

EIB -ACP Climate Action



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**EXPERIENCE IN CLEAN
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**OLKARIA I UNIT 4&5 AND OLKARIA IV
UNIT 1&2 280MW**



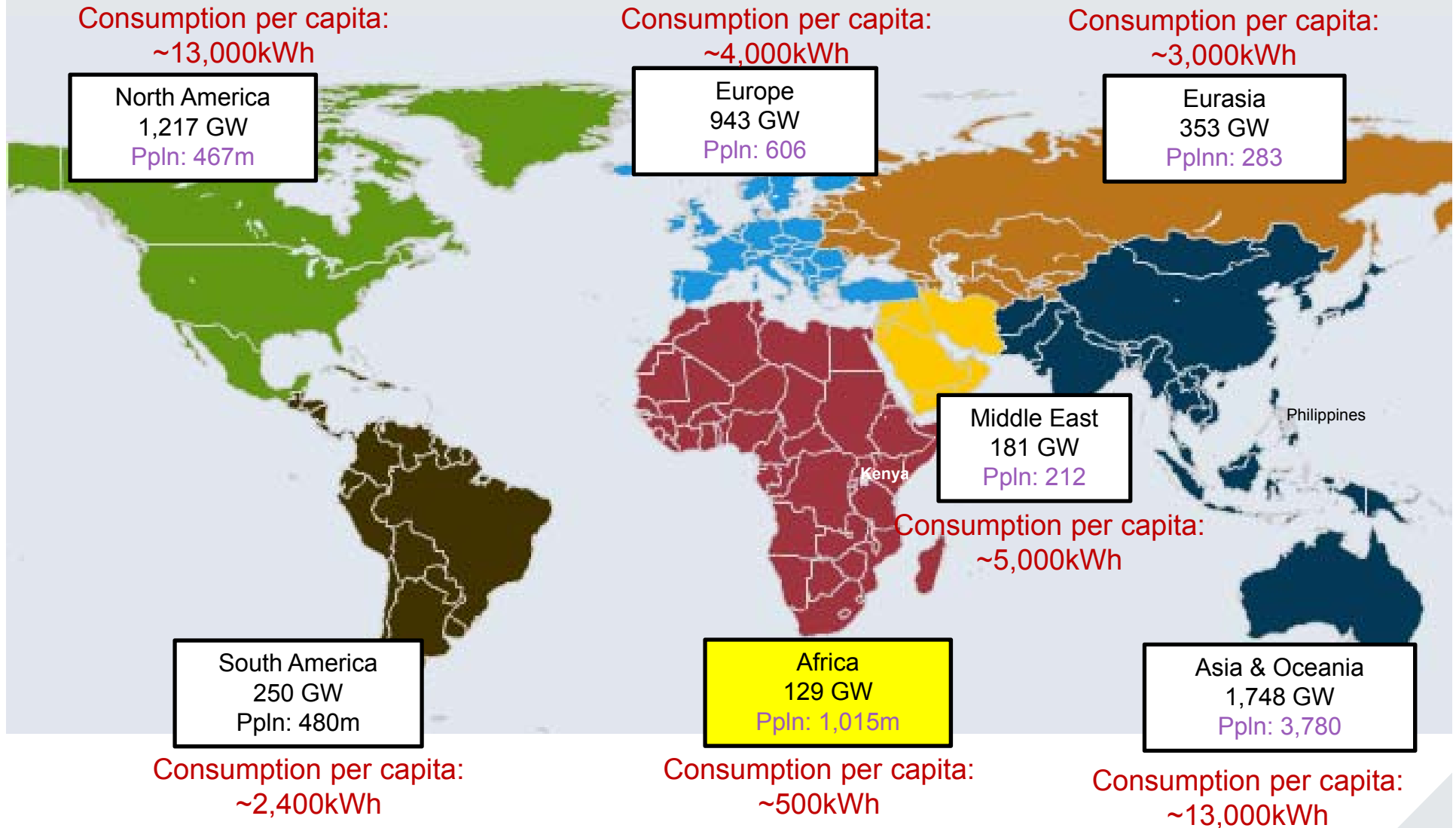
KENGEN: THE LEADING POWER GENERATOR IN KENYA



- In our 60th Anniversary;
- 70% Government-owned
- ~73% market share of Installed Generating Capacity
- A member of Nairobi Securities Exchange since 2006
- ~ 1,627MW (~ 32% Geothermal);
- ~ 2,300 Staff Compliment;
- ~ Ksh 343 billion Asset Base;
- ~ Ksh 26 billion Annual Turnover;
- An ISO 9001:2008 & ISO 14001:2004 Company



WORLD POWER GENERATION: WHERE IS AFRICA?



HIGHLIGHTS ON AFRICA : ENERGY SECTOR...

