



United Nations
Economic Commission for Africa

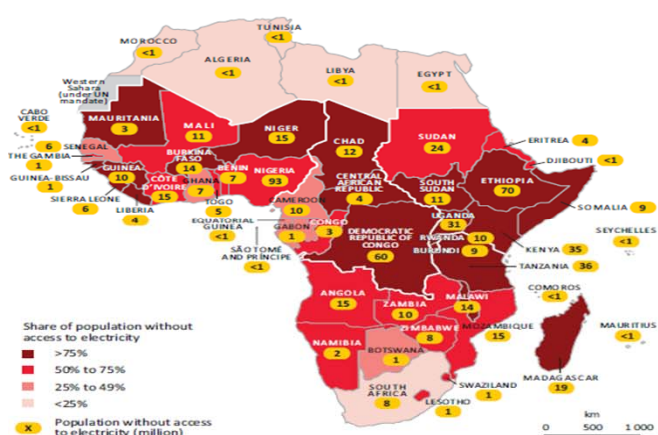
African experience in Disseminating Green Energy
Technologies for Rural Remote Areas

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Monga Mehlwana
Regional Integration & Trade Division



Common Characteristics of the African Countryside





1. Low levels of access to modern energy options & technologies



- **Av. 80% reliance on solid biomass**
 - Av. 5% electricity access levels – mostly for lighting
 - Lack of modern, efficient cooking appliances
 - Urban-biased energy policy





2. Negative benefits associated with the use of traditional energy

- **Health – highest fatality rate**



- Safety for women and girl children – cover long distances
- Lack of productivity
- Inefficient appliances – energy losses up to 80%





3. Lack of income-generating opportunities and productive work especially for the youth

- **High unemployment esp. of youth**



- Rural areas as labour reservoirs
- Lack of enablers for cottage industries
- Income generating projects not sufficiently powered





4. Energy poverty has inherent gender inequities affecting women and girl children more

- **Women & children mainly responsible for gathering wood fuel**



- Long distance of btm 2-4 hours
- Neck and back pains & respiratory diseases
- Exposure to weather elements and dangers





5. Traditional approaches of increasing access in rural areas are not sustainable

- **Energy access in the context of rural development**

- Energy an enabler of economic opportunities & not a standalone



- Focus on the end-uses or end product



- Sustainability a defining feature



6. Underdevelopment and general poverty and how energy can be a catalyst for rural development

- Economic – Unemployment, lack of adequate income, agriculture,
- Social – gender inequities, poor health, education, etc.
- Environmental – land degradation, indoor/outdoor pollution,
- Institutional – governance, cross sectoral issues





Therefore success and sustainability of energy interventions depends on addressing these:

- Are the energy options provided safe, reliable and affordable?
- Can they contribute to improve rural economy through providing income-generating and employment opportunities?
- How do options assist in bettering schooling opportunities for children?
- Does the provision of energy options improve access to health services?
- Does the provision of new energy options address gender inequities & empower and improve the status of women?

