



PyroGenesis

All things work together for good

Bioenergy

Biofuels

Bio-Fertilizer

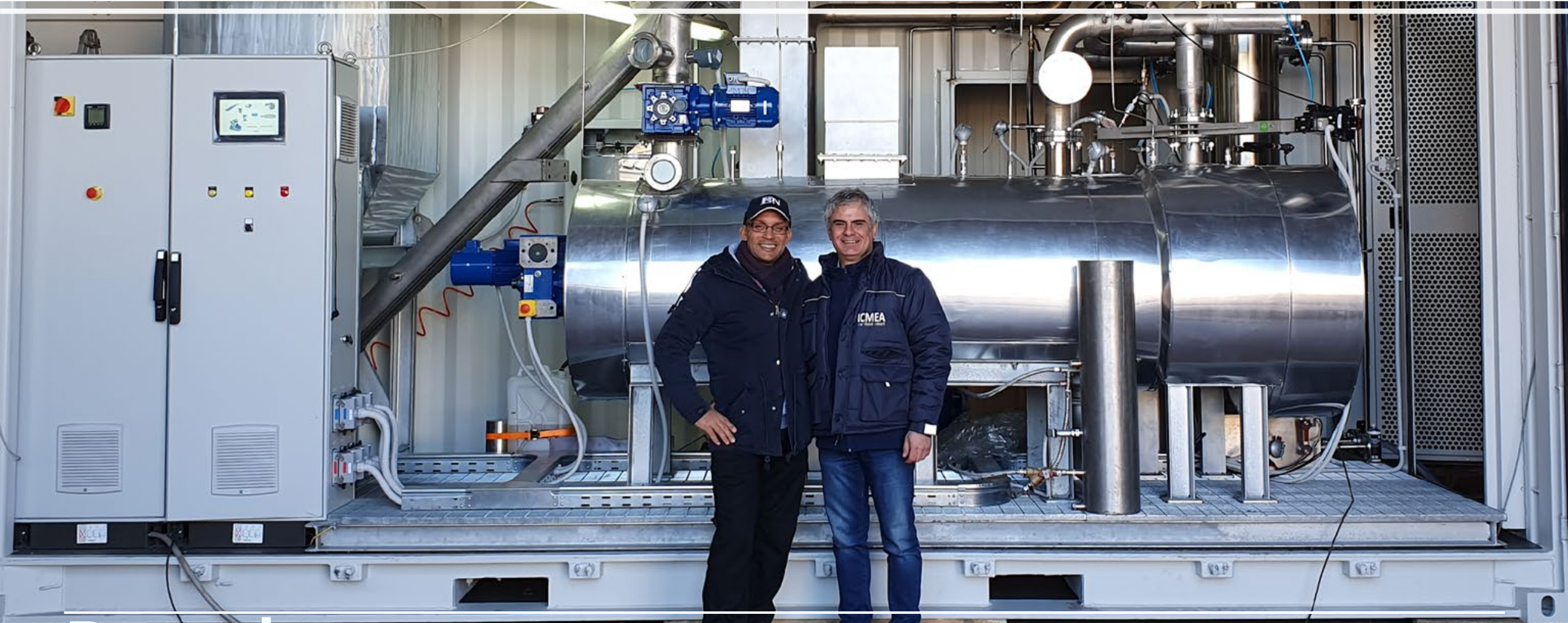
Renewable Cooling

Carbon Removal

Energy Catalyst Competition Information Event – Abuja

16th March 2023

ENERGY ACCESS TECHNOLOGY



