Solar Power for Affordable Housing in Africa

26th-27th June, 2019  Radisson Blu, Nairobi, Kenya

BAKO AMBIANDA
Founder & CEO,
Labacorp Power Company
Committed to Providing Access to Sustainable Power, and Affordable Housing!
THE CHALLENGE OF DEVELOPING AFFORDABLE HOUSING

1. Demographic And Market Shifts
2. Development Costs
3. Policy And Funding
4. Land Supply
5. Financing Costs for Buyers and Developers
If current trends in urbanization and income growth persist, by 2025 the number of urban households that live in sub-standard housing will be stretched by housing costs that they forego other essentials, such as healthcare.

This could mean that the global affordable housing gap would affect one in three urban dwellers, about 1.6 billion people.
SOLAR IS THE FUTURE!
SOLAR ADVANTAGE
Solar is a smart energy decision for homes:

**Dependable** - You can depend on solar for a complete satisfaction of access to electricity

**Considerate** - Available means to harness solar power as this is an environment-friendly way

**Affordable** - Products at an affordable cost, and faster to deploy

**Savings** – Save money on your electricity bills as you will be using solar power your systems.
THE CHALLENGE FOR SOLAR ENERGY

1. Lower-income households.
2. Lack of energy infrastructure
3. Access to finance/affordability
4. Awareness and education
5. Access to technical support services.
Energy is the bedrock of inclusive economic growth in Africa.

Two out of three people in sub-Saharan Africa live without access to electricity.

Decent, affordable housing is fundamental to the health and well-being of people and to the smooth functioning of economies.
The declining cost of solar energy is creating opportunities for all Africans to save money on their energy bills.

Solar penetration in Africa will mimic cellphones because there is an opportunity to skip the centralized grid (like landlines) and make up for the capacity/availability issues that are cost prohibitive for the governments to solve immediately.
LABACORP POWER COMPANY – What do we do!

Bringing Solar Energy to Low-Income Consumers:

We are committed to helping Africans access a wide choice of quality, affordable solar-powered homes, while making vibrant, healthy communities and cities a reality.

How we can do this?
Working with property developers to integrate solar-powered products for a more cleaner electricity source, energy efficiency, energy savings, and for urban properties to be more sustainable.

Offering our solar energy solutions to solve the disruption of energy supply due to frequent power cuts, improve productivity and give businesses reliable power necessary to scale up.

Delivering reliable, clean and affordable solar energy solutions to serve the energy needs of urban areas in Africa. Our experience in deploying innovative solar products and solutions in the urban areas is unrivalled.

There is a significant need for reliable energy in urban areas!
EXPERIENCE!

Labacorp perspective and experience working with developers of sustainable affordable housing in the United States.

Labacorp Solar Program – Integrating solar power solutions and solar-powered products

Development Funding - Attracting capital to integrate energy efficiency products

Affordable Housing Initiative - Facilitate the creation of affordable housing initiatives

Assistance Programs - Programs that reduce displacement and exclusion
SIERRA BONITA APARTMENTS, WEST HOLLYWOOD.
Tighe Architecture & West Hollywood Community Housing Corporation

- 42-unit low-income affordable housing project for those with special needs
- Pilot project for WeHo’s Green Building Ordinance
- Façade and roof integrated solar electric panel system

LOS VECINOS, CHULA VISTA, SAN DIEGO
Wakeland Housing & Development Corporation

- First LEED Platinum
- 100% solar-powered
- Low-income housing
- Natural ventilation
- Tank-less solar water heaters
- Energy Star appliances
- Low-flow water fixtures.
- “recycled” property
DEVINE LEGACY ON CENTRAL, PHOENIX
Perlman Design Group and Pyatok Architects
non-profit service provider Native American Connections

- 65-unit **mixed-income affordable** housing
- Natural cross-ventilation, vertical stack ventilation,
- Sunscreens
- Energy savings, water usage savings
- Sustainable materials – solar powered products
- LEED Platinum in progress