129 GW

Main Energy Sources

Mainly Gas

Mainly Hydro

Huge geothermal potential ~ 20+GW

Mainly Coal

North Africa

- Major 5 countries - Egypt, Tunisia, Algeria, Libya, Morocco (population ~ 170 million)
- (electricity consumption per capita ~ 1,120kWh)

52 GW

Sub-Saharan Africa

- >50 countries including Islands (population ~ 790 million)
- (electricity consumption per capita ~ 140kWh)

33 GW

Kenya

South Africa

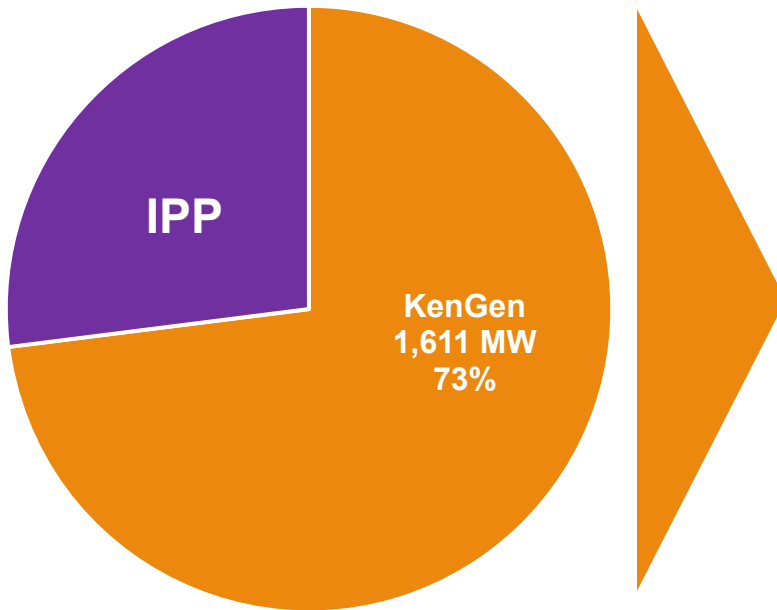
- South Africa only (population ~ 50 million)
- (electricity consumption per capita ~ 5,350kWh)

44 GW



KenGen's Installed Capacity

KenGen's Market Share (MW)



Clean Renewable Energy accounts for 84.11% of KenGen Portfolio & Geothermal Accounts for 32%

