

5th West African Clean Energy & Environment Exhibition & Conference 2016 ,
15th of September 2016 at the Accra International Conference Centre, Ghana



GROWTH

POLICY

LINKING ENERGY POLICY TO GROWTH, PROSPECTS AND LIMITATIONS FOR
RENEWABLE ENERGY (RE) TECHNOLOGIES, AS POTENTIAL SOLUTION FOR ENERGY:
SPECIAL EMPHASIS ON BATTERIES

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Implementation of Survey:



In partnership with:





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RE measures policy Coverage worldwide





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Global perspective of RE investments

2015, it is reported that Global Investments into RE had increased by **5%** since 2011, amounting to

USD 285.9 billion.

Africa and Middle east up to **58%** USD **12.5 billion**

Source: Frankfurt School of Finance & Management GmbH (2016)



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Purpose of the survey

Socio-economic



growth

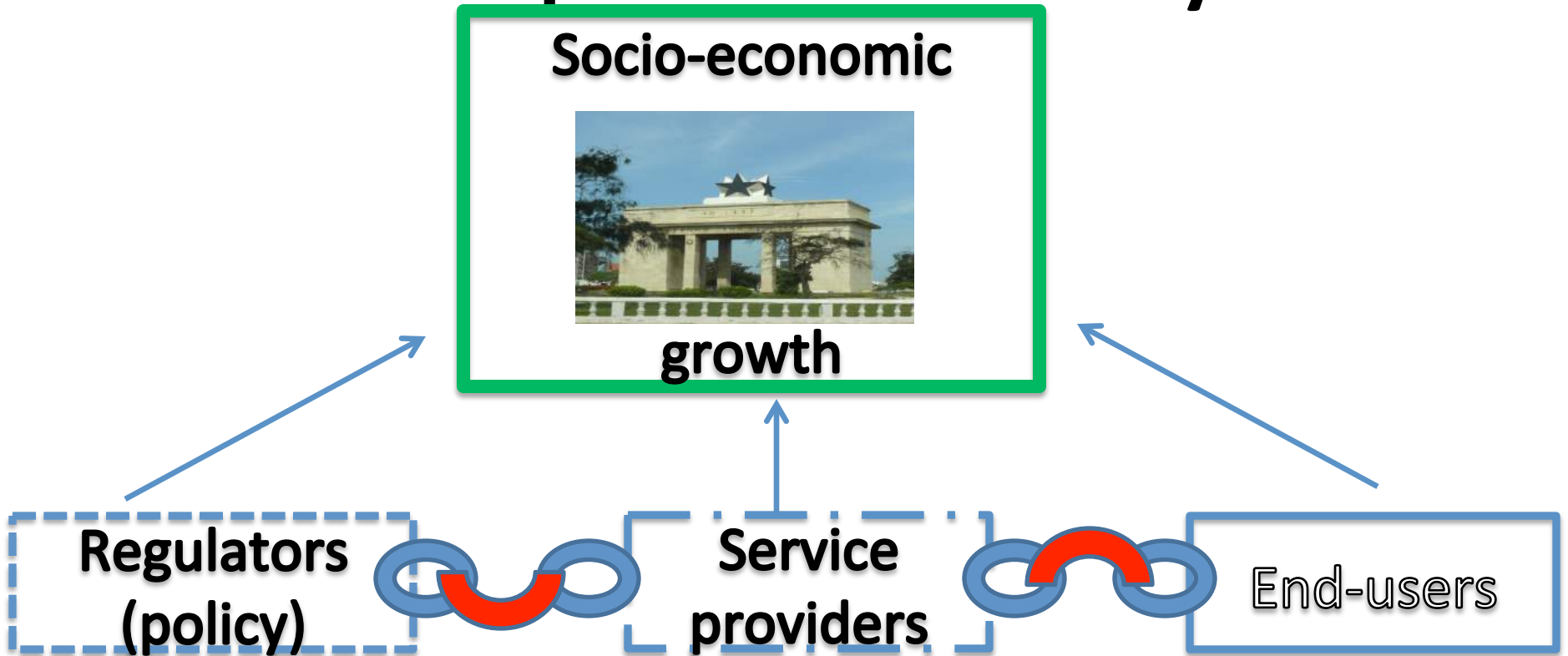
**Regulators
(policy)**



**Service
providers**



End-users





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The need for alternative energy supply in Ghana