Pyrochemistry

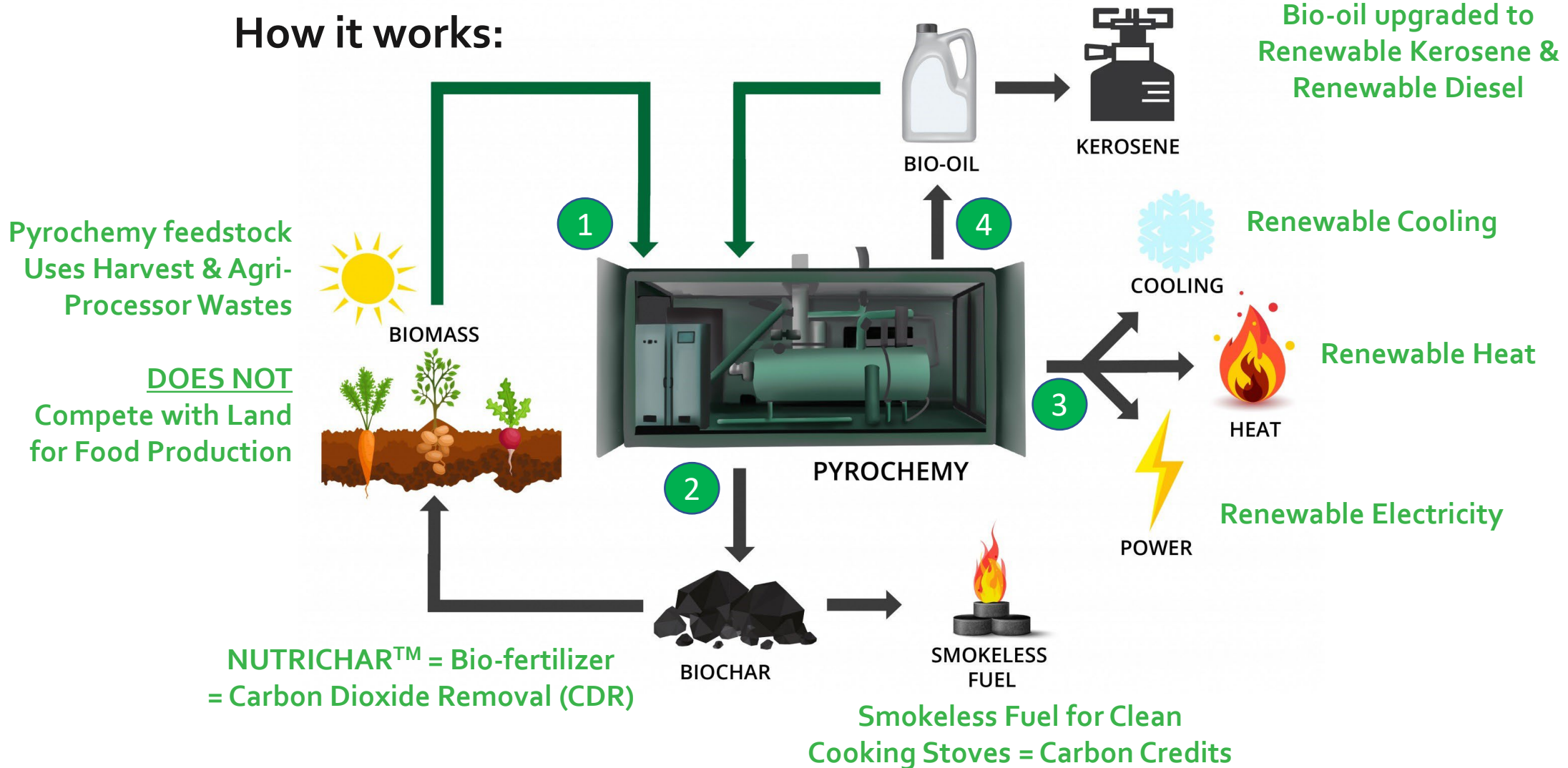
Pyrolysis: An advanced thermochemical conversion technology

Alchemy: A process that converts base materials to high value commodities



Pyrochemistry = CDR + Bioenergy + Biofuel + Bio-Fertilizer

How it works:



