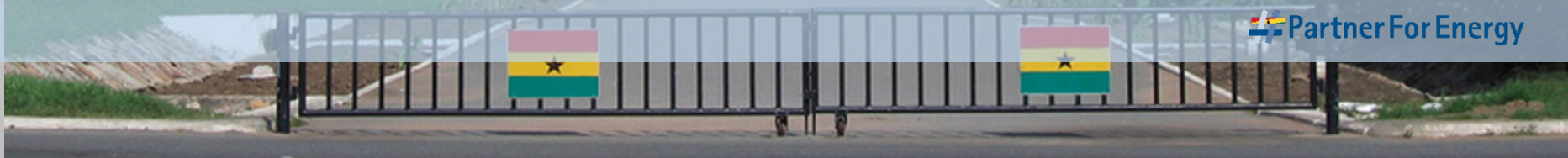




# Market entry opportunities for German companies in Ghana

26 February 2019

Andrew N. M. Aryee - Project Manager



# Presentation Overview

1) Ghana at a glance

2) AHK Ghana

3) Market Opportunities in Ghana

4) Challenges in the Energy Sector

5) Opportunities in the Energy Sector

 Partner For Energy



**AHK**

Delegation der Deutschen Wirtschaft  
in Ghana  
Delegation of German Industry and  
Commerce in Ghana



# At a glance : Ghana



Land Size 238.533 km<sup>2</sup>

Population 29.6 Million (2018)

Inflation Rate 10% (2018) 11,6% (2017)

Population Growth 2.2% (2017)

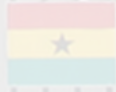
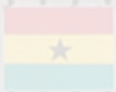
Illiteracy Rate 23% (2015)

Memberships in international organizations AU, ECOWAS, IMF, WTO

Currency Ghanaian New Cedi (GHS)

Gross Domestic Product (in bil.) \$47.33 billion (2017)

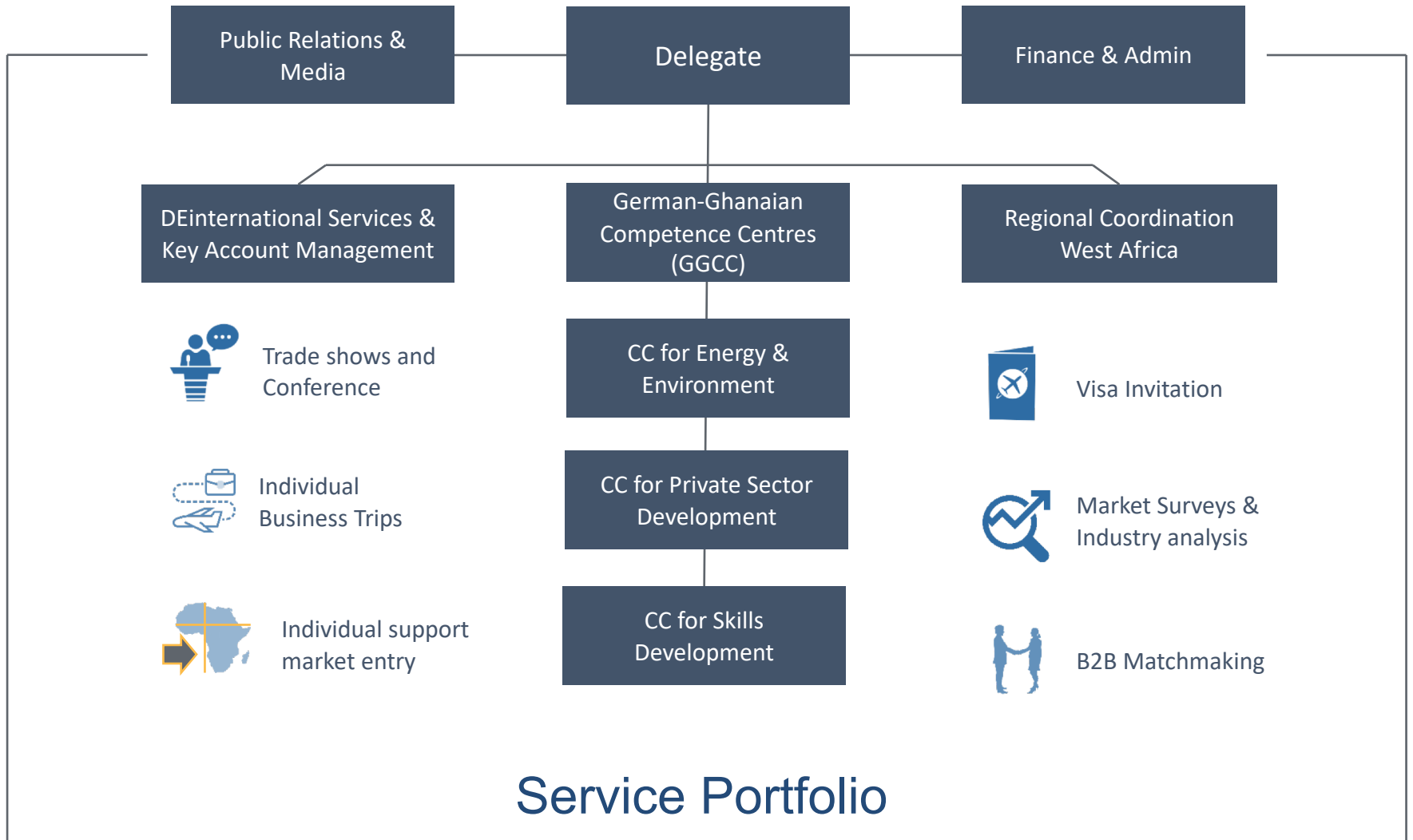
Economic Growth 6.8% (2018)





