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MGTRICITY

BUSINESS PLAN – MARKET ANALYSIS

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MGTRICITY BUSINESS PLAN – MARKET ANALYSIS

Abstract

A global energy markets overview is presented with a deeper look into the sub-Saharan Africa region. Three countries are taken into account and from those one is chosen as the market entry for MGtricity. Moreover, stakeholders, direct competitors and market barriers are also considered and presented in the analysis.

Keywords

Business Plan, Sustainability, Solar Power, Africa

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GLOBAL ENERGY MARKETS OUTLOOK

PARADIGM SHIFT IN TERMS OF ENERGY

RENEWABLE ENERGY SOURCES ARE POSITIONED AS A SOLID ALTERNATIVE FOR COMPANIES AIMING TO IMPROVE THE SUSTAINABILITY OF THEIR BUSINESS, BE MORE EFFICIENT AND REDUCE THEIR CARBON FOOTPRINT

VIRTUALLY INEXHAUSTIBLE

AS OPPOSED TO FOSSIL FUELS, RENEWABLES ARE VIRTUALLY AVAILABLE WORLDWIDE

ENERGY FLOWS

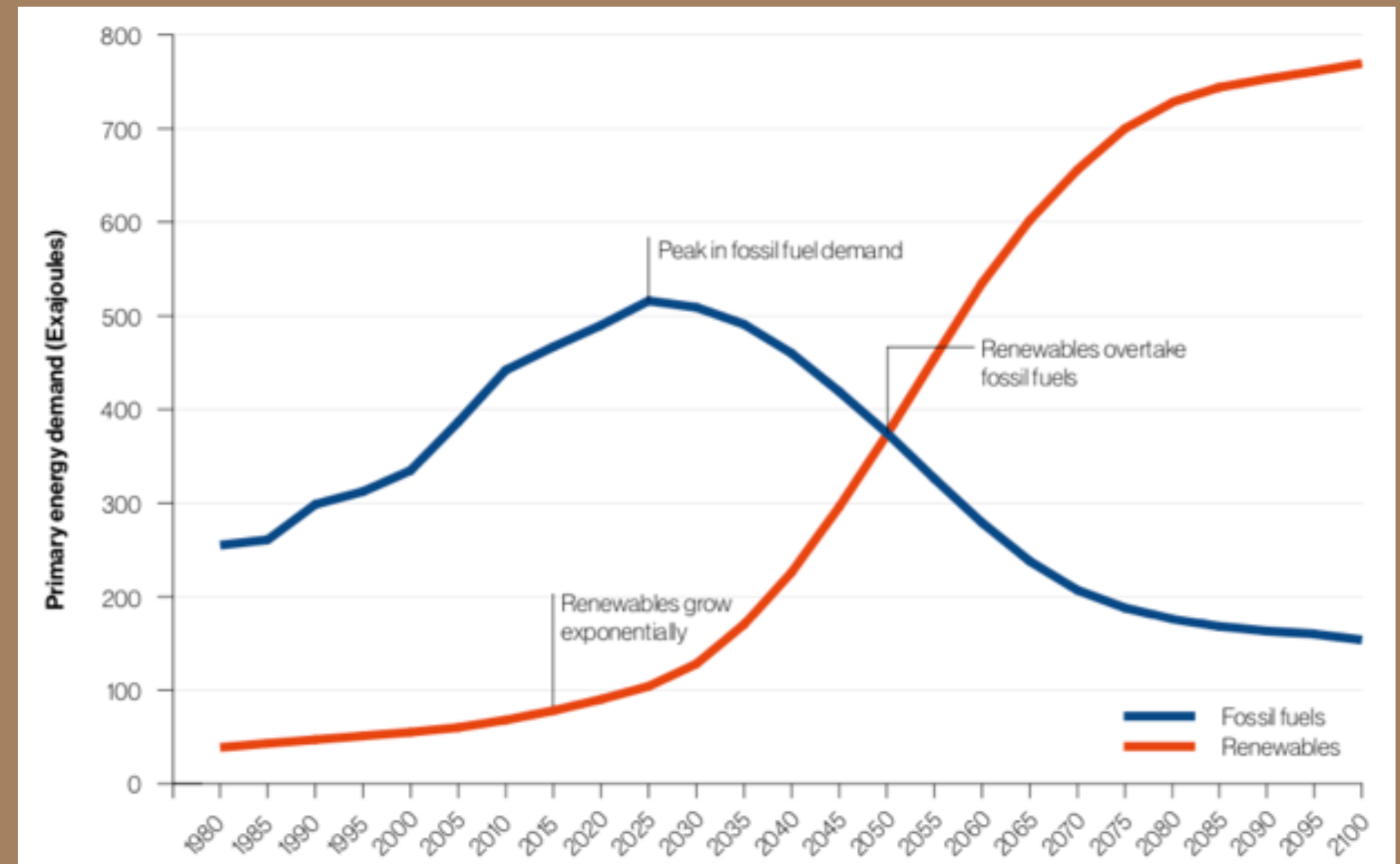
RENEWABLE ENERGY SOURCES ARE NOT RESTRICTED TO A CERTAIN NUMBER OF KNOWN RESERVES. HENCE, THEY HAVE A NON DEPLETABLE CHARACTER AND PROVIDE A CONTINUOUS STREAM OF ENERGY THROUGHOUT TIME