- Low water levels, due to insufficient rainfall patterns in the countries major hydroelectric power plant (Akosombo)
- Absence of natural gas to fire the countries thermal power plants

Justification for a solution

- 2% to 6% of Ghana's annual cost of GDP (Ghana Wholesale Power Reliability Assessment Report) - Power Systems Energy Consulting and GRIDCo
- Average of 4% annual cost of GDP

\$1.5 billion to fix the power crisis what percentage of this is from our GDP- VRA in 2014

Ghana's GDP in Dumsor years

- **2010**

Ghana made \$48,678 million = \$ **1.94712 million**

- **2013**

Ghana made \$32.18 million dollars = \$ **1.2872 million**

- **2014**

Ghana made \$38.61 million = \$ **1.5444 million**

- **2015**

Ghana made \$37.86 million = \$ **1.5144 million**

Drivers of GDP

Electricity Consumption by Customer class GWh



Source: Energy Commission 2016

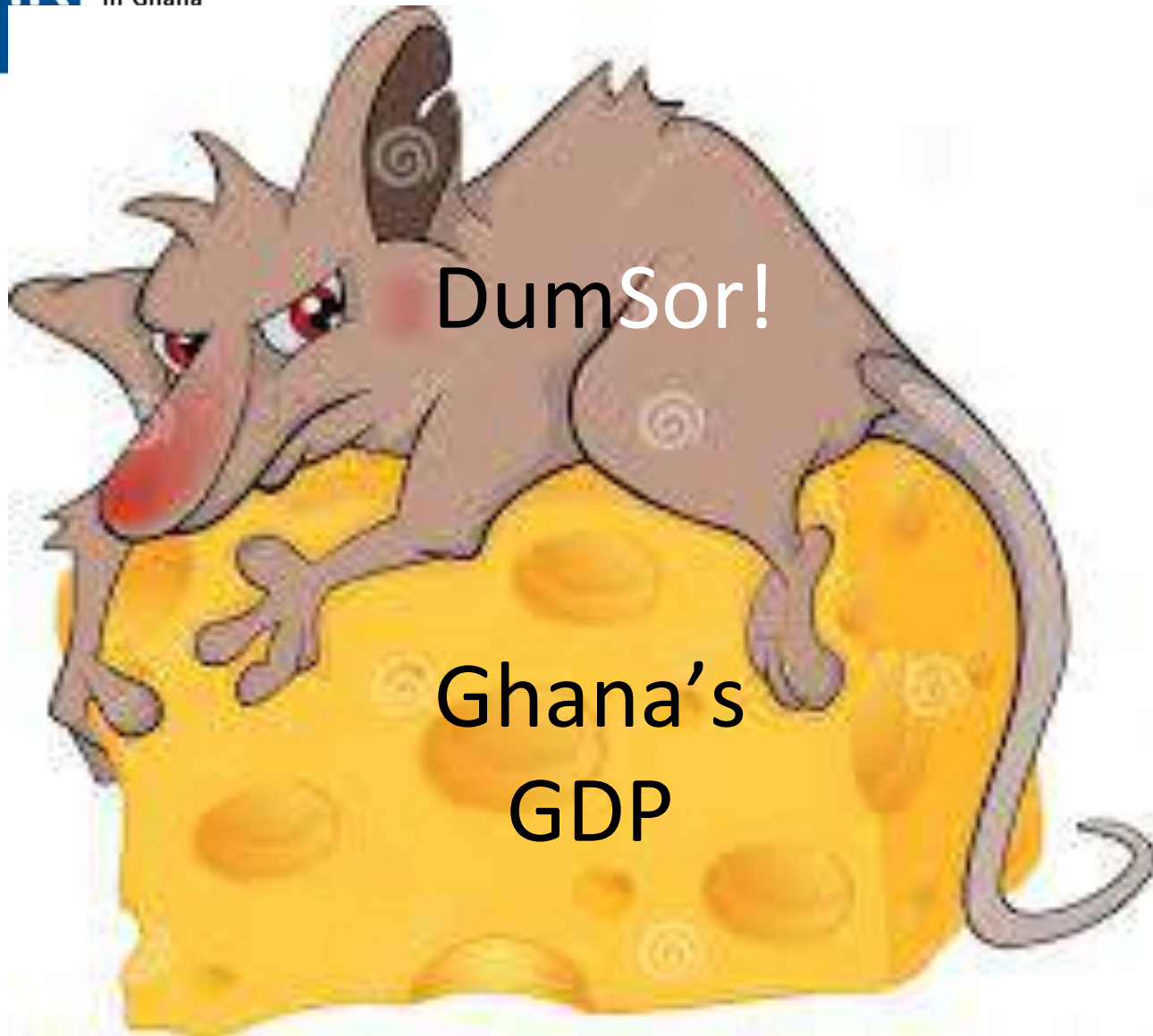
Sector	Annual contribution of GDP in percentage (%)		
	2014	2015	2016
Agriculture	28.2	27.2	12.2
Industry	24.7	22.4	27.7
Services	47.1	50.4	60.1