- = AHK Ghana Location
- = Area of responsibility of the AHK Ghana

# AHK Ghana



## Service Portfolio



ExperTS

Economy. Transfer. Sustainability.

## Competence Centre for Energy & Environment

Scaling of sustainable energy solutions and innovative environmental technologies in Ghana and West Africa

### Our portfolio:

- Market studies, trade information and industry analyzes
- Consultation with public and private stakeholders
- Information and delegation trips
- Business partner search and address selection
- Conferences, seminars, trainings, trade shows

 Partner For Energy

# See you at WACEE 2019



**WACEE Challenge kicks off on 1<sup>st</sup> April 2019**

**06 - 08 November, 2019**

**Accra International Conference Centre, Ghana**

 **Partner For Energy**



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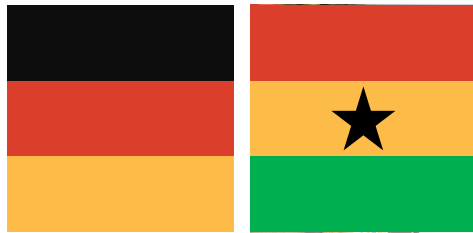
# German companies in Ghana



Das Auto.





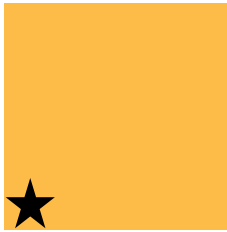


## MARKET OPPORTUNITIES IN GHANA

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Renewable Energy Supply & Energy Efficiency



Mining



Health Sector



Oil & Gas

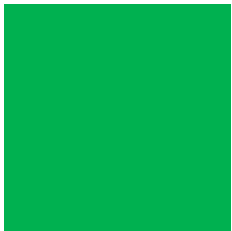


Drinking & wastewater sector



# MARKET OPPORTUNITIES IN GHANA

I.T.