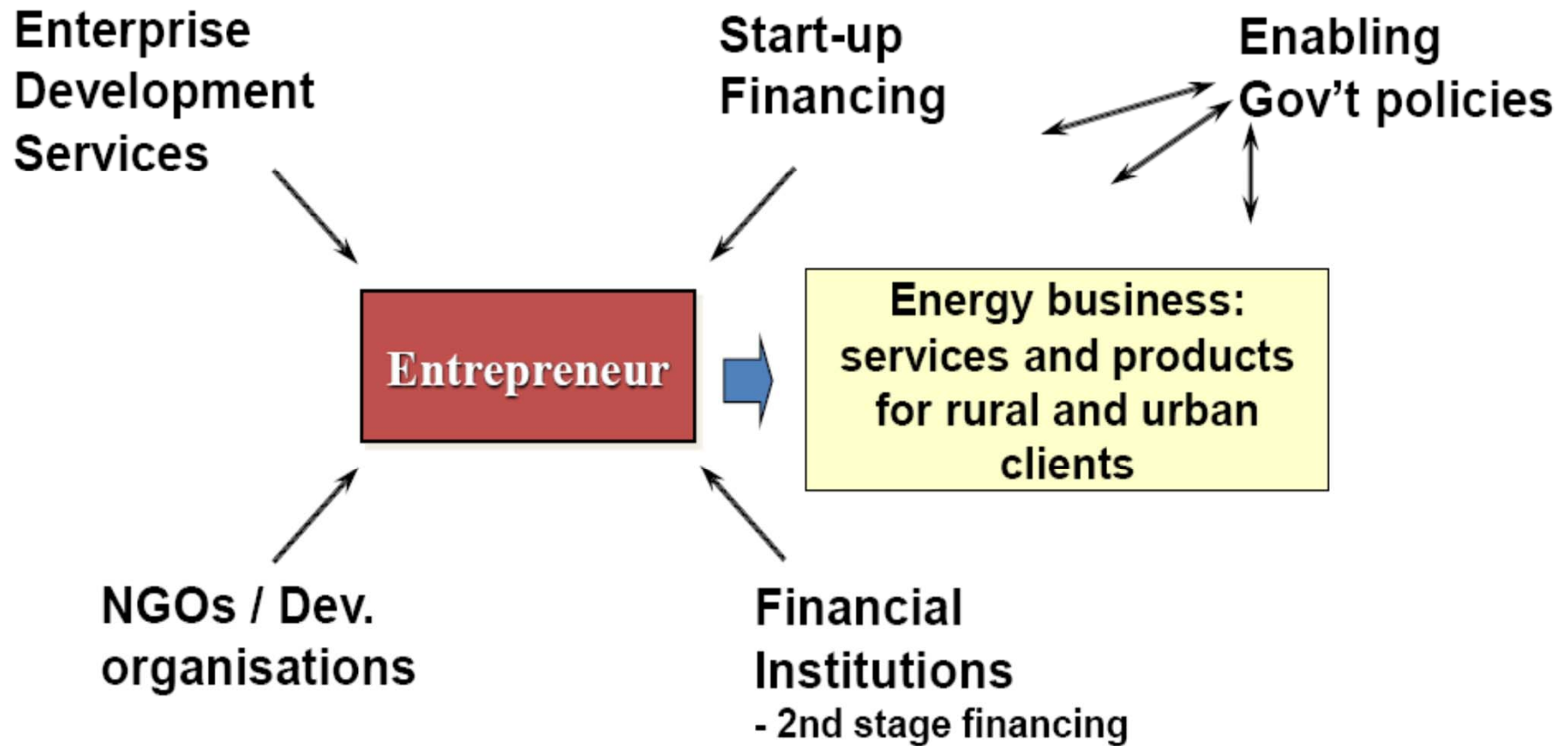


African Rural Energy Enterprise Development

**Partnership Approach to Energy
Entrepreneurship Development for
Increased access of Modern Energy**



The AREED Model





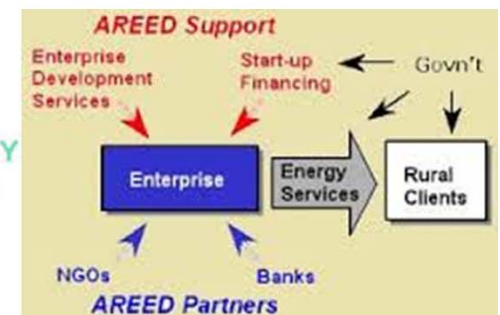
The AREED approach is mostly focused at building sustainable energy entrepreneurships:



- Focusing on critical enablers: enterprise and entrepreneur
- Combining services and capital
- Bringing together resources from multiple sources
- Targeted customized tools and activities
- Real time, working, evolving partnerships to plan, implement & improve
- Cross platform learning



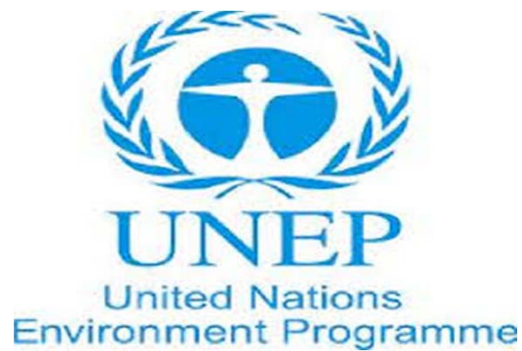
TANZANIA TRADITIONAL ENERGY DEVELOPMENT ORGANIZATION
Centre for Sustainable Modern Energy Expertise





