Clean Energy Hybrid Mini-Grids in Remote Areas – an Investment Opportunity?

Dean Cooper

Energy Finance Programme Manager, United Nations Environment Programme (UNEP)
Background

**Potential market for mini-grids:**
- +1.3bn people in rural areas, most with no access to electricity
- 60% of people in Africa in rural areas
- 3,000 inhabited islands in Indonesia/Philippines
- **mini-grids:** 40% of new rural capacity by 2030

**Increasing international attention:**
- World Future Energy Summit (Abu Dhabi, Jan 2014)
- **Powering Africa Strategy Summits (2011-13)**
- 4th Clean Energy Ministerial (New Delhi, April 2013)
- UK Department for International Development (ICF, 2013)
Attracting Private Investment

Commercial viability (sustainability) increased by:

- Stable policy framework
- Local capacity (skills & understanding)
- Technology to match local resources
- Sufficient scale (>100kW)
- Pricing sufficient for re-investment
- Uncertainty (= risk) reduced by practical implementation in local communities

→ Finance – Policy – Technology nexus is key
Bottom-up Approach

- What is the demand – 24/7?
- Sufficient scale for returns – ABC?
- Local access to resources
- End-users awareness, understanding
- Level of willingness to pay
- Community ownership (& pro-activity)

→ Customer engagement at the start not the end
UNEP Mini-Grids Concept Development

- Identify opportunities and country specific challenges
- Engage local key stakeholders
- Identify the specific mini-grid project
- Prepare a business model to the specific mini-grid project
- Implement the mini-grid project
- Lessons Learned and reporting

⇒ Recognise at the outset that no one size fits all
UNEP Demonstration Programme

• Selection of diverse target countries

• Implementation of different financial models – brownfield and greenfield

• RE hybrid based on local resources (bio-energy as a back-up: F-E-W??)

• Measurement of impact

• Development of a best practice approach for future mini-grid providers

→ Aim to withdraw & leave sustainable market
Viable Business Model - Challenges

• High up-front costs
• Long-term revenues required
• Role of greenfield public funding
• Local management of operations
• Risks from political/regulatory uncertainty

→ *Public-private partnership – walking not talking*
Current Target Countries

Mini-grids for “remote areas” - rural areas & islands in Africa, Latin America and Asia:

- Kenya & Togo
- The Gambia
- Colombia
- Dominican Republic & St Vincent
- Philippines
- Indonesia
- Southern Africa (greenfield)
Intended Outcomes

- Growing customer demand (sustainable market)
- National policy to encourage mini-grid installation
- Financiers aware and interested

⇒ *Increased clean energy access from local supplies*

- Reduced CO2 emission outlook
- Social, gender and economic upliftment
SE4All HIO on Clean Energy Mini-Grids: Challenges & Objectives

**Target:** mini-grids to provide 40% of all installed capacity for universal access to electricity by 2030

- Inadequate regulation, policy gaps or uncertainty
- Early stage market fragmentation and unmade linkages
- Capacity issues and lack of standardisation
- Lack of proven commercial business models
- Lack of access to affordable longer term finance
Contact:  Dean Cooper
Energy Finance Programme Manager

Division of Technology, Industry and Economics
15, rue de Milan, 75441 Paris Cedex 09, France
Tel :  +33 (0) 1 4437 1627
Fax :  +33 (0) 1 4437 1474
E-mail : dean.cooper@unep.org
Web:  www.unep.org/