construction sector



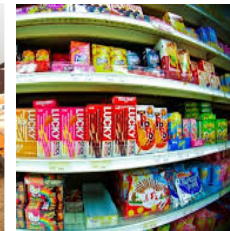
Automation



Environmental Technology



Agriculture



Food



 Partner For Energy

# Electricity & Energy Market

Kraftwerk	Kraftstoff	KAPAZITÄT (MW)				GESAMTERZEUGUNG		
		Installiert	Anteil in %	Durchschnittlich in Betrieb	Durchschnittlich verfügbar	GW/h	Anteil in % (inkl. integriert)	Anteil in % (exkl. integriert)
<b>Wasserkraftwerke</b>								
Akosombo	Wasser	1.020		900	505	4.282	30,5	30,6
Bui	Wasser	400		340	205	582	4,1	4,2
Kpong	Wasser	160		140	115	752	5,3	5,4
<i>Zwischensumme</i>		<i>1.580</i>	<i>35,9<sup>®</sup> 36,7</i>	<i>1.380</i>	<i>825</i>	<i>5.616</i>	<i>39,9</i>	<i>40,2</i>
<b>Thermalkraftwerke</b>								
Takoradi Power Company (TAPCO)	Öl/Gas	330		300	200	686	4,9	4,9
Takoradi Inter. Company (TICO)	Öl/Gas	340		320	260	1.880	13,4	13,4
Sunon-Asogli Power (SAPP)	Gas	560		520	180	1.417	10,1	10,1
Kpone Thermal Power Plant (KTPP)	Öl/Diesel	220		200	20	124	0,9	0,9
Tema Thermal Plant1 (TT1P)	Öl/Gas	110		100	70	365	2,6	2,6
Tema Thermal Plant2 (TT2P)	Öl/Gas	80		70	1	0,5	0,0	0
CENIT Energy Ltd (CEL)	Öl/Gas	110		100	30	59	0,4	0,4
AMERI	Gas	250		230	200	1.229	8,7	8,8
Karpower	Schweröl	470		450	225	1.814	12,9	13,0
AKSA	Schweröl	260		220	100	799	5,7	5,7
<i>Zwischensumme</i>		<i>2.730</i>	<i>63,3</i>	<i>2.510</i>	<i>1.286</i>	<i>8.373,5</i>		
Trojan	Diesel/Gas	44		40	30	52	0,4	-
Genser	Kohle/LPG	22		18	0	0	0	-
<i>Zwischensumme (inkl. integrierte Stromerzeugung)</i>		<i>2.796</i>	<i>63,6</i>	<i>2.568</i>	<i>1.316</i>	<i>8.425,5</i>	<i>59,9</i>	
<b>Erneuerbare Energien*</b>								
VRA	Solar	2,5		1,5	1,5	3,0	0,02	
BXC	Solar	20		16	10	25	0,18	
<i>Zwischensumme</i>		<i>22,5</i>	<i>0,5</i>	<i>11,5</i>	<i>11,5</i>	<i>28,0</i>	<i>0,2</i>	
<b>Summe (inkl. integrierte Stromerzeugung + Solar)</b>		<b>4.398,5</b>		<b>3.966</b>	<b>2.198</b>	<b>14.069</b>		
<b>Summe (exkl. integrierte Stromerzeugung + Solar)</b>		<b>4.310</b>		<b>3.890</b>	<b>2.156</b>	<b>13.989</b>		

Quelle: Energy Commission, Energy Outlook 2018, April 2017

# Challenges 1/2

- The country reported to have an excess capacity of 1,700MW( $\pm 3\%$ ) - hence power purchase agreements are limited
- The restructuring and partial privatization of the electricity distribution
- Not very effective implementation of tax and customs incentives on RETs
- Local Content & Participation requirement

## Challenges 2/2

In 2017, the average electricity price for end customers was 76.4 GHp (13.8 EUR cents) per kilowatt hour. In March 2018, electricity prices fell further by around 17% for households, by 30% for commercial customers and by 25% for industrial customers.

