

EMPOWERING THE DEVELOPING WORLD



Sustainable Development Goals for World Development Conference
United Nations (New York), August 26, 2016

ENERGY POVERTY

- At a time when the developed world consumes so much energy, it requires government/utility incentives to reduce its demand...
- 1.3 billion people lack access to electricity
 - Almost half from sub-Saharan Africa, half from Asia
 - Balance from Mid East and Latin America
- “Energy for Life” is more than a tag line



IMAGINE... "EMPOWERED VILLAGES"

Power produced/used at the "village level"

- Profound positive impacts on
 - Clean water supply
 - Food supply and preparation
 - Medical/health
 - Education
 - Communication
 - Commerce
 - Socio political
- Advances UN Sustainable Development Goals:
 - 100% renewably powered
 - Resilient



Aris/Airsynergy Mission Alignment with SDG's



———— Direct impact - - - - Indirect impact

ADVANCED HYBRID WIND/SOLAR TECHNOLOGY

A VIABLE SOLUTION FOR VILLAGE POWER

RPU

Remote Power Unit

- Off-Grid 80w LED Lighting, and
- Off-Grid remote power for light duty applications
 - Cell phone, wifi
 - Camera
 - Other
- Eliminates wiring and trenching costs in areas near by the grid



TES

Total Energy Solution

- Grid-tied or Off-Grid
- Power sufficient for ~2x average American home (@5 m/s site)
- Efficient and economical:
 - \$0.10- \$0.12/kw-hr (5 m/s, + batteries)
- Reduces typical 5 m/s wind requirement to 4 m/s
- Available with integrated water purification/pumping module

RPU INSTALLATIONS

- ~12 Aris RPUs in US and Caribbean
- ~10 Airsynergy RPUs in Europe
- Growing adoption in market place
- Internet controlled and optional cell phone charging now
- “Microgrid – rural electrification connection”