RICHARDSON APARTMENTS,
MARKET + OCTAVIA, SAN FRANCISCO
David Baker + Partners, Community Housing Partnerships

- **Low-income** housing for formerly homeless.
- Build It Green GreenPoint Rated
- Green Communities
- **Solar power**
- Energy efficiency
**STEP UP ON 5TH, SANTA MONICA**  
Brooks + Scarpa

- **Mixed-use**, 46-unit, **affordable** housing project for homeless & mentally disabled - support services
- Super insulated & double-glazing for energy efficiency
- **Solar heating/cooling**
- Natural ventilation,
- Maximized day lighting,
- Material conservation and recycling
- Water-saving plumbing fixtures
- Energy efficient lighting fixtures
- LEED Gold Certified

**TAHITI HOUSING COMPLEX, WESTSIDE, LOS ANGELES**  
Daly Genik

- **High-density, low-rise workforce** units
- Architectural ingenuity.
- Natural ventilation,
- Daylighting
- **Solar power**
- Maximize green open space.
- LEED
• Former soap factory
• 42 low-energy & passive dwellings
• Various sizes & types
• Retained historic elements - brick chimney ventilates underground garage.
• Bioclimatic glass loggias - extends private space & is thermal barrier, reducing energy use
• Co-generation heat for entire site
• Solar water heaters
• Rainwater harvested for toilets, maintenance, & gardening,
• Insulation = hemp fibres, expanded cork, & other natural materials.
• Collective outdoor gardens, walks, & play-scapes,
• Low-rise massing fills gap at street wall
VIA VERDE, SOUTH BRONX, NEW YORK CITY
Grimshaw & Dattner Architects

• 222-unit **affordable** housing
• Green roofs:
  - building insulation,
  - storm water run-off,
  - gardens
• Regular windows offset by
  - coloured panels,
  - private balconies,
  - Sunshades
  - **diffuse direct solar radiation**.
• Exterior common space
  - fitness quad,
  - orchard, urban farm
• Solar PV powered
• Solar benches
• LEED Gold
• Low-rise, High-density
• 33-units
• Residents close to ground
• 4 buildings at 3 stories
• Frame interior courtyard
• Meet street wall at all sides
• Larger ground area but less vertical space.
• Green roof insulates & slows runoff
• Underground cistern collects rainwater for irrigation
AFFORDABLE HOUSING IDEAS!

Ideas for Affordable Housing
Affordable Mobile Homes

- Affordable alternative, as house (trailer) & rented land separate.
- A lot more density than single family housing
- Properly designed & managed, trailer & tiny house communities could dramatically increase density & reduce cost of housing.

Take your house with you when you move!
Affordable Container Homes

- Shipping Container
- Eco-friendly home
- Low-debt home
- Rooftop solar panels
- Rainwater harvesting system
- Interlocking cladding panels
- Little time to set up
Affordable 3D Printing Homes

- Light-filled house
- Quickly and cheaply production
- Withstand rural weather conditions
- Withstand extreme weather conditions
- Amazing Off-Grid family home
- Contour crafting
- Average-sized home
Co-Housing

- Affordable living & working
- Multi-story, multi-family buildings, not detached or semi-detached housing.
- No requirement for community space or common facilities, though many incorporate participatory planning process.
- Community solar
- Funded without developers (self-financed),
- More urban constructs

Passive house construction, solar power, car-free in the inside (garages on the outside).
Co-op Housing Model

• Mixed-occupancy - mixing incomes into one building so you get social housing without creating ghettos
• Housing co-op for hospitality workers - economical to build & maintain
• Incorporates social spaces dedicated to food & its production.
• Small-scale, full-cycle ecosystem described ("urban permaculture")
• Resident-owned & operated restaurant & training kitchen on ground floor supplied with produce grown on 6th floor terrace.
• Garden is irrigated by storm water from the roofs.
• Organic waste from kitchens provide compost for garden.
Affordability, Affordability, AFFORDABILITY !!!

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