Source: Ghana Statistical Service 2016



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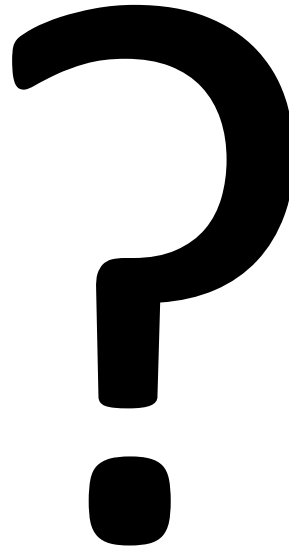
DumSor!

Ghana's
GDP



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Alternative energy solutions

Nuclear



RE



Coal





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Exploring Alternatives

- Understanding of the prospects such alternatives present
- What is currently happening to demand and supply (market for those alternatives we desperately need)?
- Alternatives cannot operate in isolation, they are guided by policy (what policy favours these alternatives)



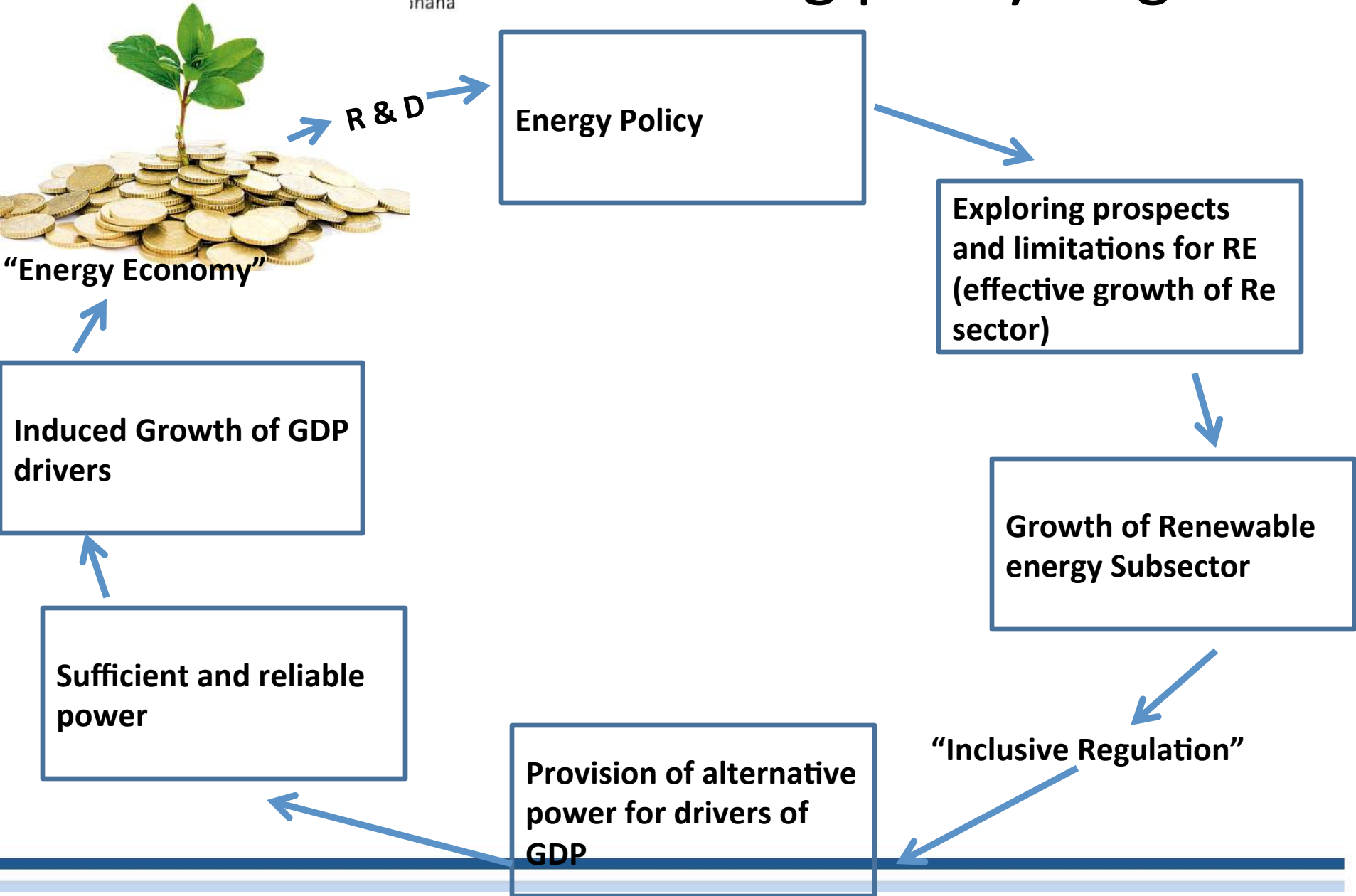
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Exploring Alternatives