Agri-waste to Bio-oil to Kerosene & Diesel

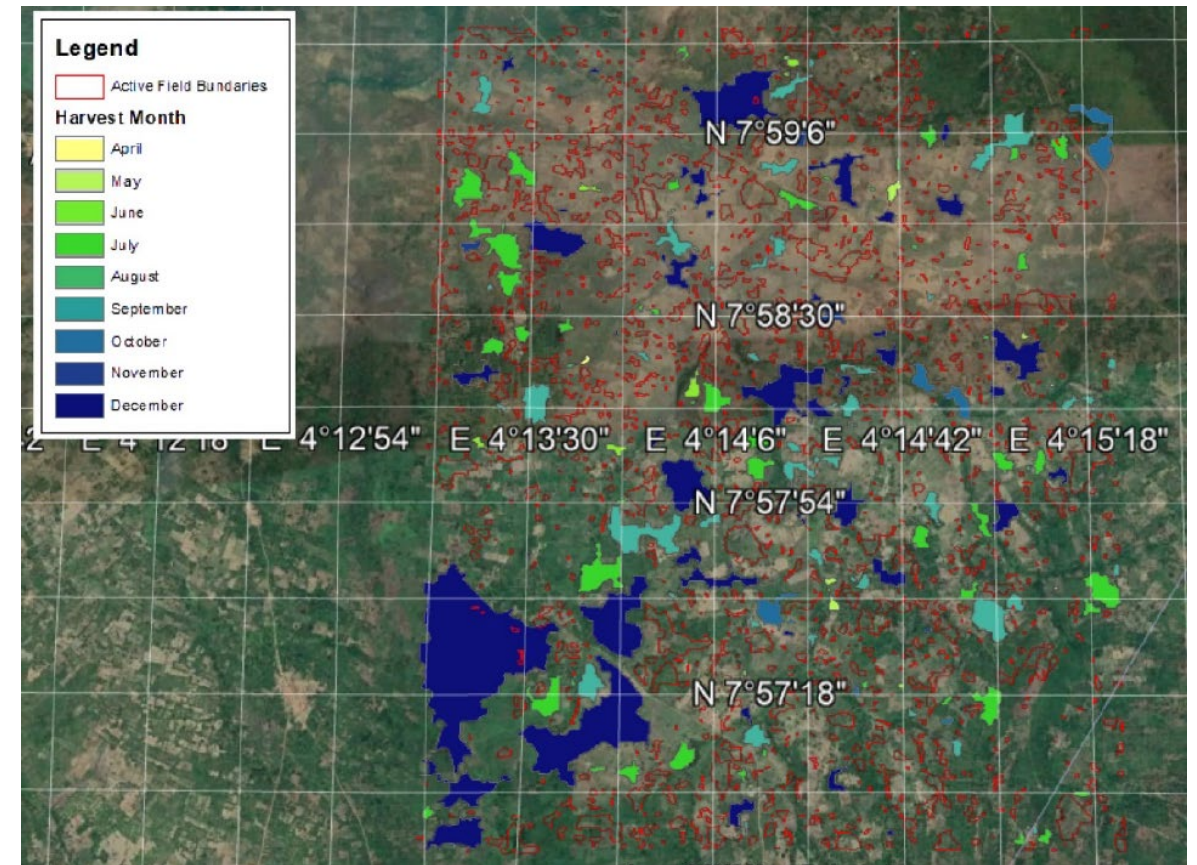


1. **Pyrochemistry converts agricultural waste to Pyrolysis vapours**
2. **Pyrolysis vapours condense to form Bio-oil**
3. **Bio-oil is upgraded to**
 - **Renewable Kerosene &**
 - **Renewable Diesel**



Geospatial Mapping of Population, Energy Demand & Biomass Availability

- Estimation of population & energy demand
- Land area under cultivation
- Harvest date detection
- Estimation of biomass availability
- Proximity of feedstock to process site
- Evaluation of transportation routes



Harvest dates in a 25 km² rural area 50 km north of Ibadan, Nigeria
Geospatial crop mapping tool developed for PyroGenesys by University of Leicester
using satellite image data

NIGERIA: THE WORLD'S LARGEST MINIGRID MARKET

(AfDB, April 2022)

Each green dot on the map represents an off-grid community

About **51%** of Nigeria's population live in rural areas far away from the National Grid.