DEMOCRATIZA- TION OF ENERGY

CAN BE DEPLOYED AT ALMOST ANY SCALE ANYWHERE IN A DECENTRALIZED FORM AND ARE THE PATH FOR THE EXTINCTION OF MONOPOLIES ON THE PRODUCTION ENERGY SECTOR

ENERGY TRANSFORMATION ESTIMATED EVOLUTION I

THE ENERGY TRANSITION FRAMEWORK



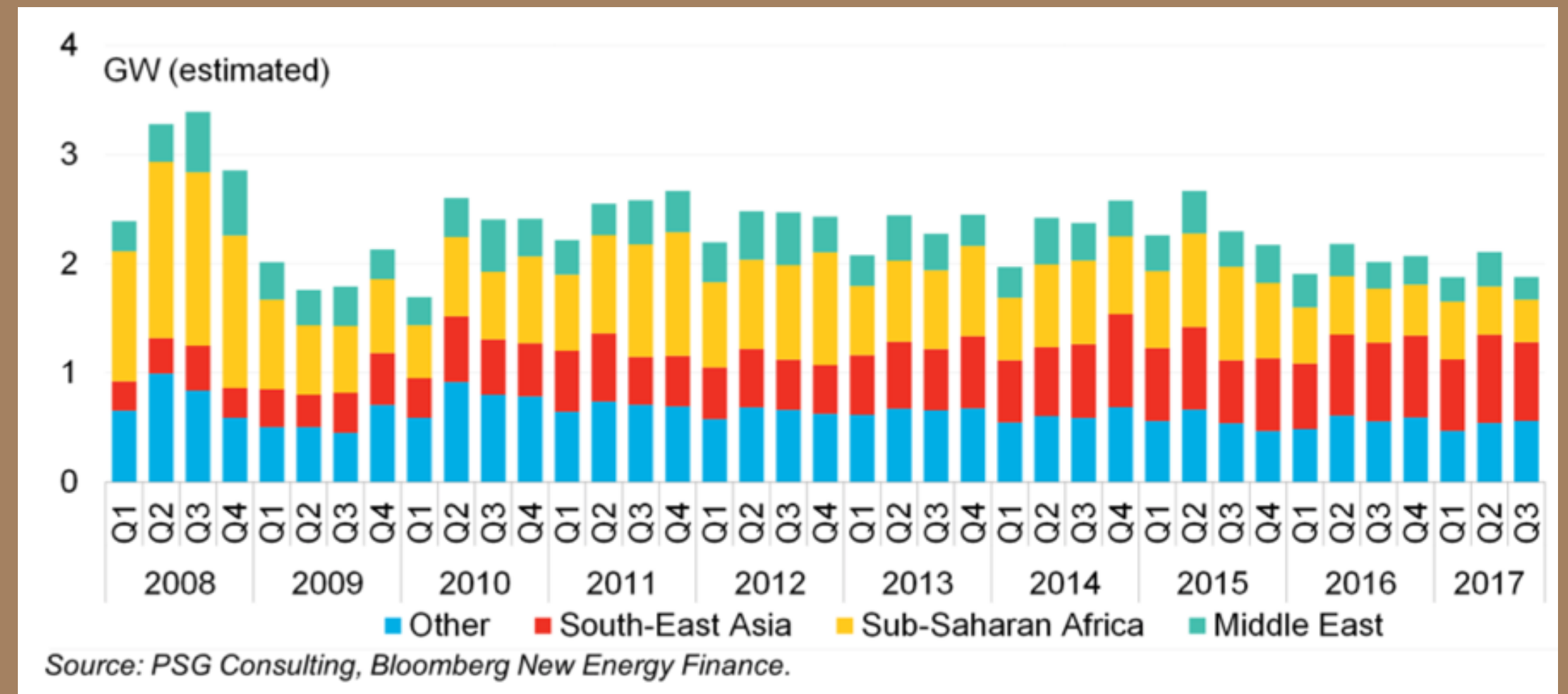
- PEAK IN FOSSIL FUELS DEMAND IN 2025 - **GREEN PARADOX**
- RENEWABLES OVERTAKE FOSSIL FUELS IN 2050

UNINTENDED
CONSEQUENCES
OF CLIMATE
POLICIES

Source: A New World - The Geopolitics of Energy Transformation - IRENA 2019

ENERGY TRANSFORMATION ESTIMATED EVOLUTION II

INTERNATIONAL DIESEL GENERATOR SHIPMENTS BY DESTINATION



- PARADIGM SHIFT IN TERMS OF ENERGY CONSUMPTION IN SUB-SAHARAN AFRICA - DECREASE IN DIESEL GENERATORS SHIPMENTS
- SUB-SAHARAN AFRICA IS THE ONLY REGION WHERE THE CHANGING PATTERN IS SIGNIFICANT

Source: International Renewable Energy Agency (IRENA)

LACK OF ACCESS TO ELECTRICITY IN NUMBERS

GLOBALLY



ALMOST ONE BN
PEOPLE

SUB-SAHARAN AFRICA



600 M PEOPLE

FOCUS ON SUB-SAHARAN AFRICA



KENYA

- ACCESS RATE TO ELECTRICITY INCREASED FROM 8% TO 73% IN 18 YEARS
- NATION'S PROJECT AIMING TO DELIVER UNIVERSAL ACCESS BY 2022