- Does policy effectively guide the growth and development of the RE-sub sector it was built to enhance?
- If it does what are the strengths, weaknesses, opportunities and constraints in its guidance
- How can these alternatives be explored in solving a power crisis that's impeding growth in the Ghanaian economy

Linking policy to growth



SWOT Analysis of current Energy Policy

RE and Cross-cutting policy subsectors

- **Overarching energy sector goal:** To develop an “energy economy” to secure a reliable supply of high quality energy services for all sectors of the Ghanaian economy and also to become a major exporter of oil and power by 2012 and 2015 respectively (EP (2010), p.5)
- **RE Subsector:** To increase proportion of RE in the total energy mix and ensure its efficient production and use
 - Engaging Ghanaian engineers and scientists to cooperate with international experts to bring down the cost of solar and wind technologies
 - Creating fiscal and pricing incentives to enhance the development and use of RE
- **Managing the future:** To build a transparent and effective regulatory environment as well as strengthen the regulatory institutions to fulfill their mandate effectively
- **Energy and Gender:** To mainstream gender concerns in the energy sector and align them with proper safety and environmental standards
- **Energy Efficiency and Conservation:** To remove obstacles that have constrained the promotion and implementation of Energy Efficiency and conservation measures through: 1.Fiscal incentives 2.Awareness creation 3.Institutional and human resource capacity development and 4.Financial intermediation

SWOT Analysis of current Energy Policy

Strengths for RE

- ECOWAS sub-regional RE targets of 10% by 2020 and 19% by 2030-**Overarching energy sector goal**
- Ghana's signatory to the WAPP
- Renewable Energy Act of 2011 (fantastic four)
 - Net metering code
 - Feed In Tariff (FIT) schemes,
 - Energy Fund
 - Renewable Energy Purchase Obligation (REPO)



SWOT Analysis of current Energy Policy

Strengths for RE

- Increasing International investment interest in Ghana's energy sector - **RE Subsector**
- The availability of institutions necessary for the implementation of policy provision's (e.g. Energy Commission, Public Utility and Regulatory Commission etc) - **Managing the future**
- An EP that factors gender mainstreaming as a sub-sector- **Energy and Gender**
- Impacts of successfully executed Energy Efficiency and conservation - **Energy Efficiency and Conservation**



SWOT Analysis of current Energy Policy

Weaknesses for RE

- Lack of sovereign guarantees for utility scale PPA's-
Overarching energy sector goal
- The lack of a creditworthy off taker to guarantee future payment of Power Purchase Agreements- **RE Subsector**
- Delays in implementing sections of the Renewable energy Act e.g. REPO- **RE Subsector**
- Lack of both local and foreign investment interest in the manufacture of components for RE technologies- **RE Subsector**



