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From Fossil Fuels to Solar – Creating an alternative economy

Initiative Afrisolar
- pathways to a profitable solar industry
in sub-Saharan Africa

Loccum
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Appreciating your financial, social and ecological assets

Situation - a snapshot of the solar industry in Africa today

Complication: Barriers to success

Resolution: Pathways to success

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RE Technologies, particularly solar, have been in use for many years in sub-Saharan Africa, but with little commercial success..

Solar energy has leant itself toward rural electrification and access programmes that have dominated the energy scene across Africa in the past 15 years:

- Lighting and TV viewing
- Water pumping
- Irrigation
- Communications
- Thermal and water heating
- Village schools and health clinics
- Street lighting
- Micro-enterprise centres

PV has dominated - focusing on small off-grid stand alone systems - stimulated by policy makers and energy planners worldwide

There are about 300,000 SHS installed in Africa - in a potential market of approximately 80 million off-grid rural families

the PV industry has penetrated about 0.5% of this market

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In 1995, Africa accounted for a nearly 20MW out of worldwide demand for PV of 75MW - about one quarter...

By 2005, world demand had risen to 1500+MW/annum with almost no related increase in Africa

PV sales have risen sharply in Europe, America,Japan and China - whereas African sales hardly register.

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African case studies demonstrate the established demand for PV for lights and water pumping and increasingly for telecomms

Nigeria: Limited to PV with approximately 350 installations in a country inhabited by 130 million people and a malfunctioning grid	
All lighting (incl villages, domestic and commercial)	15.1%
Industrial	0.4%
Rural clinics and health centres	8.7%
Telecom and radio	23.6%
Water pumping	52.2%

Iloeje, 2002

Ghana has approximately 3500 installations equivalent to 693kW - 450kW are used for telecommunications

Other countries, inspite of their rural electrification demand, have relatively little industry - Tanzania has a serious deforestation problem and a need to electrify 8200 villages to alleviate this - they are implementing a National Solar Programme under the World Solar Programme (WSP)

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And there are other key drivers in Africa, with limitations in response

Tanzania has a serious deforestation problem and a need to electrify around 8200 villages to alleviate this - they are implementing a National Solar Programme under the World Solar Programme (WSP)

South Africa attempted a large-scale subsidized introduction of PV systems as a means to accelerate its rural electrification process in more far flung areas - a failed concession system with serious consequences for the PV SHS industry

South Africa has also seen the rise and fall of a SWH industry - starting in the 70s, tapering in the 80s to almost nothing in the 90s and some improvement in this century - particularly as the world goes through another oil crunch

Zimbabwe and Kenya have had some success with PV based SHS -on the back of little policy / reg framework - and with poor quality control and consequently decreasing credibility

Ghana also responded to the energy crisis of 1997 - by 1999 24 companies involved in the design, installation and sale of PV systems had emerged - by the middle of 2000 more than half had fallen away

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A surge in demand created by an oil / energy crisis can create a temporary boom - not a phenomenon restricted to Africa

The sharp increase in oil prices in the 70s led to energy shortages in most parts of the world creating a boom in many companies offering RETs.

When power stabilised and economies recovered, the number of companies immediately fell

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If Africa has this enormous potential, why have we not seen the spectacular growth of the North? Solar and renewables have not been taken seriously at policy levels..

- Solar - largely donor driven - not integrated in overall energy planning
- Lack of ownership of renewables as a resource in energy planning
- PV systems set up in many rural areas have not been target driven
- Policy and consumer expectations do not meet

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Low output PV systems cannot always meet consumer expectations - not viewed as 'real electricity'..

South Africa Case Study:

- Large-scale subsidised PV systems in far flung areas -
- part of the billion dollar plus subsidised electrification programme
- 7 concessions tendered to large commercial players
- Subsidies exceeded the cost of the 50Wp - 'one size fits all' systems

Failed:

- Systems rejection - did not meet politically aware consumer expectations - wanted more than 12 volt power
- PV co exclusivity killed competitive incentive
- Red tape slowed the roll-out - consumer expectations
- Govt tried to use a one size fits all solution to meet announced electrification targets - unrealistic

Reaction - abrupt withdrawal of subsidies - disastrous for the PV industry in SA

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The lack of policy seriousness has run on implications - Africa has not taken on the manufacturing challenge and there is little R&D activity locally

- The recent WC energy crisis has seen a surge in diesel and LPG
- Nigeria - grid is the backup to the gensets - missed opportunity
- Poverty alleviation - aspirations
- Government controlled markets - Eskom in SA, Nampower in Nambia, role of regulators - contribute to renewables don't work philosophy - lack of public knowledge and awareness is maintaining this situation
- Lack of local R&D - corresponding skills sets not developed and poorly funded institutional research

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There is relatively little to show for the over 100m USD investment in solar energy in Africa..