Finance partnerships bringing together the hard and soft resources that must be blended to launch sustainable enterprises





Programme partnerships bringing together the governance specialty expertise, and local presence required





Implementation partnerships delivering services & capital to the entrepreneurs



Senegal



TANZANIA TRADITIONAL ENERGY DEVELOPMENT ORGANIZATION
Centre for Sustainable Modern Energy Expertise



Ghana





Enterprise partnerships creating and growing of sustainable business

KBPS, Zambia

- Charcoal Production from sawmill waste
- \$73,000 loan & EDS
 - a) Construction of 15 brick kiln
 - b) Marketing & distribution network
- Work started since 2003

VEV, Senegal

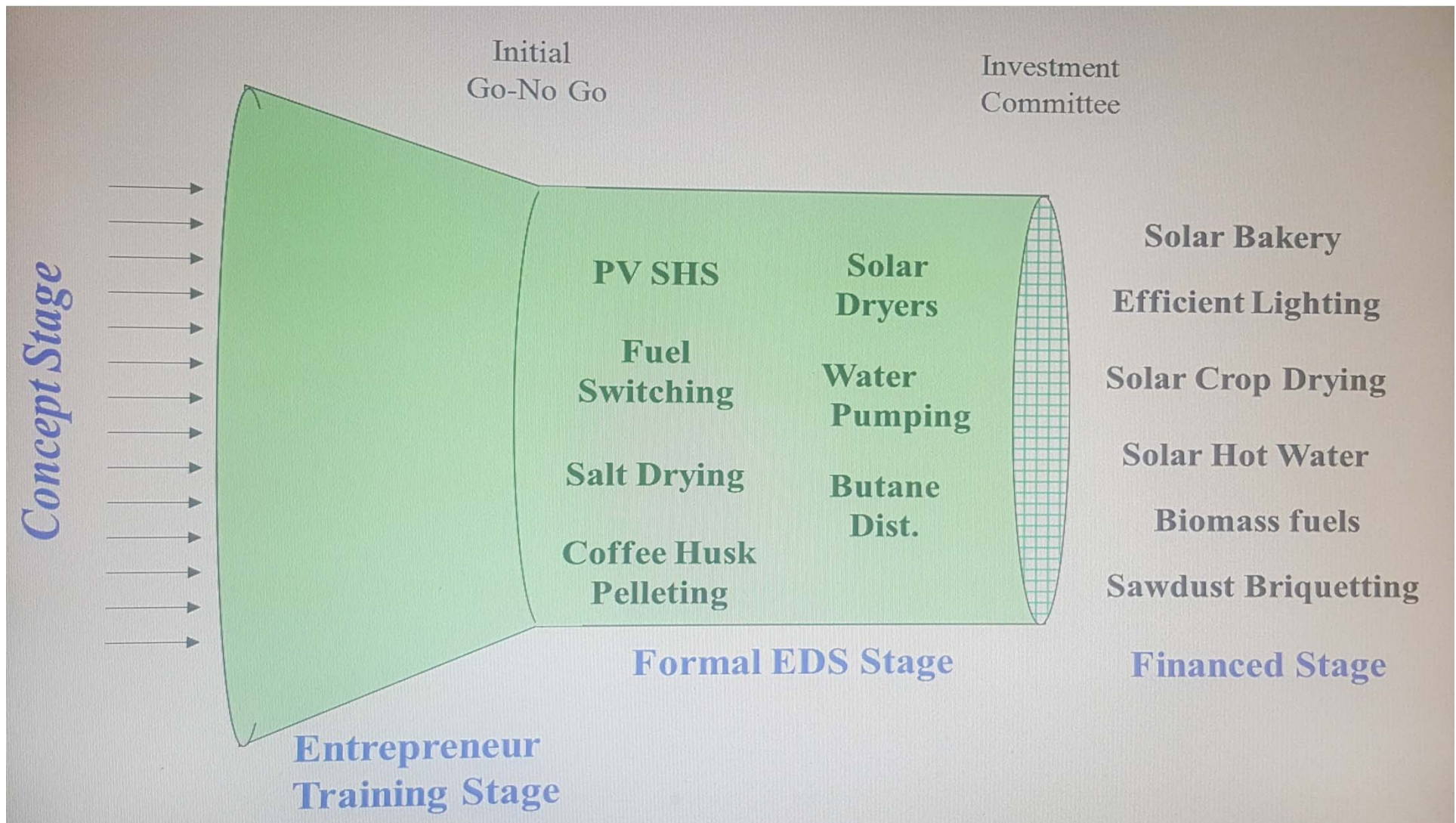
- Servicing of wind-powered water pumps
- \$17,000 loan & EDS
 - a) Expanding inventory to shorten service times
 - b) Offer short term credit to qualifying clients