SWOT Analysis of current Energy Policy

Weaknesses for RE

- Lack of a proper and effective coordination of information among state institutions for efficiently carrying out custom duties and tax incentives- **Managing the future**
- Restricted number of women in energy service provision and management- **Energy and Gender**
- Absence of clearly defined policy or comprehensive laws on Energy Efficiency across- **Energy Efficiency and Conservation**



SWOT Analysis of current Energy Policy Opportunities

- A stable and political atmosphere-**Overarching energy sector goal**
- Successive power crisis that have demonstrated the unreliable nature of conventional sources of energy- **RE Subsector**
- Laws that favor the establishment of manufacturing industries in Ghana

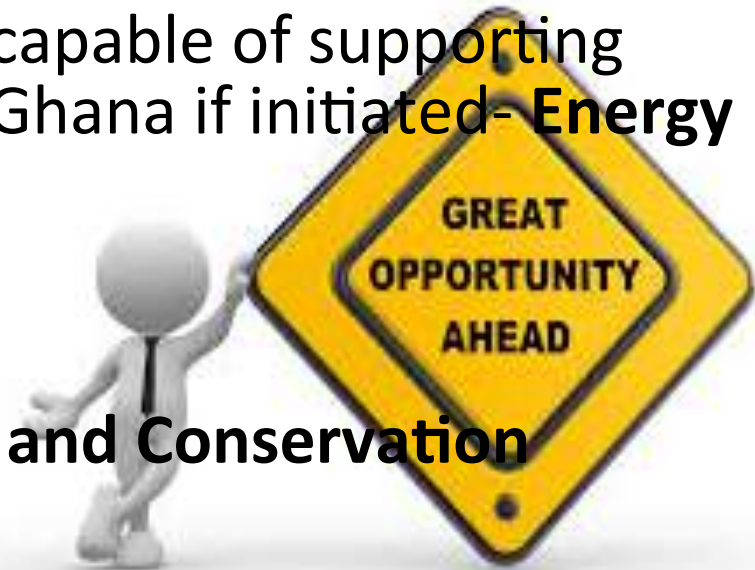
(Exemption from Equity requirements per GIPC Act 865)

-RE Subsector



SWOT Analysis of current Energy Policy Opportunities

- Potential to generate revenue to public institutions, boosting the RE sector and the Economy as a whole
- Ghana's potential of serving as a driver of RE technologies to other countries in the sub-region **Managing the future**
- The existence of an entire ministry capable of supporting energy and gender programmes in Ghana if initiated- **Energy and Gender**
- Power crisis of recent years served as a wake-up call- **Energy Efficiency and Conservation**



SWOT Analysis of current Energy Policy

Threats

- Discontinuation of policies with the potential political change in governments- **Overarching energy sector goal**
- Potential political interference in the appointment of competent and accepted managers for managing utilities (VRA, ECG, NEDCO)- **Overarching energy sector goal**
- Lacking readiness of governments to embrace Utility scale RE technologies as a credible alternative for solving our power crisis- **RE Subsector**
- High cost of import duties, if raw materials are imported separately to be used in RE systems- **RE Subsector**



SWOT Analysis of current Energy Policy

Threats

- Growing local service providers cannot meet commercial bank requirements for assessing loan schemes- **RE Subsector**
- Seeming lack of interest by females in the male dominated technical RE value chain- **Energy and Gender**
- Unjustified policy directives and instable tax environment (eg, CET, 5% on solar generating sets/ 20% duty + 17.5% VAT on LEDs are not streamlined RE Act)- **Energy Efficiency and Conservation**