- Donors include GEF, UN World Bank and others
- Programmes based on barrier removal and capacity building
- Programmes and initiatives often not cognisant of culture and traditions
- Little investment into actual installations
- Sustainability of the industry was not a key driver - a GEF programme in Zimbabwe grew the PV industry overnight - from 4 to 60 companies - almost 100% did not survive the project

Barrier removal does not automatically mean private sector investment or sustainability

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Accessible finance has been and remains the most important reason for lack of solar progress in Africa - a barrier that has not been removed

- Few incentives for companies and consumers exist - Other markets - Germany and Japanese growth has been almost entirely on the back of subsidy and government support - again lack if integration in energy policy and planning

- PV not a priority technology - rather poverty alleviation is the big theme - then competes with other issues - health (HIV), water, education etc

Germany, Japan and others have invested billions in subsidising solar markets - with half of Africa's Solar radiation

- Financial institutions are not on board - few micro credit facilities

- Foreign investment in Africa is waning

- Finance not integrated in energy planning

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Lessons learnt - and remembered - can underpin success and profit for all

- Skills base - Build ACCROSS the industry value chain = ***comprehensive capacity building***
- Build knowledge and capacity within the financial institutions - mainstream solar technologies and benefits
- Work within traditional and cultural boundaries - ***wear a local hat***
- Integrate with energy planning, local economic development initiatives, spatial development plans
- ***Promote subsidies and incentives / institutional support - BUT on the back of***
  - An exit strategy - know how these are to be phased out and communicate this
  - Stakeholder engagement - understand aspirations and needs of the market - sell something the market wants rather than a political compromise

MAINSTREAM SOLAR ENERGY

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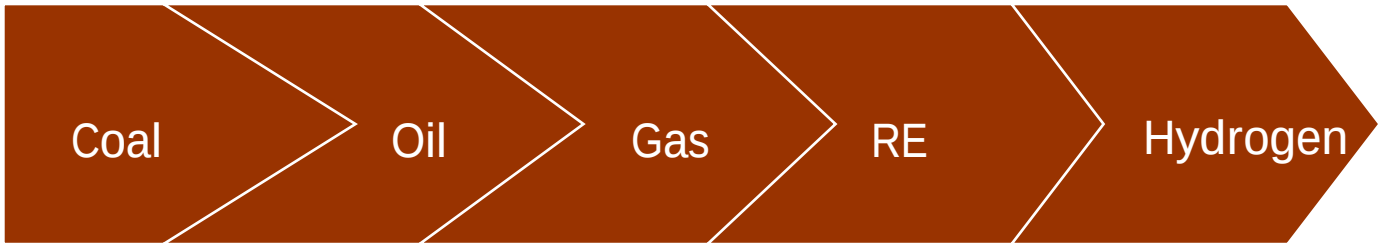
Recognition of regional differences is another critical success factor

Leave European hats at home - but recognise that Africa does not have one hat

- Regional and country needs, cultures, weather and politics - differ
- Solar and renewables at different points on the energy continuum
- African cultures are proud of their heritage, traditions and culture



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An integrated but targeted approach with a regional focus should underpin all activities

- Respond to market factors and introduce supporting policy / incentives
- Promote local R&D - build interest AND capacity AND skills base = ***excitement - ongoing***
- DO for the sake of a market driven sustainable industry - Public Awareness is a means not an end - remove the “so what” factor
- Learn from past mistakes - and successes - in other industries - why did diesel win the war in Nigeria? - a quick and dirty solution
- Ride on the back of other initiatives - ACP Sugar adaptation strategies - Kenya, Zimbabwe
- Develop & implement in time with awareness creation - this happens quicker than you think
- Maintain balance between need for cheap solutions and sustainability

FOCUS ON OUTCOME - MULTIPLIER OF INSTALLATIONS

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Climate change and other focuses can go along way toward achieving a mainstreaming of renewables..

- Climate change and RE go hand in hand - Climate Change and sustainable development are intertwined
- Climate Change has credibility and urgency
- Climate Change can provide an opportunity to mainstream renewable energy

Drive productive use - good solution to mainstreaming

Women are a powerful group in Africa -

- reliable ito micro credit and financing
- Community stability and influence
- Income dependency ratios are high
- Educational role

Mainstreaming Solar means moving beyond the poverty alleviation paradigm
-Why should only the poor carry the burden of CC when the rich have created it?

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Investing in a changing economy…

Think Big

Start Small

Scale Fast

Develop a BIG strategy, build that mindset, start with small ‘quick wins’ and then scale up

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