There are over 80 million people in Nigeria's rural areas without access to power.

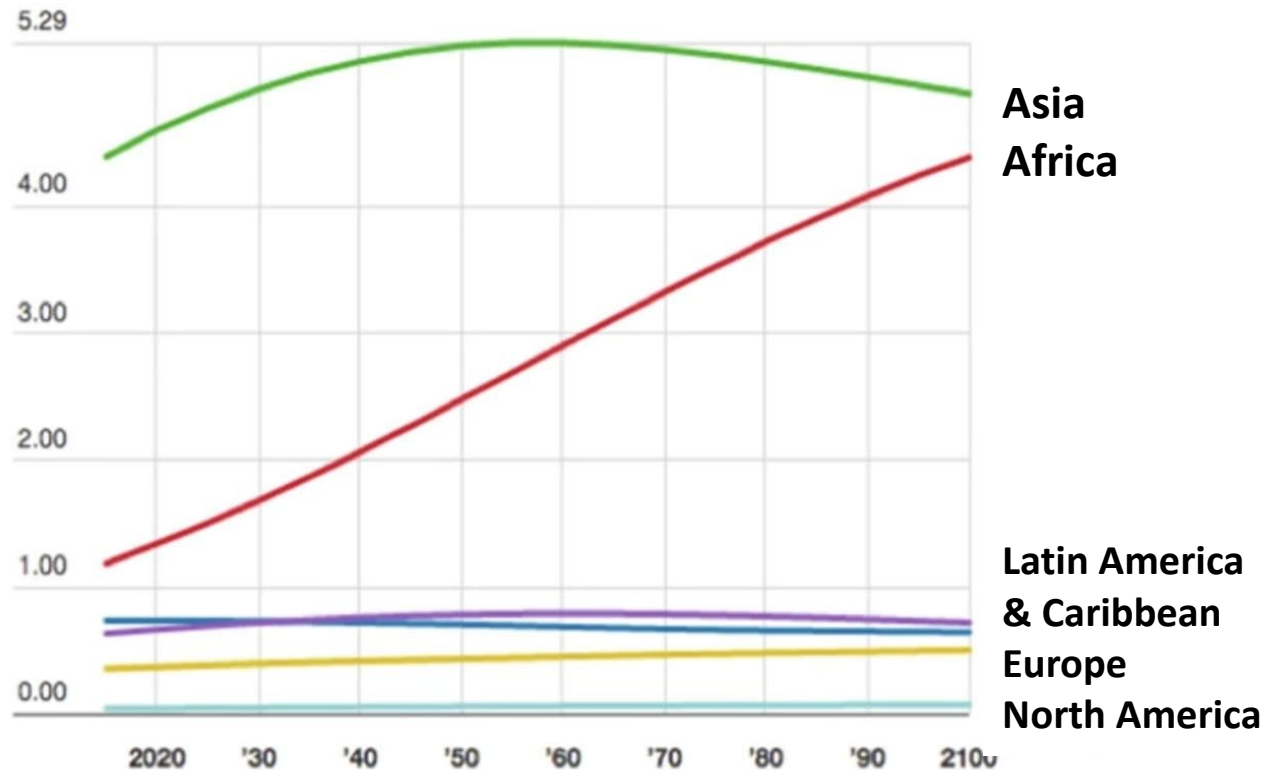
TAM: Off-grid power in Nigeria represents a **\$9.2B/year** market opportunity.