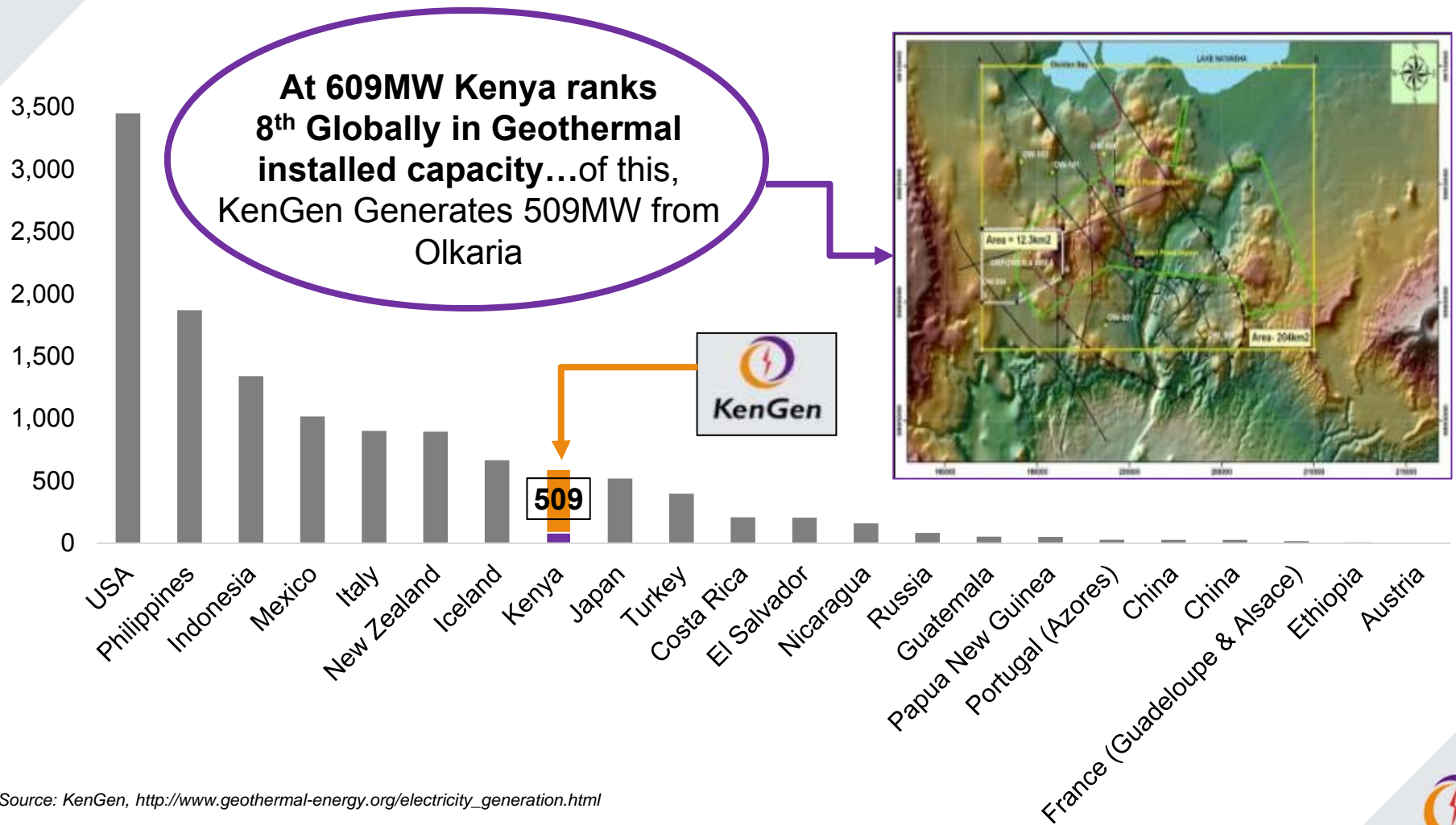
KenGen Capacity June 2015

Energy Type	Installed Capacity (MW)	Proportion(%)
Hydro.....	820	51%
Geothermal.....	509	32%
Thermal.....	256	16%
Wind.....	26	2%
Total	1,611	100%

KenGen is a market leader with an approximate 73% market share in Kenya

KENYA - A GEOTHERMAL LEADER

Olkaria Cementing Kenya's Geothermal Footprint



Source: KenGen, http://www.geothermal-energy.org/electricity_generation.html

OUR GENERATION MIX – GEOTHERMAL (509 MW)



OUR EXPERIENCE IN CLEAN DEVELOPMENT MECHANISM

6 Projects Already registered for CDM in KenGen

▪ KenGen is the first Company in Kenya to earn CDM revenues

▪ KenGen has the largest portfolio in Kenya and Eastern Africa Region of 6 registered projects