ETHIOPIA

- INCREASED ACCESS TO ELECTRICITY IN 40%
- PROPOSES TO REACH FULL CAPACITY BY 2025, WITH 35% OF THE POPULATION BEING SERVICED WITH OFF-GRID SOLUTIONS



MARKET DRIVERS I

WIDESPREAD POPULATION GROWTH REQUIRING THE NEED FOR RELIABLE AND SECURE UNIVERSAL POWER SUPPLY

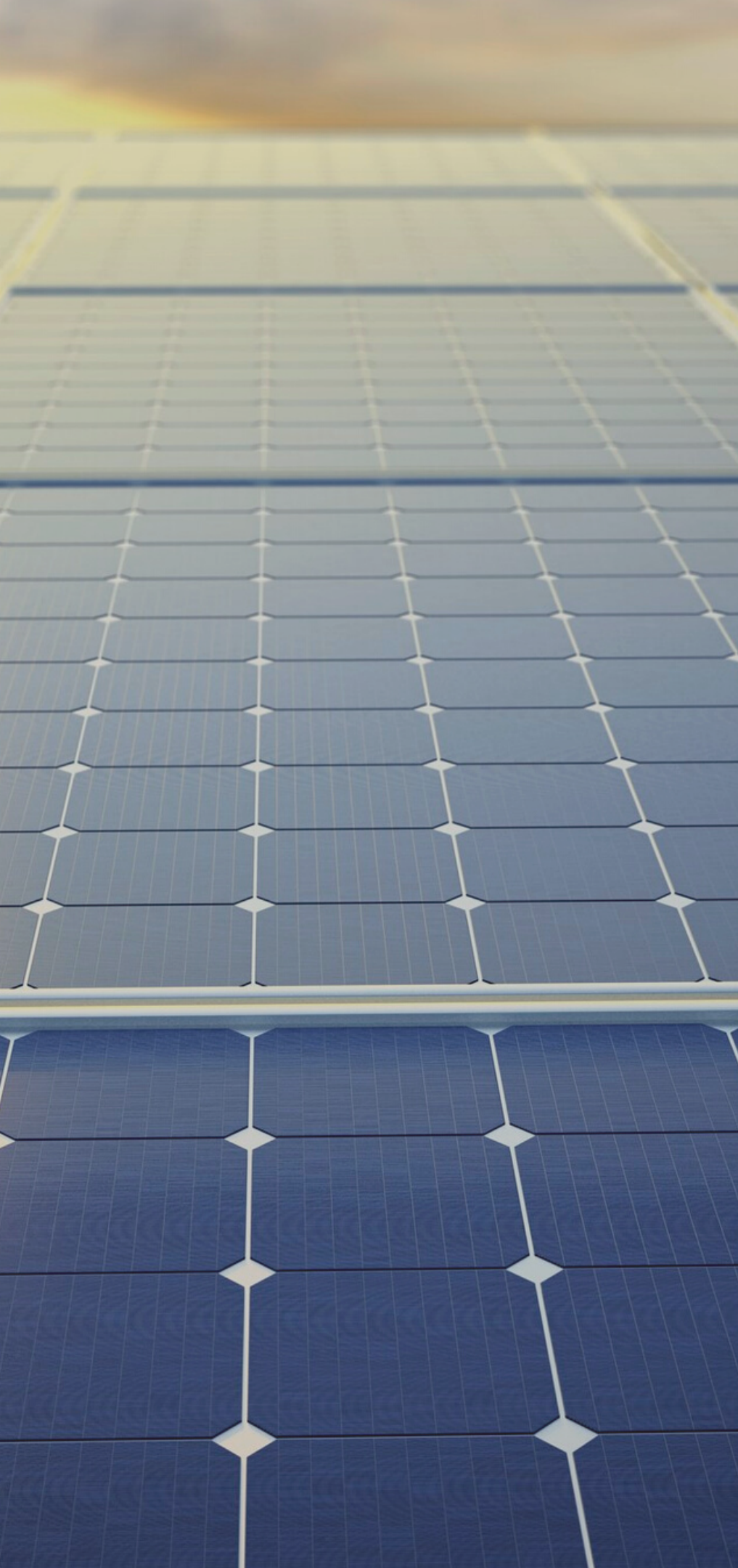
ACCORDING TO THE UN THE WORLD POPULATION IS EXPECTED TO REACH 9.7 BILLION IN 2050 AND FIVE OUT OF THE NINE COUNTRIES WHICH ARE PROJECTED TO MAKE UP MORE THAN HALF OF THE GLOBAL POPULATION ARE IN AFRICA

CYBER SECURITY

TECHNOLOGY IS ALSO ENHANCING MICROGRID MARKET CONNECTIVITY AS THEY ARE CAPABLE OF FUNCTIONING ON ISLAND MODE AND AUTONOMOUSLY, MAKING THEM LESS VULNERABLE TO CYBER-ATTACKS. IN SOME SEGMENTS SUCH AS MILITARY AND RESEARCH LABS THERE IS SIGNIFICANT VALUE IN A SECURE NETWORK