Anasset, Mali

- LPG distribution
- \$38,000 loan & EDS
 - a) Purchase plant & equipment
 - b) Increase sales
- Bought new bulk LPG tank & installed car dispenser
- Increased sales
- Work started since 2003



The AREED Deal Flow





The AREED Project Process

- Country partners advertise AREED in local media
- Initial screening of applicants
- Enterprise development services (EDS)
- Review of final business plans
- Decision to invest
- Soft/flexible loans
- Enterprises support (financed) under AREED I: Zambia (7), Tanzania (6), Ghana (15), Mali (18)



South African Solar Concession Programme

**Utility model for fee-for-service for
Solar Home Systems for Remote
Area Power Supply**



Background – RAPS Systems

- PV SHSs in areas where grid extension is uneconomic
- Commercial utility model & involvement of the private sector
- Companies' rights to establish off-grid utilities in designated concession areas – agreement for 20 years
- Fee-for-service model incl. maintenance of the systems
- Govt subsidies to cover 75% of the CAPEX for 5 years
 - R3 500 subsidy for each installed system paid to service provider
 - Customer pays R110 installation fees to the utility
 - Monthly subsidy of R40 reducing the fee for maintenance to R110 per month



Solar Concession Programme

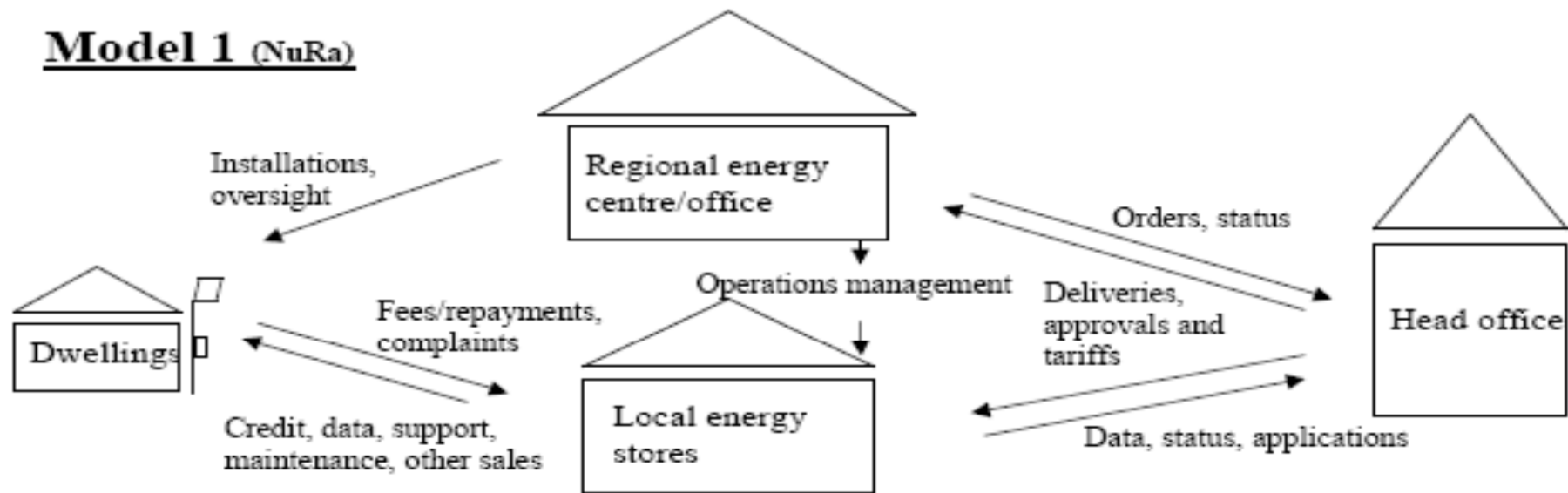
Concession	Area Covered	No of installation
Nuon-Raps (NuRA)	Northern KwaZulu-Natal	6,541
Solar Vision	Northern Limpopo	4,758
Shell-Eskom	Northern Eastern Cape, Southern KwaZulu-Natal	5,800
EDF-Total (KEES)	Central KwaZulu-Natal	3,300
Renewable Energy Africa	Central Eastern Cape	0