- Olkaria II 3rd Unit(Geo) -35MW
- Tana Power Plant(Hydro) - 20MW
- Optimization of Kiambere - 24MW
- Olkaria IV(Geo) -149.848MW
- Olkaria I Unit 4&5 -150.52MW
- Ngong Wind Farm -5.1MW

The twin objectives of CDM

- Reduce greenhouse gas emissions
- Ensure sustainable development



3 Projects have undergone successful verification

- ▶ • Olkaria II 3rd Unit(Geo) -35MW
- ▶ • Tana Power Plant(Hydro) -20MW
- ▶ • Optimization of Kiambere -24MW

Progress to-date on the verified projects

- ▶ • Issuance of about 300,000 tCO₂/yr, earning about US\$ 2.7Million between 2013 & 2015
- ▶ • US\$ 1.1 Million paid out in 2015
- ▶ • 1% of the revenues dedicated to the community



The Olkaria I Unit 4&5 and Olkaria IV Unit 1&2- 280MW Project- Project Synopsis

- ▶ The Government of Kenya commenced financing of drilling activities in 2006 –at a total cost of about US\$ 326Million on drilling efforts.
- ▶ Project feasibility study was completed in 2009.
- ▶ A financing syndicate comprising of 5 Development Financing Institutions (EIB, JICA, IDA, AFD & KfW) mobilized a financing package in excess of US\$ 1 Billion.
- ▶ Successful relocation of PAP's at a cost of about US\$ 10 Million
- ▶ Ground breaking ceremony held on 23rd July 2012.
- ▶ The world's largest geothermal power plant project.
- ▶ Accounts for 17.38% of the total installed capacity and 30.8% of the total units generated



Olkaria IV & Olkaria I Unit 4&5- Project Synopsis

	Olkaria IV Unit 1&2	Olkaria I Unit 4&5
Installed Capacity	149.848MW (2 Units, 74.924MW each)	150.52MW (2 Units, 75.26MW each)
Commissioning Date	Sept 2014 (Both Units).	Unit 4 – October 2014 Unit 5 – January 2015
Construction Period(Months)-Including procurement of Contractors	33Months	Unit 4 - 30Months Unit 5 – 33 Months
Total Project Cost (Excludes drilling)	385 MUSD	378MUSD
Average Availability	91.77%	85.87%
Generation Tariff Charged	Below the Feed In Tariff of Uscts /kWh8.8	Below the Feed In Tariff of Uscts /kWh8.8



280MW FINANCING PLAN IN M US\$ VS TENDER COSTS

Items	GOK	KenGen	JICA	IDA	AFD	EIB	KfW	TOTAL	Tender Cost
Drilling Costs	313						15	328	319
Steam fields		7		107			54	168	145
Power Plants		35	323		210	135		703	376
Substation & Transmission	3.4					31.6		35	27
Consulting Services							30	30	20
Admin/ Local Infrastructure		29		12				41	36
Resettlement Action Plan		10						10	15
BoC				1				1	1
IDC		57						57	33
TOTAL	316.4	138	323	120	210	166.6	99	1,373	972

• Lower tender costs resulted in savings on the Financing Plan

▪ 5 DFI mobilized funds in excess of US\$ 1 Billion



280 MW Emission Reduction Potential

	Project	Projected emission reduction tCO ₂ /yr	
1.	140 MW Olkaria I Units 4&5	635,049	
2.	140 MW Olkaria IV Units 1&2	651,349.	
	Total	1, 286,398	

- Expected to reduce over 1.2 Million tCO₂/yr upon successful verification and issuance
- Draft monitoring report for Year 1.
- Crediting period: 10 Years fixed
- Sourcing for potential Certified Emission Reduction buyers underway.
- Potential for selling/trading (Certified Emission Reduction) CERs at the NSE



Thank You



OLKARIA IV OVERVIEW- NIGHT VIEW

