



Rethinking Finance and Business Approaches for Energy Access

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Dr Binu Parthan

Energy Access Landscape

- 1.3 billion (17%) lack electricity access and 2.6 billion (41%) lack access to modern thermal energy;
- 2030 – 0.96 B no electricity access and 2.5 B no modern thermal energy!!
- Two regions – Sub-saharan Africa & South Asia, Also East Asia.
- Electricity access – 20 countries 2/3 rd (0.9 billion) – India, Nigeria, Bangladesh, Ethiopia, DRC...
- Modern thermal energy access – 20 countries – 20 countries 4/5th (2.4 billion) – India, China, Bangladesh, Indonesia, Nigeria...
- 207 million people in Urban areas without electricity access.



Traditional Energy Access Business Model



- Energy Utility driven grid extension;
- RE Systems and devices – SHS, Solar Lanterns, cookstoves provided by government/donor;
- Community operated mini-grids – hydro, biomass.
- Commercial fuel distribution networks – Kerosene, LPG;
- Emphasis on household electrification
- Baseline – kerosene lamps, traditional cookstoves, diesel gen-sets etc.

Traditional Financing Frameworks



- Financing electricity network expansion, household electricity – Government/donor grants to energy utility;
- Capital subsidies to users for – household/individual owned systems - SHS, PV lanterns, cookstoves, biogas
- Capital subsidies for community based MHPs, Biomass power;
- Loans – low-interest/soft loans – utilities, user groups – co-operatives,
- Micro-credit – households/users;
- Fuel subsidies – LPG, Kerosene - \$ 544 B globally

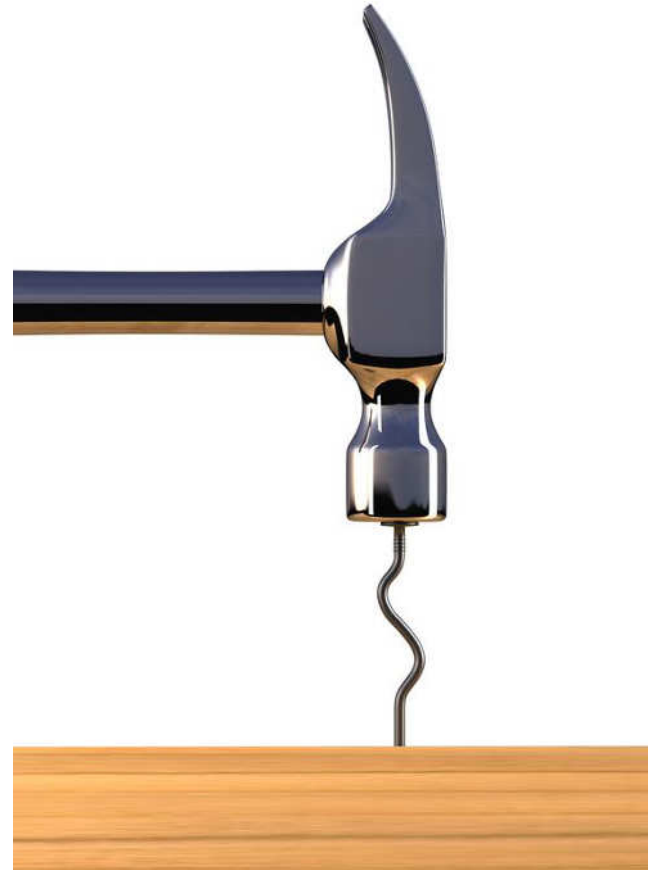
Challenges with traditional approach

- Financing infrastructure and not service delivery;
- Focus on electricity and lighting and households;
- Subsidy on fuels – energy inefficiency, misplaced;
- Economic activities – productivity opportunities of agriculture, rural commerce and industry not addressed.
- Public sector led, private sector role limited – suppliers;
- Equipment/systems subsidy – price distortions.



Challenges with Traditional Models (Contd.)

- Technology driven – donors and governments;
- Long-term low-return financial models;
- Long term – failures, low-quality service – black-outs brown outs;
- Government & donor resources finite – need more sustainable finance;
- Thermal energy challenges often not addressed.



New Thinking on Energy Access Business and Finance

- Technology neutral , Hybrids;
- Integrate thermal energy - ;
- 50-60% of energy for economic and social activities – use anchor customers;
- Larger scale – Mini-grids + thermal energy;
- Finance Energy Service Arrangements—softer loans for infrastructure,
- Policy & Regulatory framework for subsidising minimum energy consumption – cross-subsidy, RPOs.
- Incentive framework for service delivery;



(Source: Lv Fang)