LOW TRANSMISSION LOSSES

MICROGRIDS HAVE THE ADVANTAGE OF GENERATING POWER LOCALLY REDUCING DEPENDENCY ON LONG DISTANCE DIFFUSION LINES AND SUBSEQUENTLY REDUCING TRANSMISSION LOSSES



MARKET DRIVERS II

INCENTIVES

POLICY CHANGES AFFECTING DUTIES, TAXES AND REGULATION FOR THE MICROGRID SECTOR AS WELL AS GOVERNMENT INITIATIVES TO REDUCE THE CARBON FOOTPRINT. CLIMATE CHANGE MITIGATION HAS BECOME IMPERATIVE IN THE CURRENT STATE AFFAIRS OF THE WORLD. CONVENTIONAL GENERATION OF ELECTRICITY LEADS TO TOXIC EMISSIONS AND BY FOCUSING ON CLEANER, MORE SUSTAINABLE AND SAFER POWER SOURCES, INVESTORS ARE ATTRACTED TO THE MICROGRID MARKET

DEVELOPMENT OF LITHIUM-ION TECHNOLOGY COMBINED WITH LOWERED PRICES OF SOLAR PANELS AND RELATED TECHNOLOGIES

IMPROVEMENT ON ENERGY STORAGE SYSTEMS DRIVES THE GROWTH OF THE MARKET

SWOT ANALYSIS

S

STRENGTHS

INCREASED RELIABILITY
ON ENERGY PROVISION

LESS VULNERABLE TO
THIRD PARTY ATTACKS
AND RISKS

MOBILITY FEATURE

ENERGY EFFICIENCY
IMPROVEMENT

ECO-FRIENDLY

W

WEAKNESSES

PREFERENCE FOR FOSSIL
FUELS FOR BEING A LESS
RISKY INVESTMENT

GREEN PARADOX

HIGH VOLATILITY MARKET

SUBSTANTIAL FINANCIAL
RESOURCES TO JUMP-START
PROJECTS

UNCERTAINTY ON FUTURE
POLICIES

O

OPPORTUNITIES

INTERNATIONAL
PRESSURE TO CUT CO₂
EMISSIONS

PROJECT CAPITAL COST
REDUCTIONS

LARGE MARKET SHARE IN
SUB-SAHARAN AFRICA
(>550 MILLION)