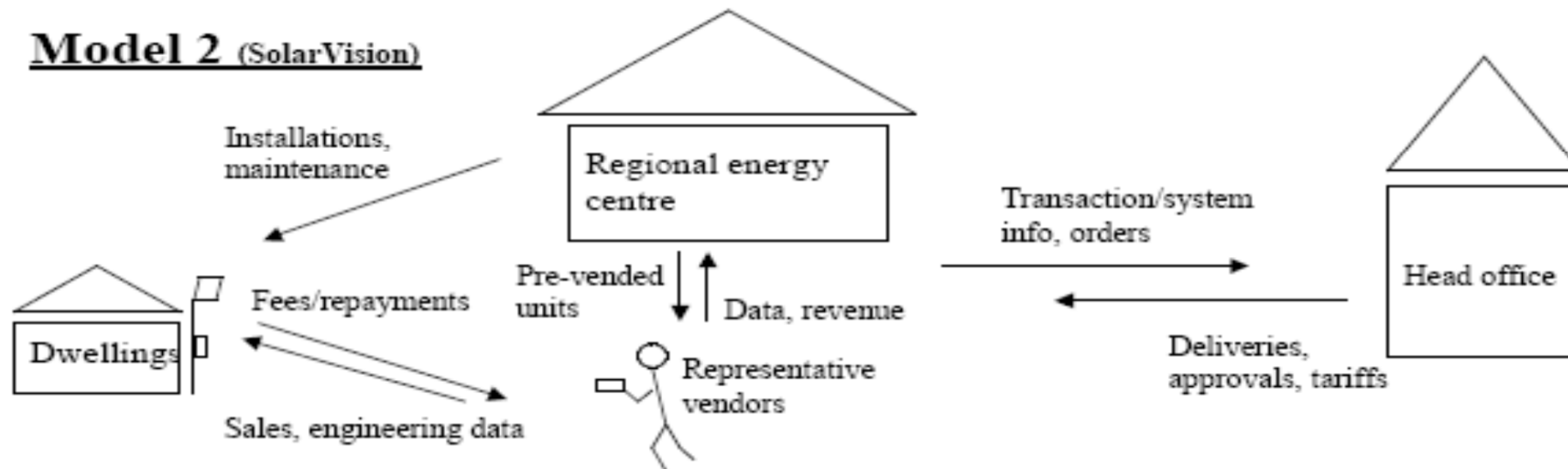


Service model

Model 1 (NuRa)