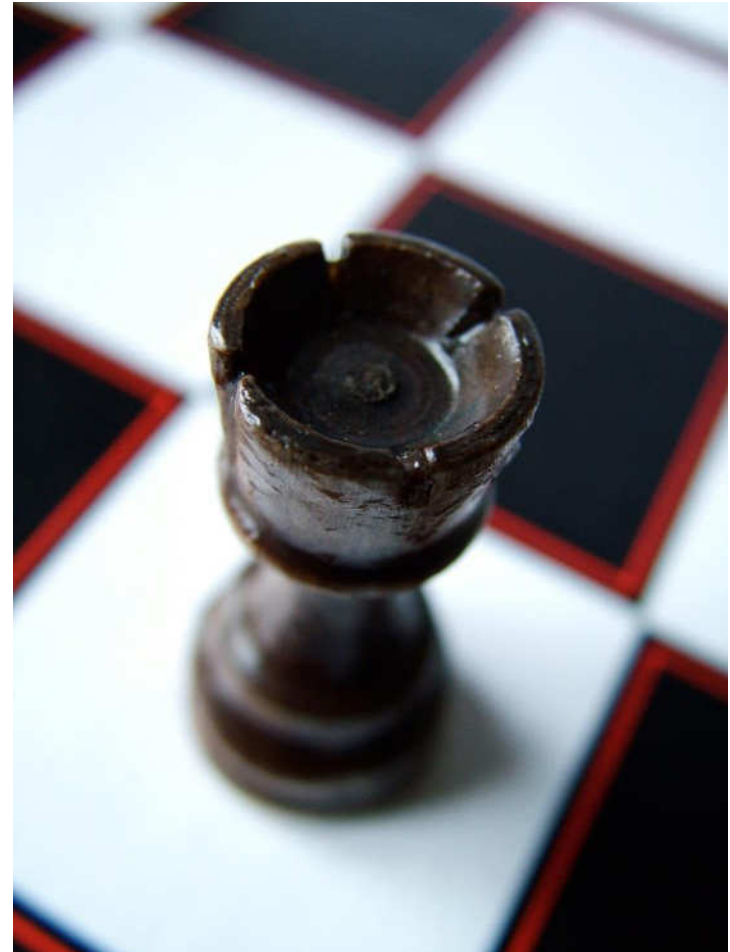
Emerging Thinking in Energy Access

- Use private sector for service delivery – PPP or 5P models;
- Tap into more sustainable finance – Local finance, TREC, RPOs, remittances, carbon finance, crowdfunding, cryptocurrency – but use donor funds to de-risk innovative finance
- Piggyback on mobile telephony – coverage, transaction costs – mMoney/eWallet;



Some Progressive Business Frameworks

- LEAP - Lesotho
 - Mini-grid concessions – reverse bidding PPPs; Technology neutral;
 - Soft loans, financing mechanism for incentives, regulatory framework;
- ASERD - Afghanistan
 - PPPs, Mini-grids, public and private service providers; Pre-paid meters, progressive purchase
 - 50+ economic activity+ schools, health centres, places of worship;
- STEPs – Kenya, Lesotho, Malawi
 - Thermal energy, service delivery, PPPs, Tech neutral



More Business Frameworks

- NuRa – South Africa
 - Solar + LPG, Energy Centres, regulatory framework.
- PAYG – East and South Africa, India Econet Solar, Angaza, Azuri, M-Kopa, Simpa;
 - Solar Lighting, daily small payments – kerosene avoidance;
- Thermal energy contracts- Sub-Saharan Africa, Inyenyeri, ACE, Vagga til Vagga;
 - Stove+Briquettes , fuel contracts – money/barter;



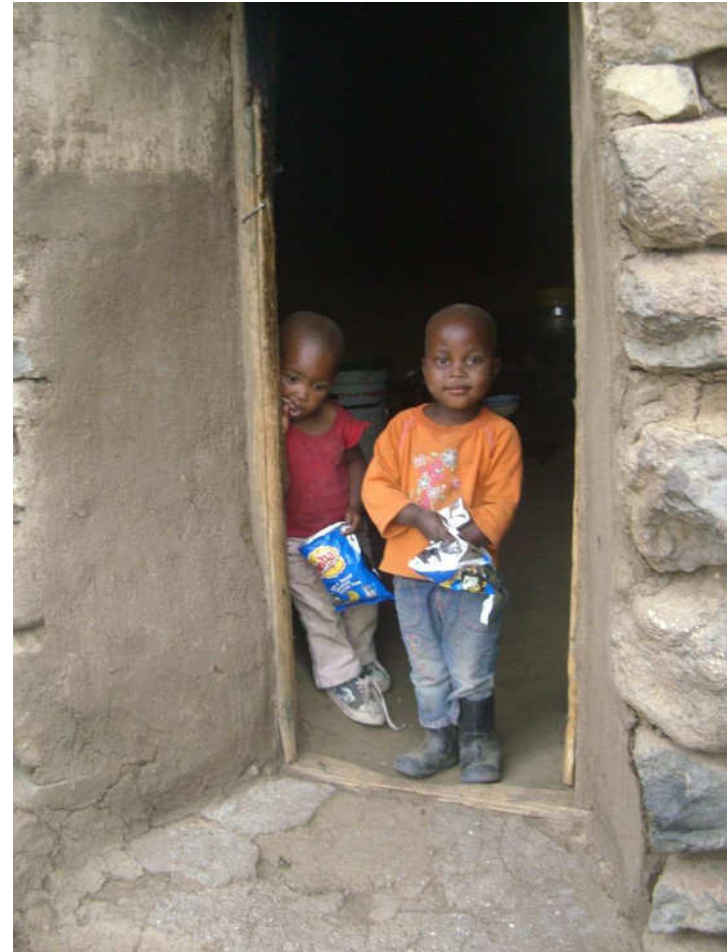
Sustainable Financing

- Beyond donors and governments;
- Carbon finance – CERs but VERS
GS – Cookstoves, solar energy
programmes – 6-10\$/tCO₂e;
- Migrant remittances –
- Crowdfunding – low cost finance,
grants, SunFunder, Mosaic,
Abundance, Solarschools.
- Cryptocurrency – SolarCoin – 1=
1MWh -20-30 \$
- Regulation – cross-subsidy; RPOs;
TRECS;



Final thoughts

- Achieving universal access by needs higher scale resources – \$ 100 m/year to \$49.5 b - \$86 b/year;
- Current efforts – public sector driven larger scale – Pvt initiatives – small scale;
- Technology neutrality, service orientation, private sector role;
- Innovative financing and business models – Partnerships, for Universal Access by 2030.



Thank You

All pictures from Sustainable Energy Associates

info@seassoc.org