DEVELOPING RELATED
SERVICES

T

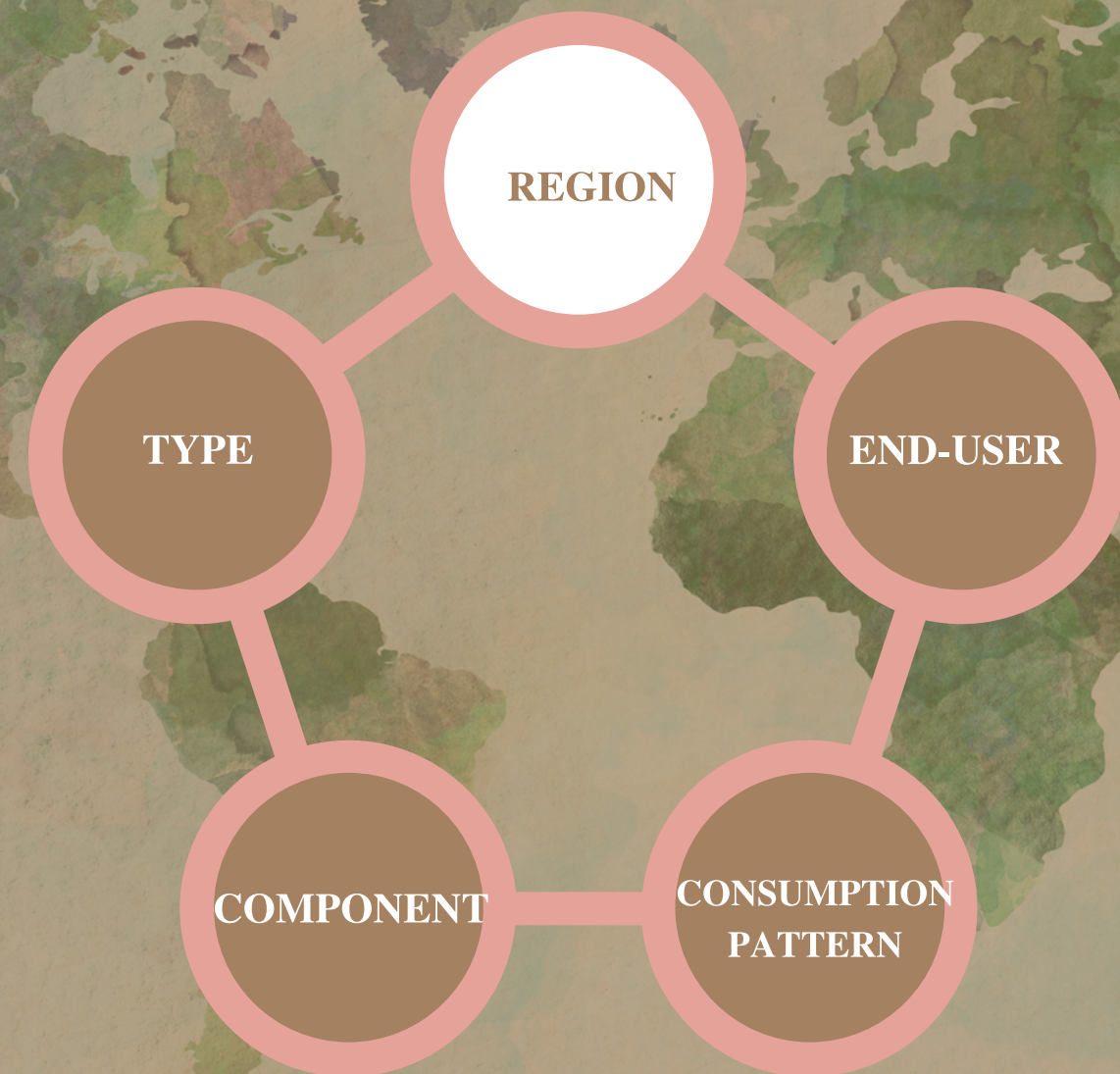
THREATS

ALTERNATIVE AND
COMPETING
TECHNOLOGY

SHORTAGE OF
KNOWLEDGE ABOUT
LEGAL ASPECTS IN THE
COUNTRY OF OPERATION

UNCERTAINTY IN TERMS
OF POLITICAL STABILITY
AND POLICY FRAMEWORK

SEGMENTATION

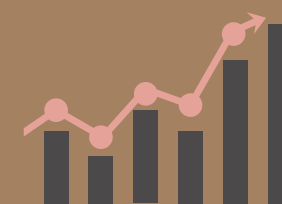


TARGET GEOGRAPHY

**AFRICA --> SUB-SAHARAN
REGION**



AFROBAROMETER 2016/18 - 41.8% OF THE INQUIRED DO NOT HAVE MAIN ELECTRIC SUPPLY OR CONNECTION TO THEIR HOME



IRENA'S GROWTH IN SOLAR ENERGY MARKETS - SOUTH AFRICA AND KENYA



MASSIVE NUMBER OF POTENTIAL END-USERS

REGIONAL MARKET ANALYSIS



SOUTH AFRICA

INSTALLED PV CAPACITY OF 2.5 GW AND AN INCREASE OF 373 MW

KENYA

>55 MW OF PV CAPACITY IN 2018 AND ENERGY MIX OF +/- 65%

RENEWABLES

ETHIOPIA

GROWTH AND TRANSFORMATION PLAN (GTP II) 2016 SETTING A
TARGET OF 17.3 GW OF ENERGY GENERATION CAPACITY BY 2020

DOING BUSINESS INDEX 2019

POLITICAL AND ECONOMIC ENVIRONMENT

PROJECT FINANCING & INVESTMENT CLIMATE
STATEMENT

REGULATIONS & STANDARDS



DOING BUSINESS INDEX 2019

SOUTH AFRICA

SCORE: 66,03

STARTING A BUSINESS

GETTING ELECTRICITY



KENYA

SCORE: 70,31

REGISTERING PROPERTY

GETTING CREDIT

PROTECTING MINORITY
INVESTORS

PAYING TAXES

RESOLVING INSOLVENCY



ETHIOPIA

SCORE: 49,06

STARTING A BUSINESS

DEALING WITH
CONSTRUCTION PERMITS

ENFORCING CONTRACTS



PRIORITY OF CHOICE

3

CURRENT ACCESS RATE - 86%



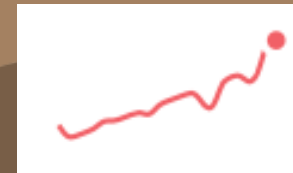
EVOLUTION OF ACCESS TO ELECTRICITY (% OF POP.)

NATIONAL ELECTRIFICATION
PROGRAMME FOCUSED MAINLY
ON GRID EXTENSION

RURAL ELECTRIFICATION
ENCOMPASSES ONLY AROUND
13% OF THE POPULATION

1

CURRENT ACCESS RATE - 64.5%



EVOLUTION OF ACCESS TO ELECTRICITY (% OF POP.)

AMONG THE TOP 20 COUNTRIES
WITH LARGEST SHARE OF POP.
LACKING ACCESS TO
ELECTRICITY WHICH HAVE
MADE THE MOST PROGRESS
SINCE 2010

TARGET TO REACH UNIVERSAL
ACCESS BY 2022

2

CURRENT ACCESS RATE - 40%

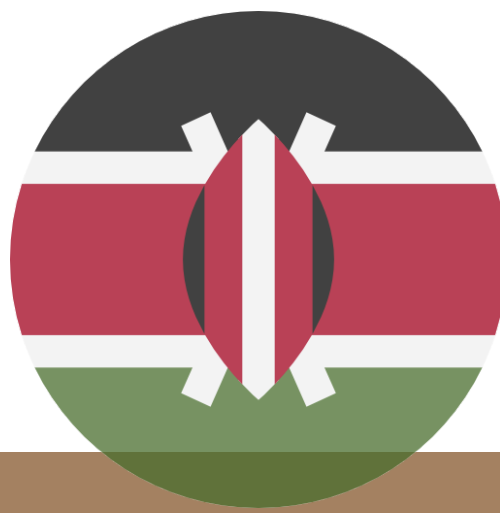


EVOLUTION OF ACCESS TO ELECTRICITY (% OF POP.)