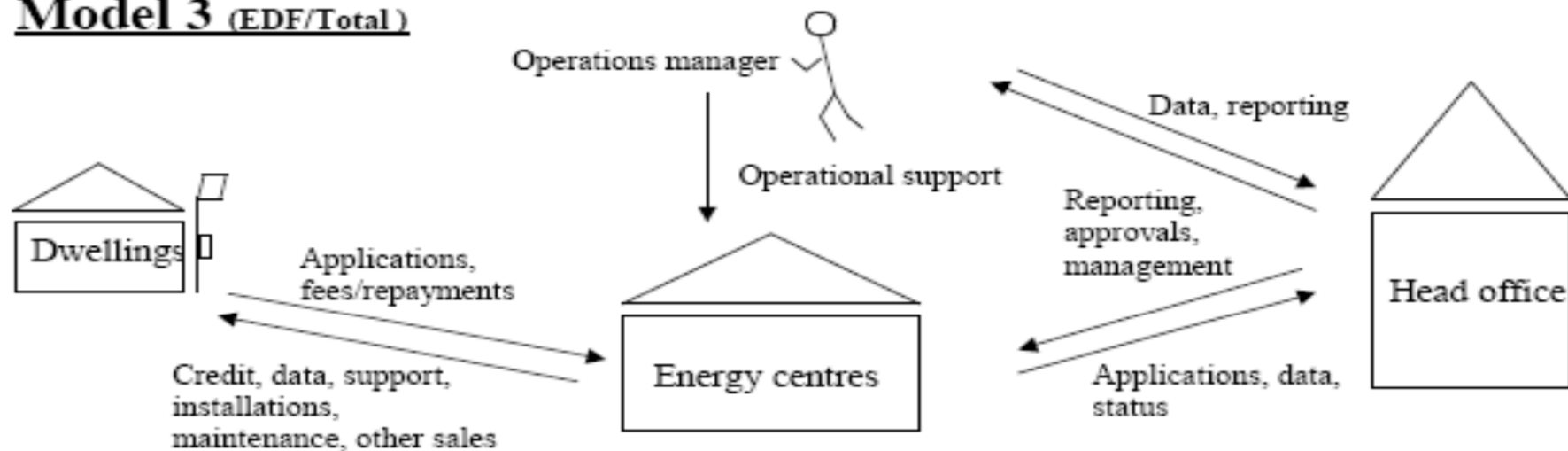
Model 2 (SolarVision)



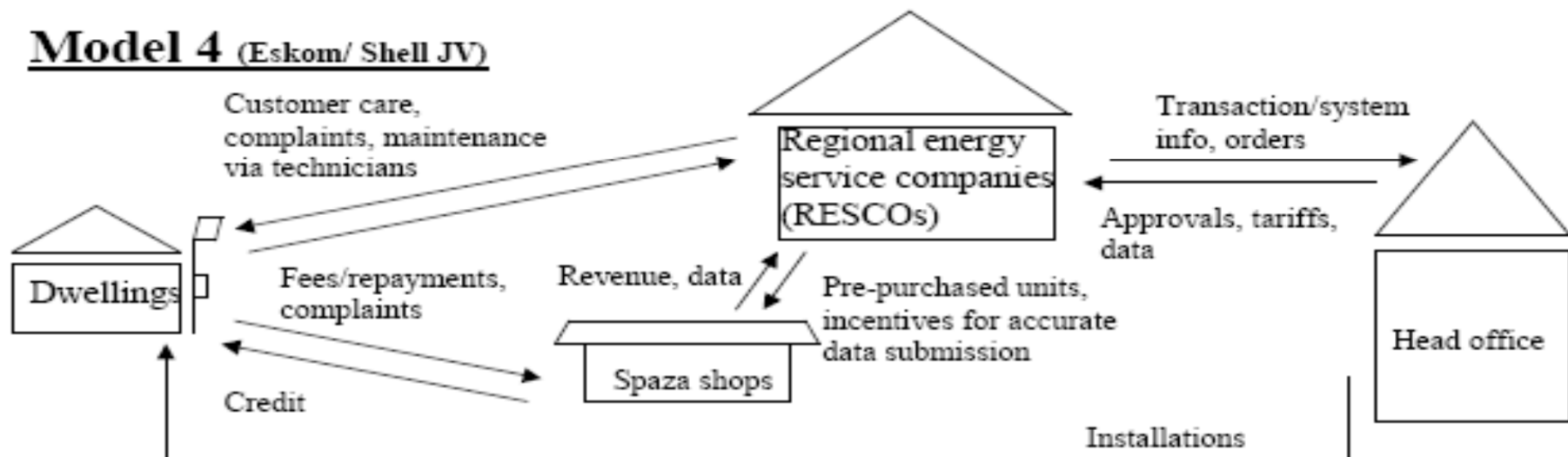


Service model

Model 3 (EDF/Total)



Model 4 (Eskom/ Shell JV)