Exploring prospects and limitations of the RE subsector

- 27 licensed service providers
- 55 End-user/clients of Service providers



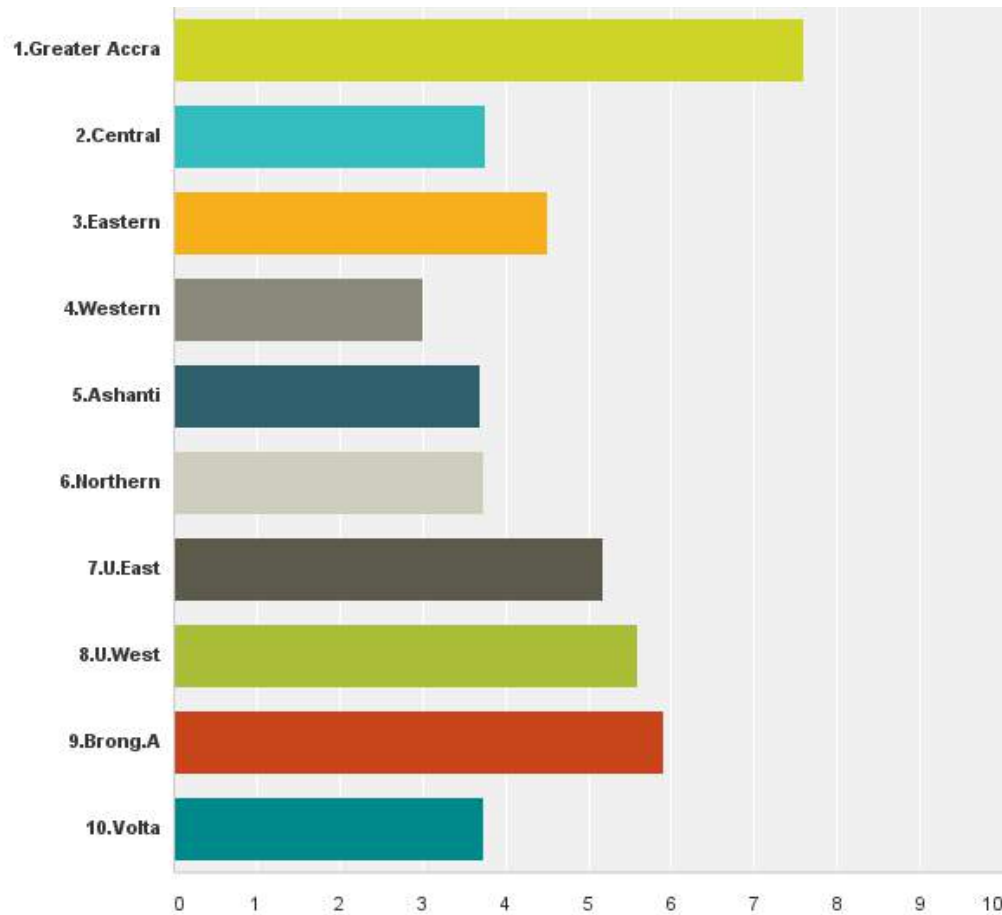
Growth of Renewable energy Sub-sector

- A growing global role and rational for batteries
- Characteristics of High cost components of any Solar PV/back-up system in Ghana (Prospects, Limitations and Market potential)
- **Supply side prospects of service providers of solar PV / wind in Ghana**

So what did we find?

