but some critical rules have to be resolved with programmatic CDM.

* No projects registered under AMS-IIG, one project registered under old methodology, which today is obsolete

Effective local partner: Toyola Energy Limited

- We often see stove projects fail for lack of strong local partner
- Need to reach scale (>15,000 stoves sold per year minimum)
- Suraj Wahab and Ernest Kyei are talented salespeople, shrewd businessmen
- Benefited from training from multiple local NGOs (such as Enterprise Works and KITE)
- E+Co felt they had what it took to run a business
- Note: need to grow new companies, not existing companies → existing companies that already sell many stoves threaten additionality.



Suraj Wahab and Ernest Kyei

E+Co training plus capital

- E+Co first invested in Toyola in 2006. Since then, multiple more investments.
- Worked with them to formalize business plan, accounting procedures, etc.
- Toyola grew from selling 640 stoves per year to over 2000 stoves per month
- Since Gold Standard project start date (2006), Toyola has sold some 75,000 stoves.
- In early 2010, we expect to sell our first tranche of about 50,000 VERs to Goldman Sachs.



*1 of 8 vehicles purchased with
E+Co debt*

Understanding carbon/stove magnification effect

Year	Year 1	Year 2	Year 3	3 year total
Double sales from investment in year 1	60,000 tons	93,000 tons	126,000 tons	279,000 tons
Double sales from investment in year 3	30,000 tons	63,000 tons	129,000 tons	222,000 tons
Net gain from growing company early				+57,000 tons

By offering same amount of growth capital earlier, **we increase total revenues by 26%.**

Conclusion: invest early in a company that knows how to use capital.

Local carbon contracts that align incentives

- Sign them! (some do not)
- Toyola sees significant upside of carbon so incentives are aligned
- Stove/carbon projects require a huge amount of on the ground monitoring of data
 - Arduous for Toyola to do this in addition to run business
 - Since Toyola understood risks and rewards, they were more motivated to fulfill requirements

Locally appropriate innovations

- Each project is different and requires local innovations
- In Ghana, improved manufacturing and distribution efficiency was achieved via:
 - Specialization of manufacturing: liners, handles, doors, final assembly, etc.
 - Commission-based and performance-based pay scale
 - Commission-based, decentralized sales model
 - Collect recycled scrap materials for manufacturing based on large network of commission-based collectors



Recycled scrap metal

Future innovations in Ghana

- SMS-based carbon finance monitoring system
 - Each sales person send SMS at point of sale to record all required carbon finance data
 - Real time data available anywhere in the world
 - To be piloted in late Oct, 2009.
- Revolving credit facility to smooth carbon revenue flows
 - Carbon revenues arrive annually
 - Toyola cash needs are weekly/monthly, especially when discounting stoves to end users
 - Facility would allow Toyola to draw upon some percent of future carbon revenues to meet monthly cashflow needs



Stove retailer

Conclusions

- Opinion: carbon finance/stove linkage is so financially compelling that it will likely transform the way to the poorest third of the world's population cooks – in a matter of years, not decades.
- Potential is great, but not without risks
- Navigating the carbon finance process is challenging and requires full time attention and/or the assistance of firms that specialize in carbon finance