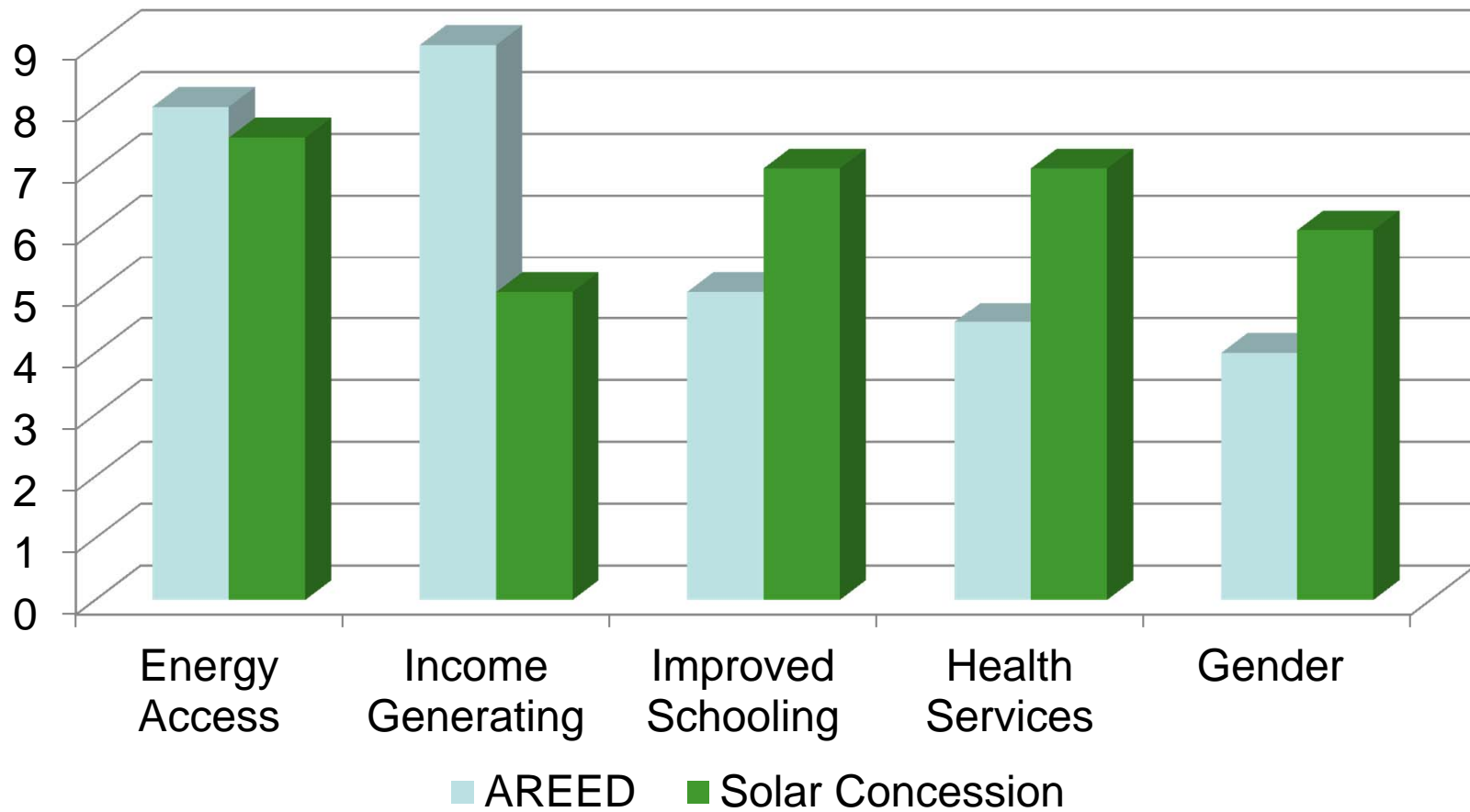
While successful in generating interests from the private sector, as well as for the establishment of N-S consortium with local participation:

- Household have control of the systems but not ownership = prone to vandalism, neglect and misuse
- Limited applications = no cooking and higher power appliances
- Expensive systems requiring large subsidies from govt for both CAPEX and OPEX
- Inaccessible roads, esp. in rainy season for maintenance
- Irregular income for many households affecting sustained payments





Analysis of the 2 models





Monga Mehlwana, Economic Officer
Industrialisation and Infrastructure Section
Regional Integration & Trade Division
UN Economic Commission for Africa
mmehlwana@uneca.org