**Tabelle 11: Durchschnittliche Strompreisentwicklung in Ghana 2008 – 2017**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>GHS/kWh</b>	0,148	0,148	0,211	0,245	0,232	0,307	0,464	0,541	0,817	0,764
<b>Umrechnungskurs zu USD</b>	1,20	1,43	1,45	1,55	1,88	1,97	3,20	3,68	3,89	4,36
<b>USD/kWh</b>	0,123	0,104	0,145	0,158	0,124	0,156	0,145	0,147	0,210	0,175

Quelle: Energy Commission, Energy Statistics 2018, April 2018



# Local Content & Local Participation

## Energy Commission (Local Content and Local Participation) (Electricity Supply Industry) Regulations, 2017 (L.I. 2354)

- Gazetted on 17 November 2017
- Entry into force on 22 December 2017
- Public notice on 16 April 2018

... applicable to persons and entities engaged in the electricity supply industry,

# Objective

Promote use of local financial capital, expertise, goods and services, i.e.

- Create employment for Ghanaians
- Promote businesses in the electricity supply industry
- Retain the benefits in Ghana
- Promote development initiatives for local stakeholders

# Opportunities: Government initiatives

## Ghana RE ACT 832

- Feed-in-tariffs
- Net-Metering

## Draft Mini Grid Regulations Policy

- To promote, develop and utilise mini grid systems in off-grid communities incl. lakeside and island communities
- To contribute to a regulatory framework for private sector involvement towards the achievement of the universal access to energy in 2020

## RE Masterplan

- Increase the penetration of RE in the national energy generation mix from the 2015 baseline of 42.5MW to 1363.63MW (with grid connected systems totaling 1094.63MW)
- Reduce the dependence on fossil fuels as main fuel for thermal energy application
- Provide RE based decentralized electrification options in 1000 off grid communities
- Promote local content and local participation in the RE industry

# Opportunities: Solar / Bioenergy

- **Power for self-consumption**  
Commercially interesting could be smaller roof systems (usually up to 1 MW) for self-supply for companies with high power consumption, e.g. Industrial companies and mine operators.

Ecoligo GmbH won the German Entrepreneurship Award for Development at GABS 2019

- **Risk Investment Management**  
Many private investors are deterred by the high capital cost involved in off-grid solutions

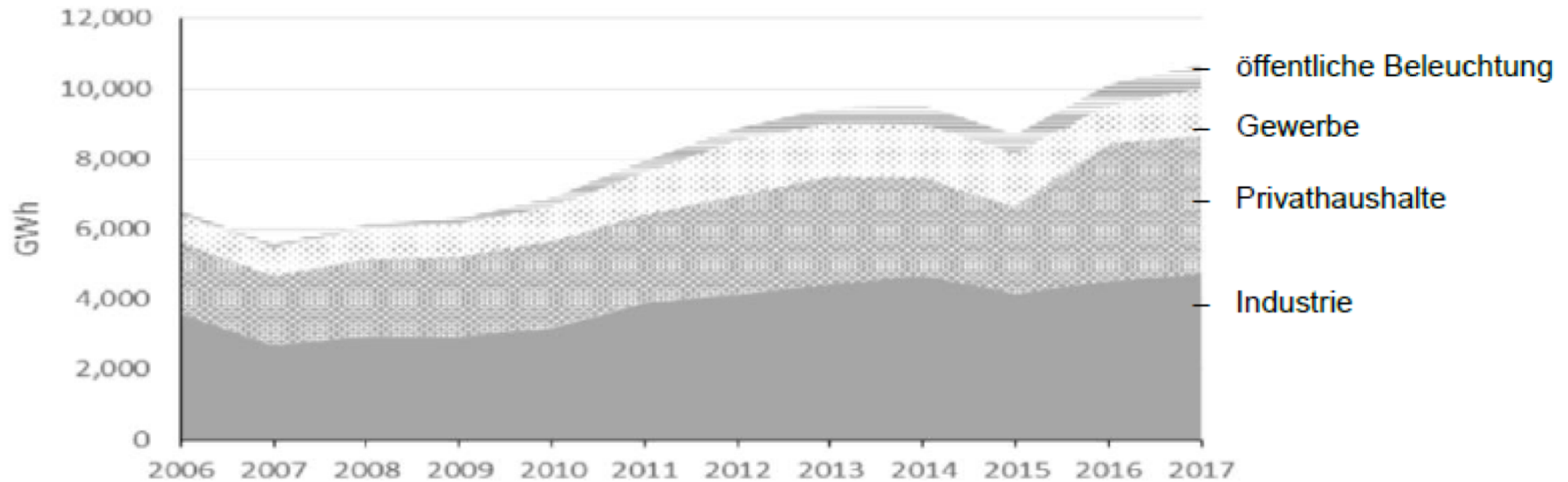
- **Mini-grid Connections for the Industry**