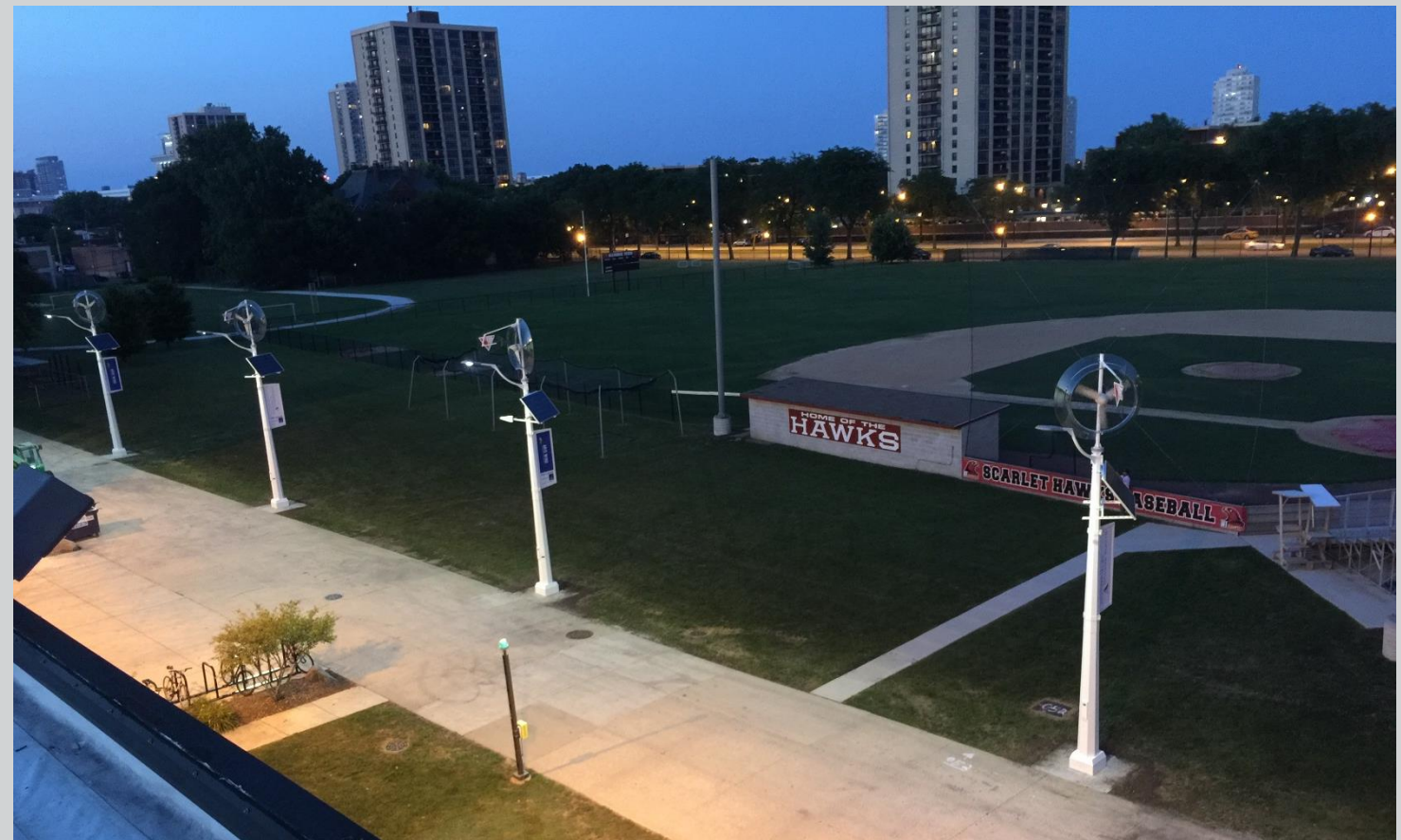


Microgrid + Rural Electrification Connection

“Aris Wind’s ‘Remote Power Units’ operating on the IIT campus today, as well as plans to deploy their larger advanced wind products support our vision of advanced microgrids as a means to rural electrification in the developing world.”

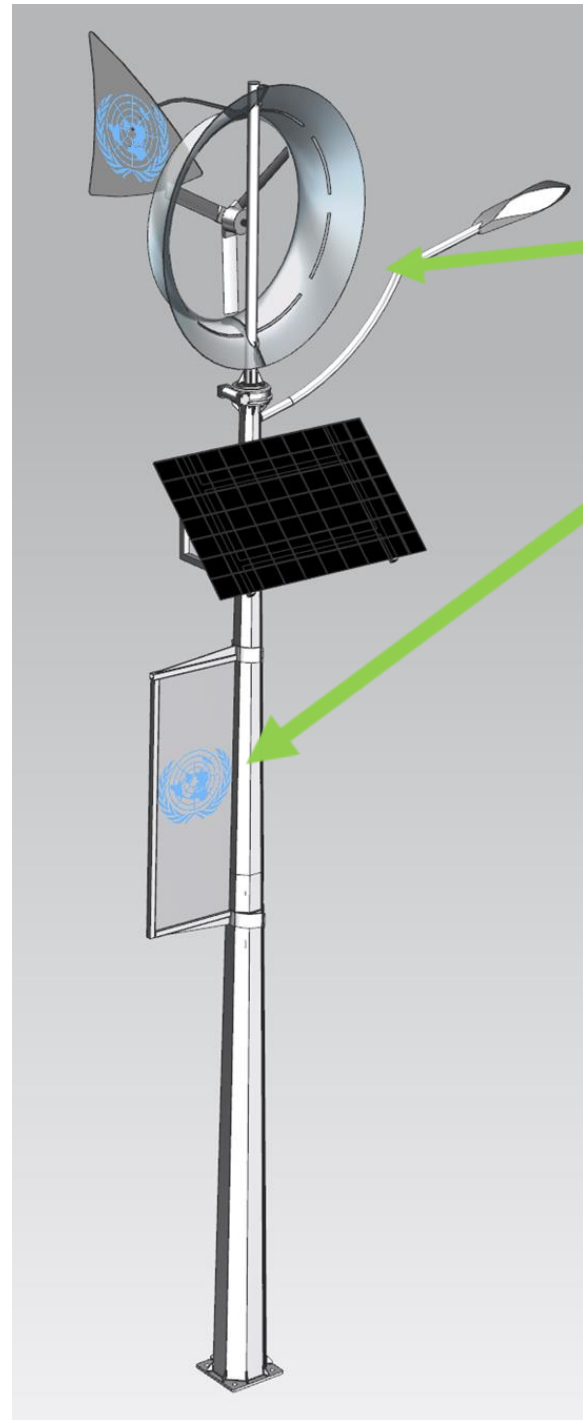


- Dr. Mohammad Shahidepour, Director of the Robert W. Galvin Center for Electricity Innovation at the Illinois Institute of Technology



RPUs, internet connected and with cell phone charging, at the IIT/Chicago campus, one of the most advanced islanded microgrids in the US.