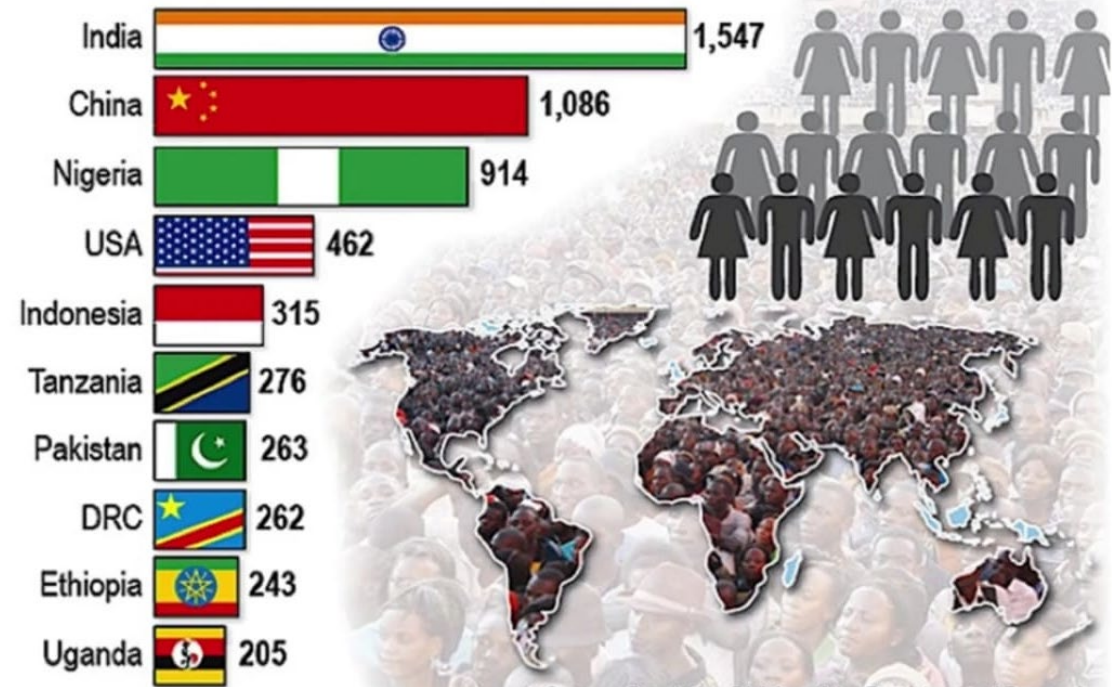
Source: REA Energy Access Survey of
~8,000 off-grid Nigerian communities

MASSIVE POPULATION GROWTH!

UN Regional Population Projections (Billions, 2015 - 2100)



World's most populated countries in 2100



Source: Population Division of the Department of Economic and Social Affairs, United Nations Secretariat (2013)

Innovation & Technology

- Knowledge economies make money by selling solutions
- They focus their Research & Development Investment on solving challenges with big market opportunities
- Feeding & powering Africa's fast-growing population is a massive market opportunity!
- **Illustration:** Index = 100 problems/year