GOV. AIMS TO SERVICE AROUND
35% OF THE RURAL POP. WITH
OFF-GRID SOLUTIONS

POLITICAL AND REGULATORY
FIELDS ALIGNED WITH
PRIVATE INTEREST TO EXPAND
RURAL ELECTRIFICATION

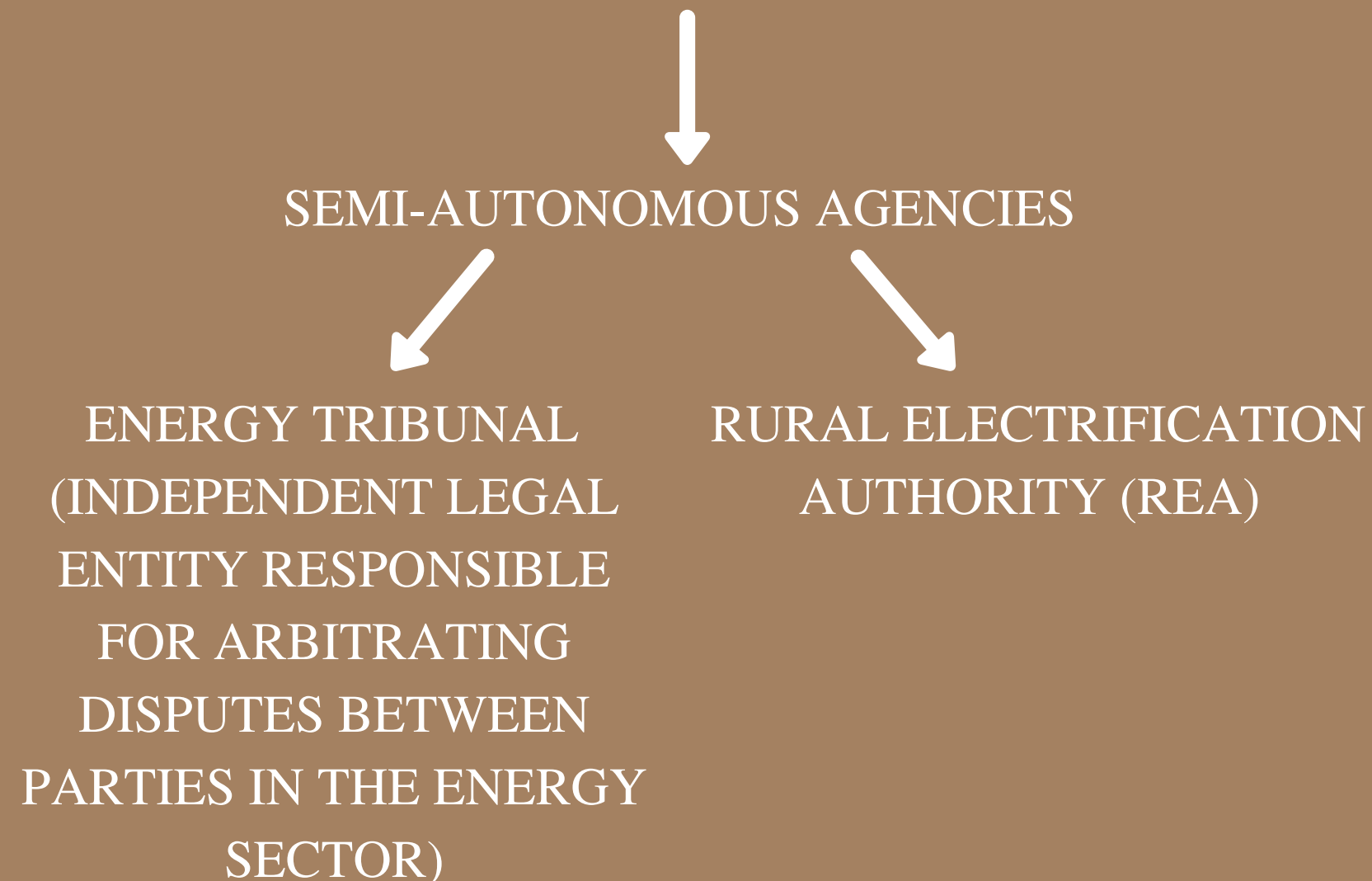
KENYA I



KENYA'S STATE DEPARTMENT OF ENERGY KEY MANDATES:

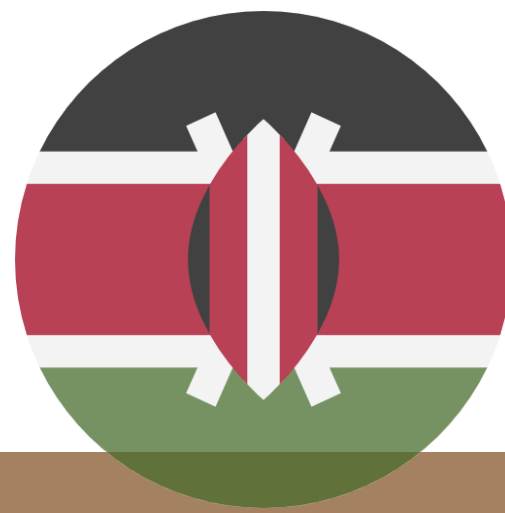
1. RURAL ELECTRIFICATION PROGRAM

2. PROMOTION OF RENEWABLE ENERGY



**MOST SIGNIFICANT
PROGRESS SINCE 2010 IN
TERMS OF ELECTRICITY
ACCESS**

KENYA II



PUBLIC SECTOR
AGENCIES



CLEAR POLICY GUIDELINES TO LESSEN INVESTMENT RISKS AND PRIVATE
INTEREST

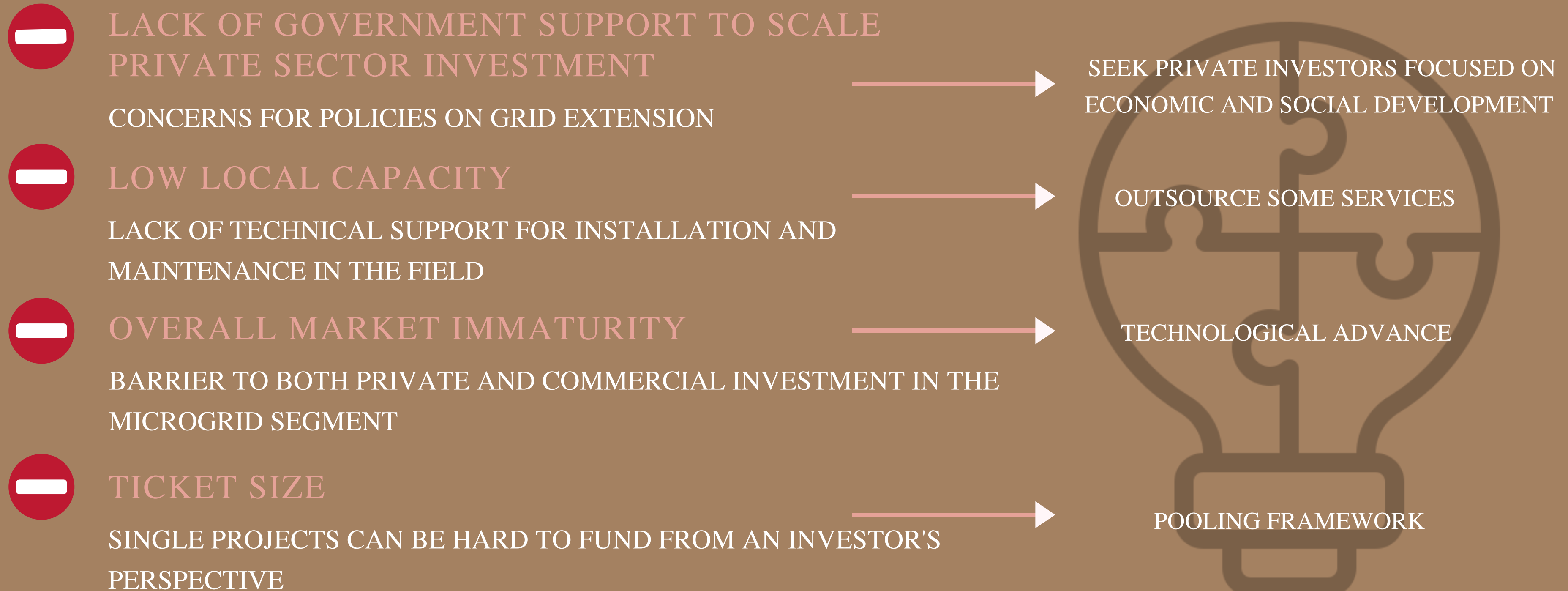


- GEOSPATIAL PLAN FOR ELECTRIFICATION
- 2019/20 GOVERNMENT BUDGET - \$29 M TO MODERNIZE AND AUGMENT THE RELIABILITY OF KENGEN
- KENYA OFF-GRID SOLAR ACCESS PROJECT (KOSAP) - MINISTRY OF ENERGY INITIATIVE SUPPORTED BY THE WORLD BANK - TARGETS AT PROVIDING ELECTRICITY AND CLEAN COOKING SOLUTIONS IN 14 REMOTE, LOW DENSITY REGIONS