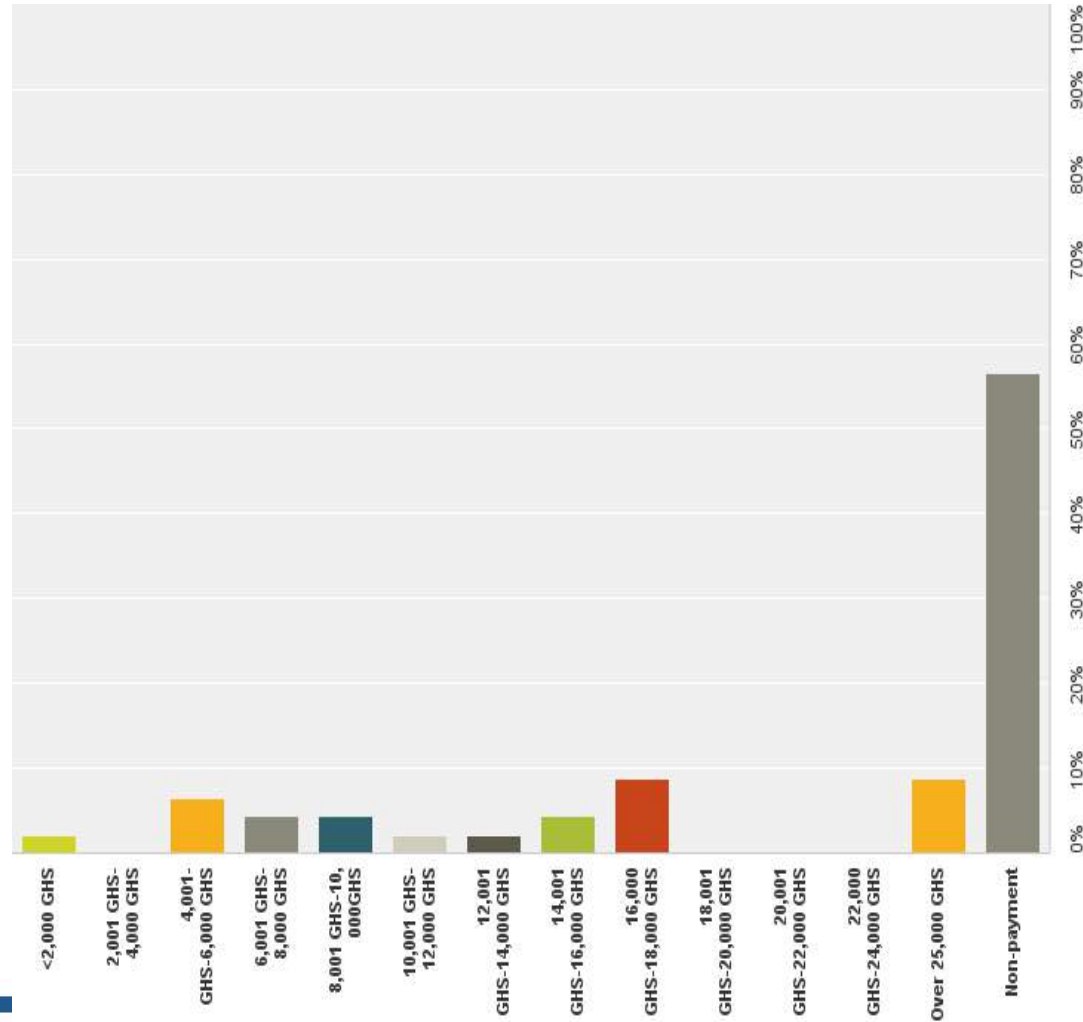


Market Locations of RE service providers.



So what did we find ?

Solar PV Installation costs –end-user responses





So what did we find ?

Client base of RE service providers

Answer Choices	Responses	
0-50	34.62%	9
51-100	19.23%	5
101-150	7.69%	2
151-200	11.54%	3
201-250	7.69%	2
251-300	0.00%	0
301-350	3.85%	1
351-400	0.00%	0
401-450	0.00%	0
451-500	0.00%	0
501-550	0.00%	0
600-650	0.00%	0
+700	15.38%	4
Total		26



So what did we find ?

End-user responses on hire purchase of solar battery backup systems

Answer Choices	Responses
Yes	21.82% 12
No	78.18% 43
Total	55

So what did we find ?



(Recommendations- service providers)

“The Government must endeavour to raise the awareness of the people in the country to patronize renewable energy so as to relieve the National grid of some load”

“duties on the importation of renewable energy products are very expensive”

“Access to credit is very difficult here in Ghana. We expect government to provide soft credit facilities and tax incentives for solar businesses. We lost an opportunity to represent a UK Company as their sole distributor of solar products in Ghana due to lack of funds to procure our first order”

“Subsidization through an income tax system, where a percentage of the income tax can be lowered/abated, and that specific percentage, given as a tax holiday for a period, to enable the tax payer to allocate the given percentage to the purchase of solar system. In the long run, consumption would be lowered and the surplus can be used for productive use of electricity in industry.

“There should also be the registration of solar importers, to be able to import different components to be imported from different countries. There can be very strict penalties put in place, such that if components are for used for other purposes, they can be penalized severely in addition to paying for all the taxes the separate components imported”



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Recommendations

- Registered service providers could be allowed to import high cost components separately, but under close scrutiny
- Continual dialogue and action and coordination of efforts/actions towards achieving the realistic goals of the power sector.
- Policy harmonisation and inter-sectorial/ ministerial/industry dialogues are key success factors for the benefits of the energy policy to be realised.