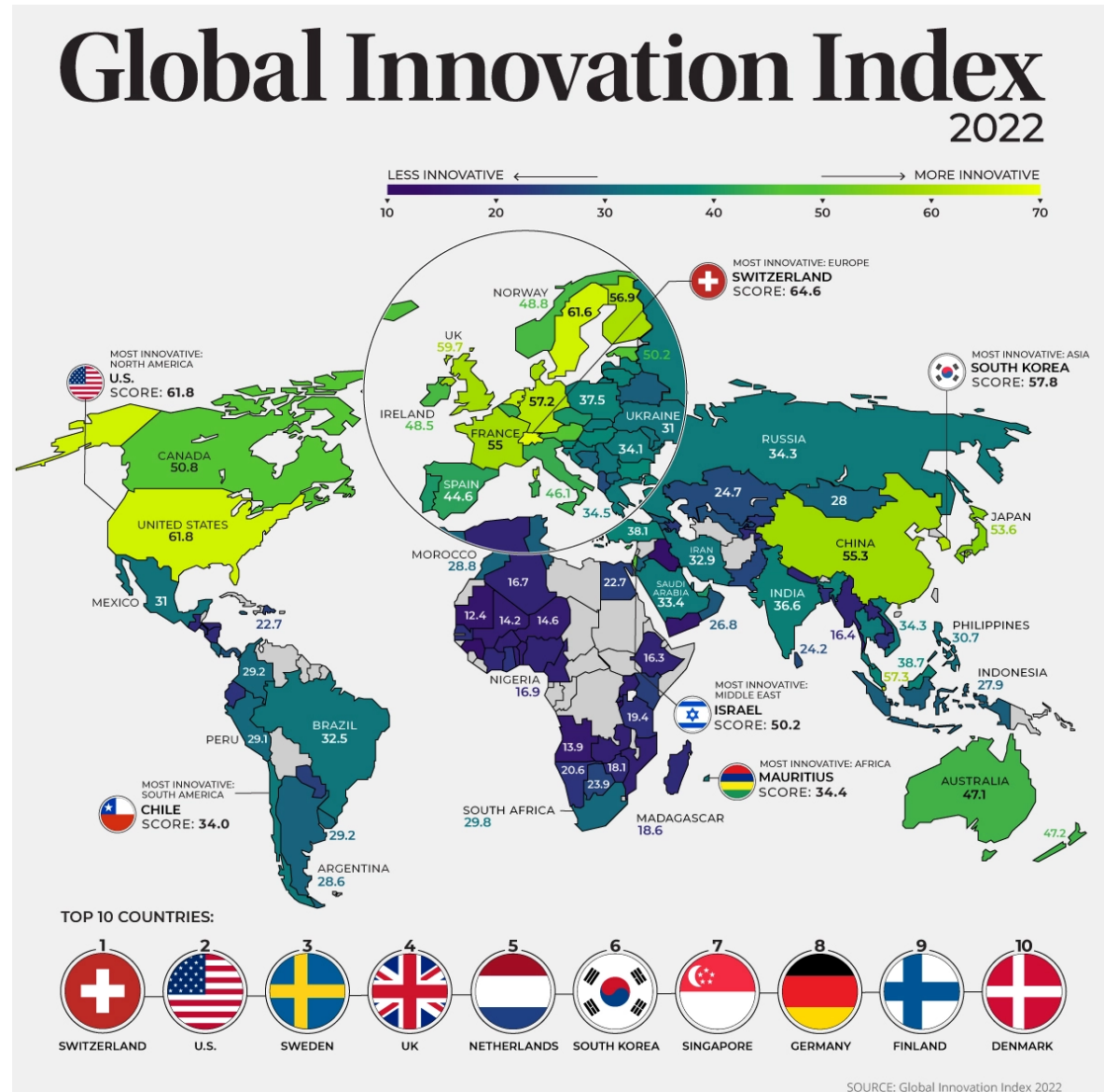


Image Source: [Visual Capitalist](#)

Africa MUST Invest in Innovation!

- Industrial & economic growth is built on technological advancement.
- What are the most important problems YOU need to solve?
- **IF YOU SOLVE PROBLEMS FOR YOURSELF & OTHERS, YOU WILL TRADE!**
- Increased Exports = Increased demand for Naira = Higher Currency Value*