SIZE = 1.1M PEOPLE

MARKET BARRIERS



DIRECT COMPETITORS

1



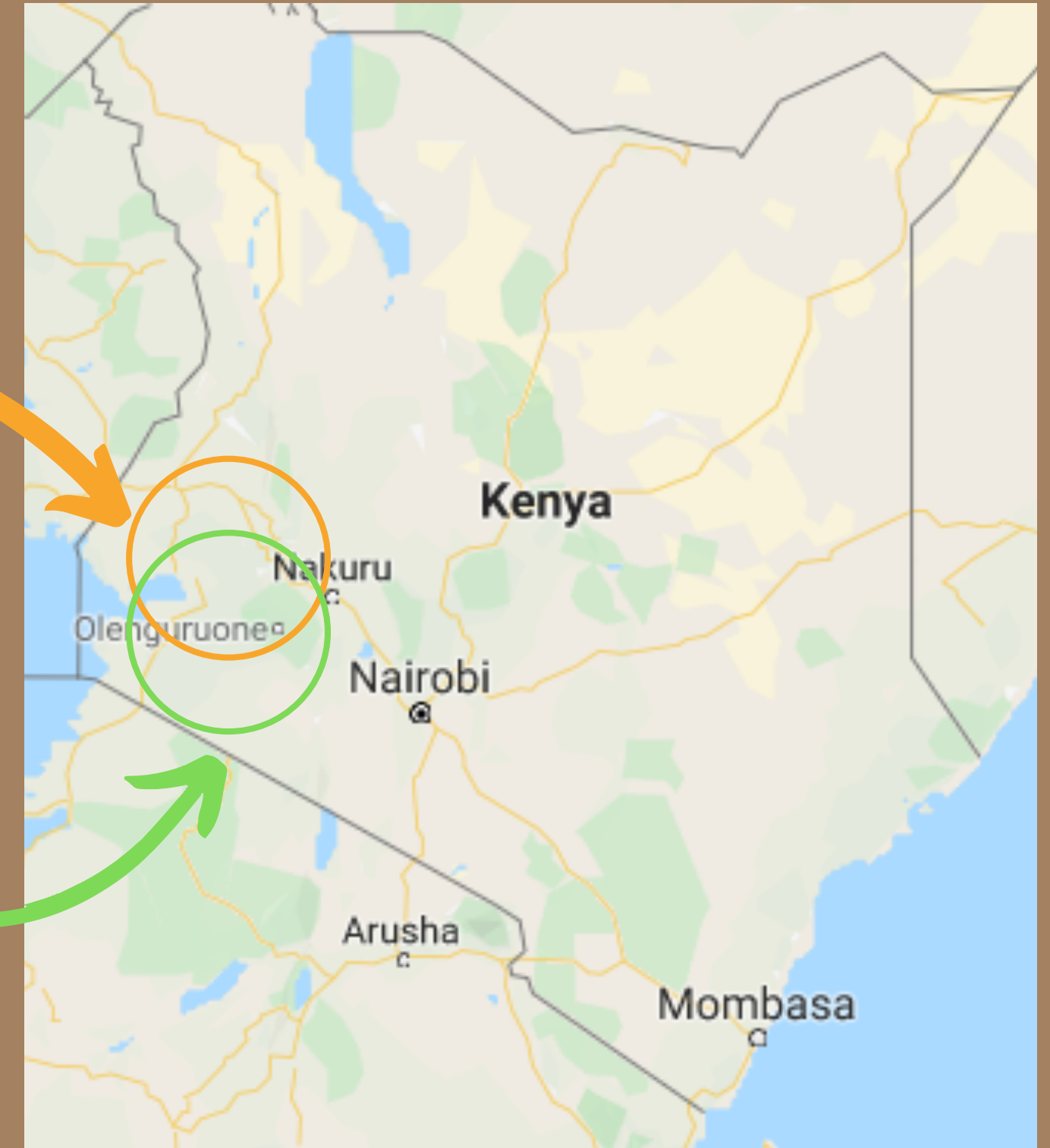
- FIRST PRIVATE COMPANY TO BE LICENSED FOR DEVELOPING MICROGRIDS IN KENYA IN 2016
- OFFERS SEVERAL SERVICES FOR THE IMPLEMENTATION OF PROFITABLE RURAL ELECTRIFICATION PROJECTS
- OPERATING PROJECTS IN THE COUNTIES OF KISII AND NYAMIRA

2

RVE.SOL



- PORTUGUESE SOCIAL ENTREPRENEURSHIP FOR PROFIT PROJECT DEVELOPER WHICH DEPLOYS AND OPERATES RURAL ENERGY SOLUTIONS
- KUDURA - PIONEER PROJECT - CLEAN ENERGY + WATER SOLUTION
- OPERATING PROJECT IN SIDONGE



STAKEHOLDERS I

KEY PARTNER - WITHOUT THEIR SUPPORT THE PROJECT MAY FAIL

IN AFRICA

KEY PARTNER	POLICY MAKERS	HAVE THE ABILITY OF LEVERAGING NATIONAL ELECTRIFICATION DEVELOPMENT PLANS AND CHANNEL INVESTMENT INTO THE MICROGRID MARKET	→	ENERGY TRIBUNAL MINISTRY OF ENERGY
	REGULATORS	GUIDANCE IN KEY AREAS SUCH AS MARKET ENTRY, RETAIL TARIFFS, ARRIVAL OF THE MAIN GRID, ETC.	→	ENERGY REGULATORY COMISSION
KEY PARTNER	DEVELOPMENT PARTNERS	IMPROVE COORDINATION ON THE DESIGN AND FUNDING OF STRATEGIC INTERVENTIONS	→	RENEWABLE ENERGY PERFORMANCE - REEP AFRICAN DEVELOPMENT BANK AND THE AFRICA DEVELOPMENT FUND
	MINIGRID DEVELOPERS	CAN WORK ALONE OR IN PARTNERSHIPS TO INCREASE THE PACE OF DEPLOYMENT OF THE INDUSTRY	→	ENERGY4IMPACT POWERHIVE POWERGEN RVE.SOL

STAKEHOLDERS II