A business opportunity for the Investors / solution providers in that sector

- **Off-grid island connections**  
The government is willing to expand energy access to the about 33% rural households which are yet not electrified and achievement of the 1D1F initiative

# Opportunities : Energy Efficiency 1/2

Abbildung 8: Netzstromverbrauch nach Nutzerklassen



Quelle: Energy Commission, Energy Statistics 2018, April 2018



## Opportunities : Energy Efficiency 2/2

**Energy Consultancy & Advisory Services**  
Awareness of energy efficiency is beginning to be felt, but it's fueled by high electricity prices. Thus, Ghana offers a developing market for energy efficiency

**Optimization of Power Transmission**  
Ghana has been a power pool for the neighbouring countries (Togo, Benin & Burkina Faso). Total power transmission loss in 2017 was 4.1% of gross transmission.

**Equipment Support**  
Access to many products that increase energy efficiency in buildings, plants and processes are still limited.



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# Policy framework

Policy / Strategic Framework	Business related issues
National Energy Policy (2010)	PPP for new plants; sector priorities; basis for investment opportunities
Draft National Energy Policy (2017)	Improve energy security, promote renewables
Ghana Sustainable Energy for All Action Plan (2012)	PPP orientation; renewable technology options; data on renewable resources; analysis of bottlenecks in the sector
Scaling-Up Renewable Energy Program in Ghana (SREP) Investment Plan (2015)	Implementation plans & future projects; medium term investment & financing plan; increased use of renewables by SMEs
Strategic National Energy Plan (2006-2020)	Framework for renewables in energy mix
Energy Sector Strategy and Development Plan	Framework for renewable energy development
Bioenergy Policy for Ghana, Draft (2010)	Technology options, biofuel feedstock, R&D
Renewable Energy Act (2011)	Licensing; feed-in tariff; energy mix; Renewable Energy Fund
Renewable Energy Master Plan	Targets for development of renewable energy resources; incentives & support

Source: rvo, GIZ PEP

# Institutions 1/2

Institutions	Responsibilities
Ministry of Power	Oversees the energy sector. It has a Renewable & Alternative Energy Directorate. It is mandated by Renewable Energy Act 823 to develop and promote renewable energy.
Ministry of Environment, Science, Technology and Innovation	Promote the application of science and technology in all sectors
Energy Commission	Technical regulator and advisor to Government on energy matters; issues licenses for RE business in Ghana
Public Utility Regulatory Commission (PURC)	Multi-Sectorial regulator of tariffs. It sets rates for purchase of electricity from conventional and renewable energy sources
Environmental Protection Agency (EPA)	Protecting and improving the environment and helps with the implementation of environmental policies

Source: rvo

# Institutions 2/2

Institutions	Responsibilities
Volta River Authority	Power Generation
Bui Power Authority	Power Generation
Independent Power Producers (IPPs)	Power generation from various private companies on a build, own and operate basis
Ghana Grid Company (GRIDCo)	Owens and operates the transmission network
Electricity Company of Ghana (ECG)	Distribution services within the southern zone of the country
Enclave Power Company	Distribution services within the Free Zones
Northern Electricity Distribution Company (NEDCo)	Distribution services within the Northern belt
Ghana Standards Board	Ensures compliance with standards and Certification for equipment for importation

Source: rvo