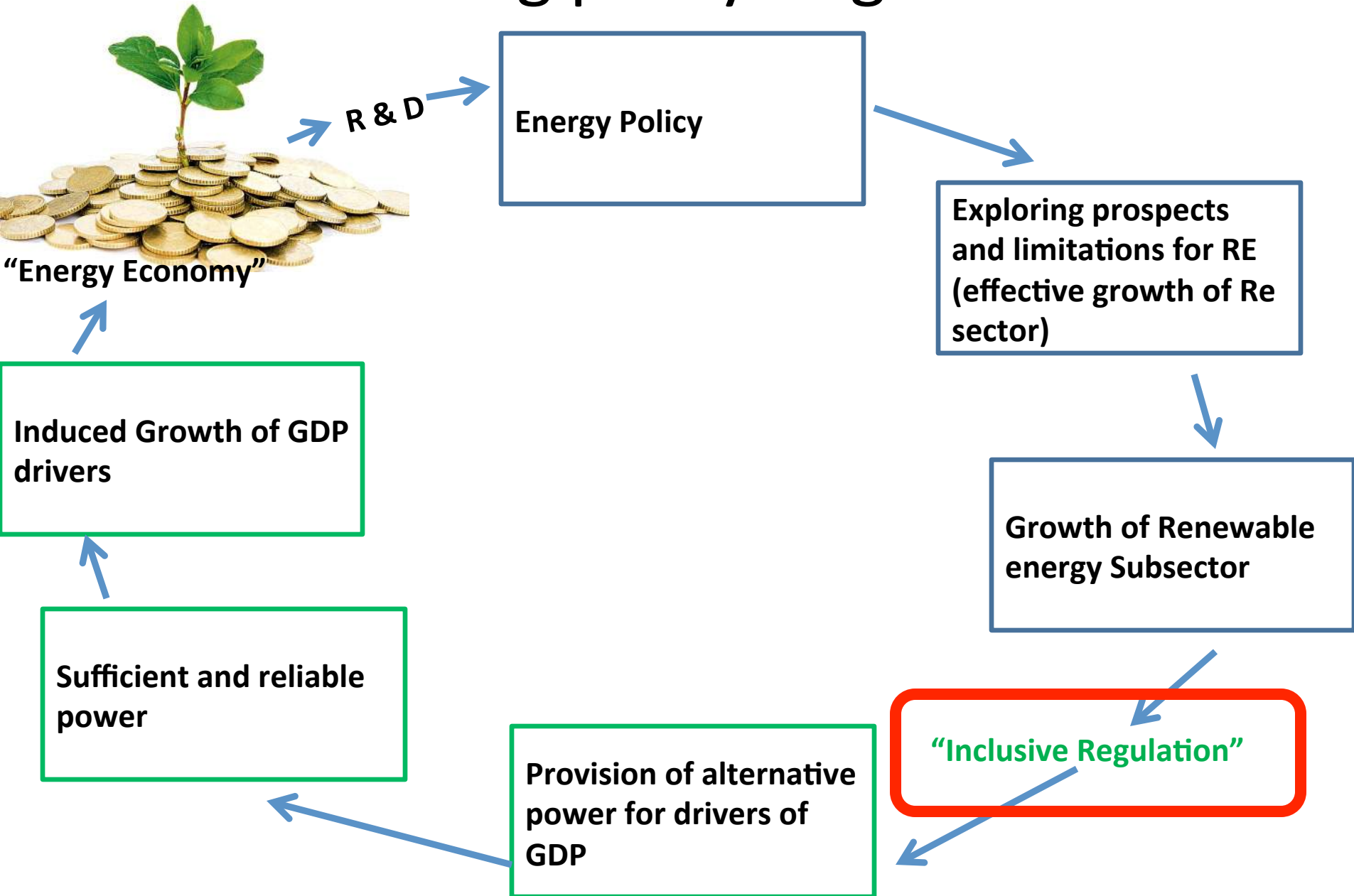
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Recommendations

- Policies would have to factor and properly regulate hire purchase agreements to ensure standard procedures are followed, and not represented in the RE Act.
- Policies would have to factor in enforcement of standards for RE components to ensure the quality of systems

Linking policy to growth





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- Ghana Can do to RE what India did to IT, we have the enabling environment to do so, and we can explore the ever increasing investor interests to our benefits, to create synergies for efficient growth of our economy and that's how you link policy to growth



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THANK YOU !