PROPOSED “LOANER” RPU’S FOR UN NYC CAMPUS



Shrouded wind turbine, solar panel, LED light

Banner, with replaceable message/image for different events



RPU's along riverwalk and potentially 1st Ave

TES/Total Energy Solution

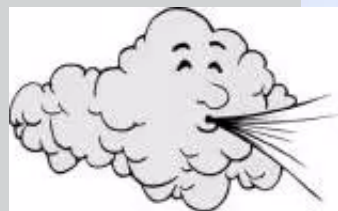
- Broadly applicable, cost effective small wind for the small user needs
- Hybrid wind/solar system has synergistic effects with energy storage function
- Airsynergy operating 5 units in Europe
- Aris implementing grid tied TES in US/Caribbean later this year at multiple sites
- Early adopters in action, growing market interest and traction



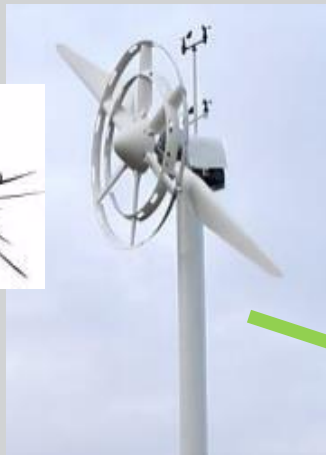
TES/Total Energy Solution - APPLICATIONS