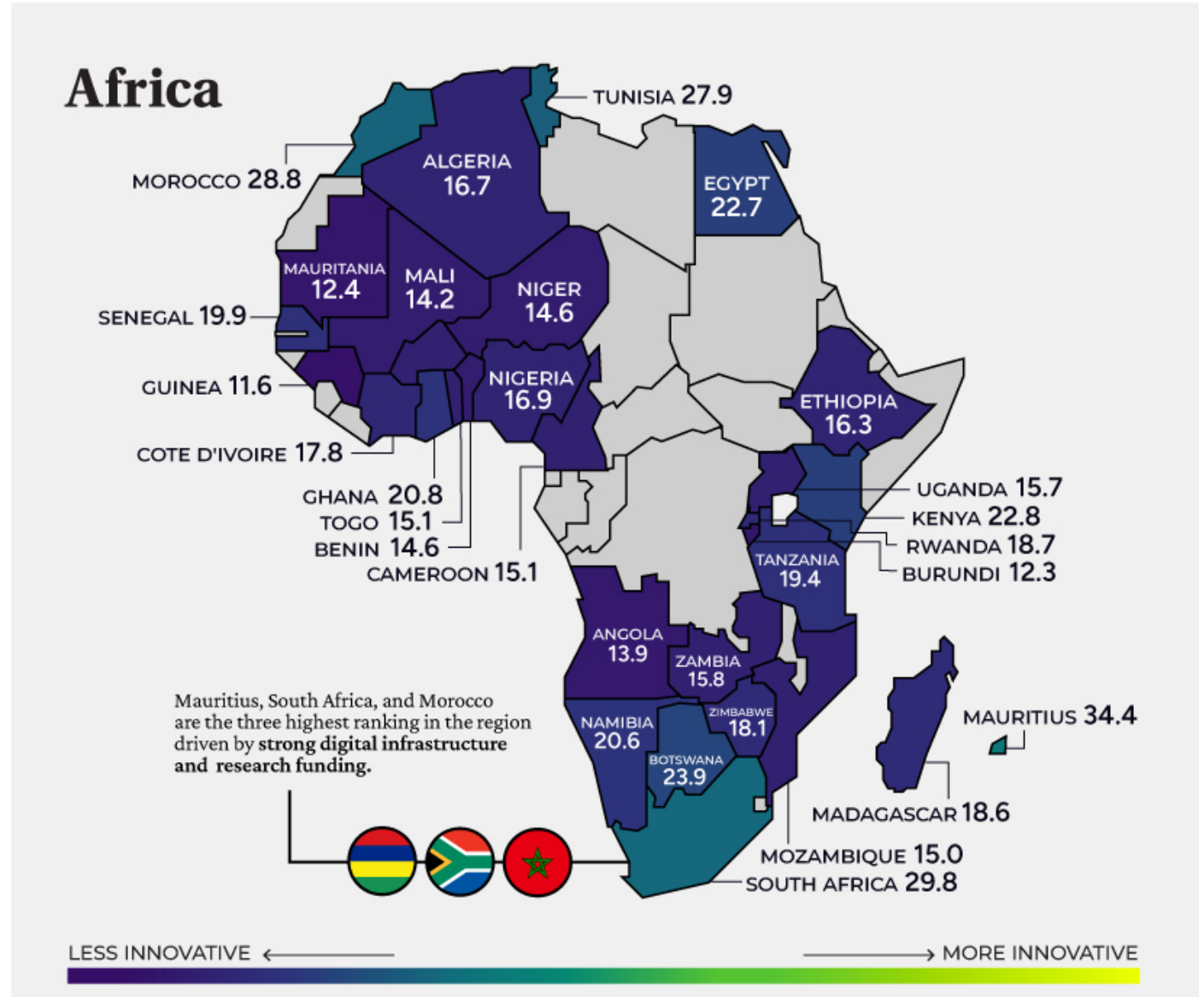


Image Source: [Visual Capitalist](#)

*Source: [Investopedia](#)

UK Energy Research Capabilities

- **£39.8 billion R&D budget***
- Advanced research labs & equipment
- World leading expertise



Image Source: [Energy Research Accelerator \(ERA\)](#)

*[UK Government announces plans for largest ever R&D budget](#)

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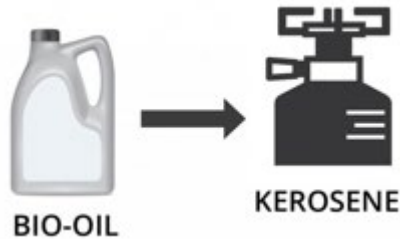


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Our Energy Catalyst Projects



EC6 - Geospatial Mapping of Population, Energy Demand & Biomass Availability across Nigeria



EC7 - Upgrading Bio-oil to Renewable Kerosene & Diesel



EC8 - Renewable Heat & Power Demonstrators



EC9 - Renewable Power & Cooling Demonstrators

THANK YOU



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