The Energy POD

4kW output



The wind blows

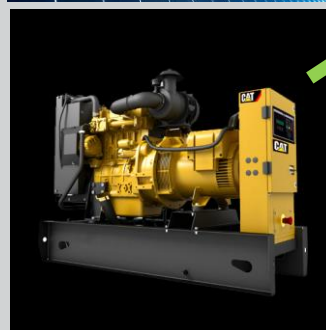


1.5kW output

The Sun
Shines



Generators
Produce
Power



Multiple Battery Size and Capacity
for Storage Option



Off-Grid



Security



Water Pumping
Water Harvesting
Water Filtration



Car
Charging
Points

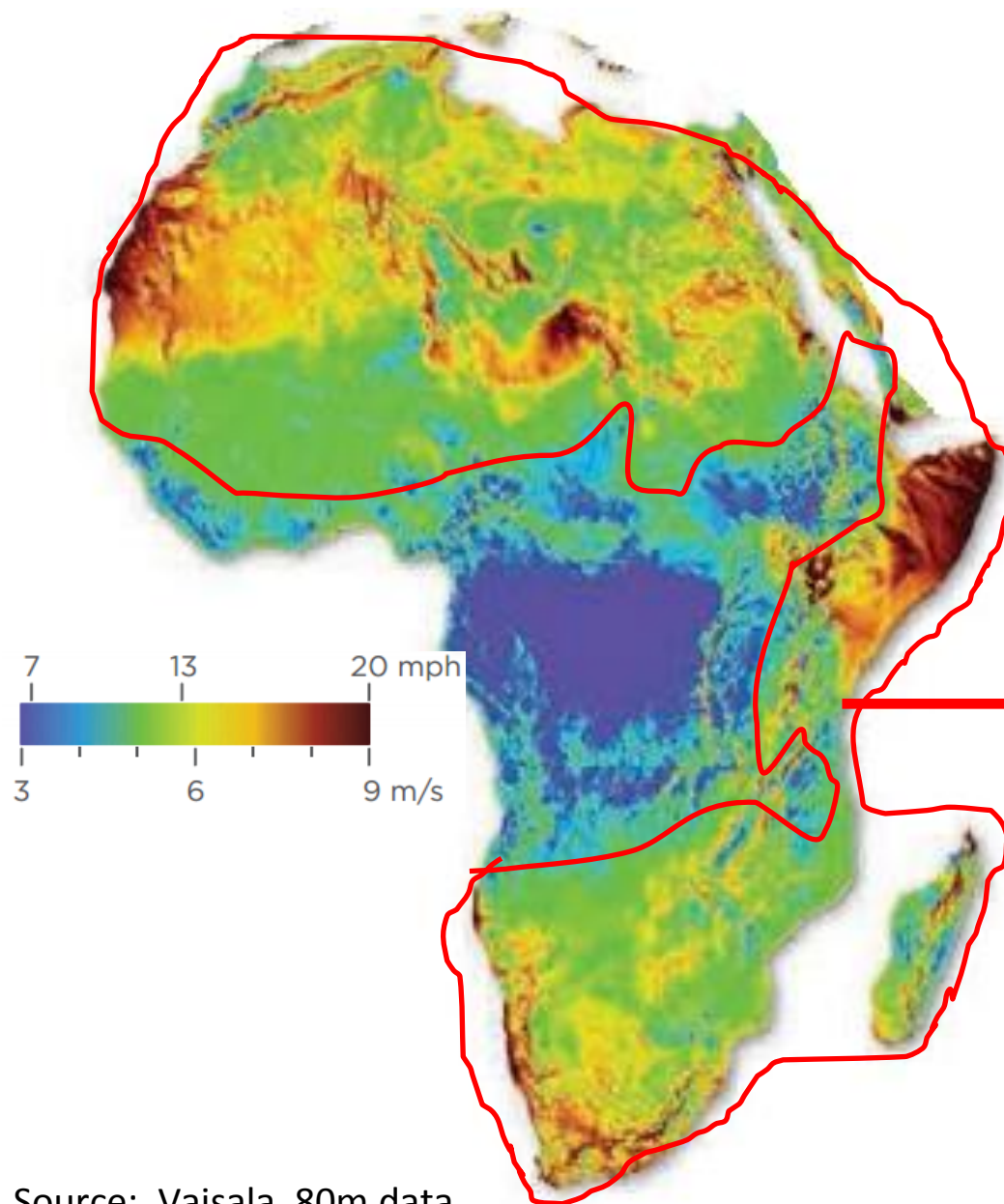


Grid Connected
FIT Payments



Lighting
Projects

TES TECHNOLOGY EXPANDS APPLICABILITY TO LOWER WIND REGIONS – AFRICA EXAMPLE

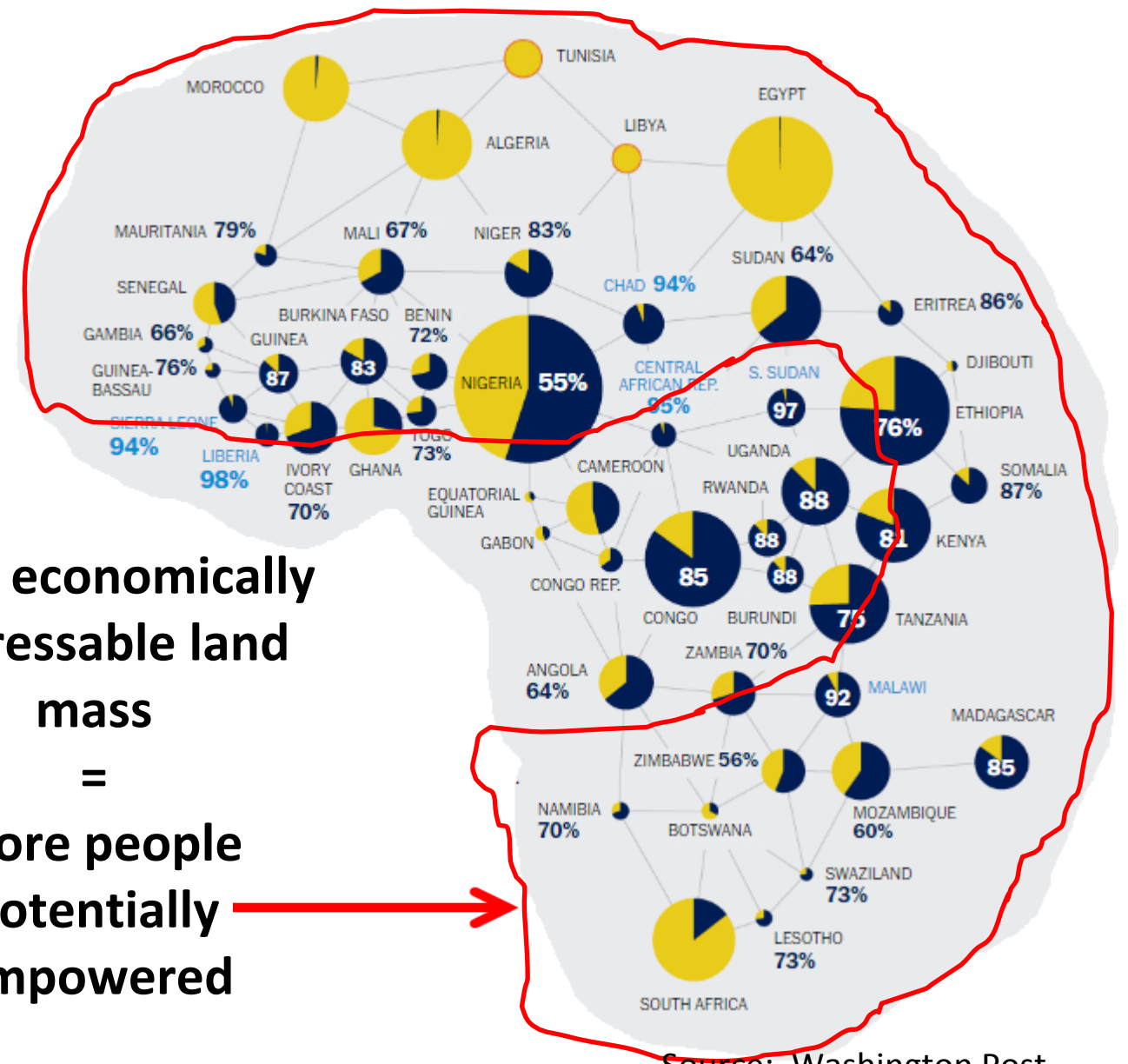


Source: Vaisala, 80m data

**More economically
addressable land
mass**

=

**More people
potentially
empowered**



Source: Washington Post

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