

CLIMATESCOPE



CLIMATESCOPE

OVERVIEW

What is Climatescope?

- An initiative to provide timely, accurate, and actionable data that informs smart investment, corporate, and policy decision making. Ultimate goal: *mobilize capital for clean energy in emerging markets.*
- An index measuring relative conditions for clean energy development in specific nations with a system scoring those nations on a 0-5 basis.
- A comprehensive report providing detailed descriptions of policy frameworks, financial resources, and markets in developing countries.
- An interactive online tool allowing users to examine relevant data in greater depth through a graphical interface.
- A major new open-source data resource that NGOs, MDBs and others working in the low-carbon energy development / energy access field can download for use in their research.

Climatescope tools

GLOBAL CLIMATESCOPE
Assessing the Climate

South Africa

OVERALL RANKING: 2014
3

OVERALL SCORE: 2014
1.92

PARAMETER

- I. Enabling Framework
- II. Clean Energy Investment & Climate Financing
- III. Low Carbon Business & Clean Energy Value Chains
- IV. Greenhouse Gas Management Activities

SUMMARY

South Africa scored 1.92 to rank third in Climatescope 2014, and first among African countries. The country's clean energy sector has been fundamental recently in the last few years. It has made it into the top 10 globally for clean energy investment and accounted for around 40% of investment in sub-Saharan Africa during the period. Indeed, it was second best globally on Clean Energy Investment, Parameter II, its highest ranking.

The country also scored well on Clean Energy Value Chains, Parameter III, taking third place overall. The manufacturing sector is expanding rapidly due to local content requirements.

Solar energy is the largest share of clean energy investment to date, a total of \$5.7bn out of \$1.4bn since 2008. This is being driven by the push to run South Africa's new uranium's reactor a medium size (2 world performance aspects of the new South Africa's gas plants in 2015, by 2016. Renewable mix, but the latter is a larger volume.

AFRICA INSTALLED POWER CAPACITY BY SECTOR (MW) AND CLEAN ENERGY CAPACITY BY SECTOR (MW)

Source: Bloomberg New Energy Finance

CLEAN ENERGY POLICIES IN AFRICA

Policy Area	Algeria	Angola	Botswana	Chad	Cote d'Ivoire	Egypt	Ethiopia	Ghana	Kenya	Libya	Mali	Morocco	Nigeria	Rwanda	Tanzania	Togo	Zambia
Energy Target																	
Feed-in tariff																	
Renewables																	
Renewables financing incentives																	
Renewable energy incentives																	
Tax incentives																	
Utility regulation																	

CLIMATE SCOPE 2014
Mapping the Global Frontiers for Clean Energy Investment

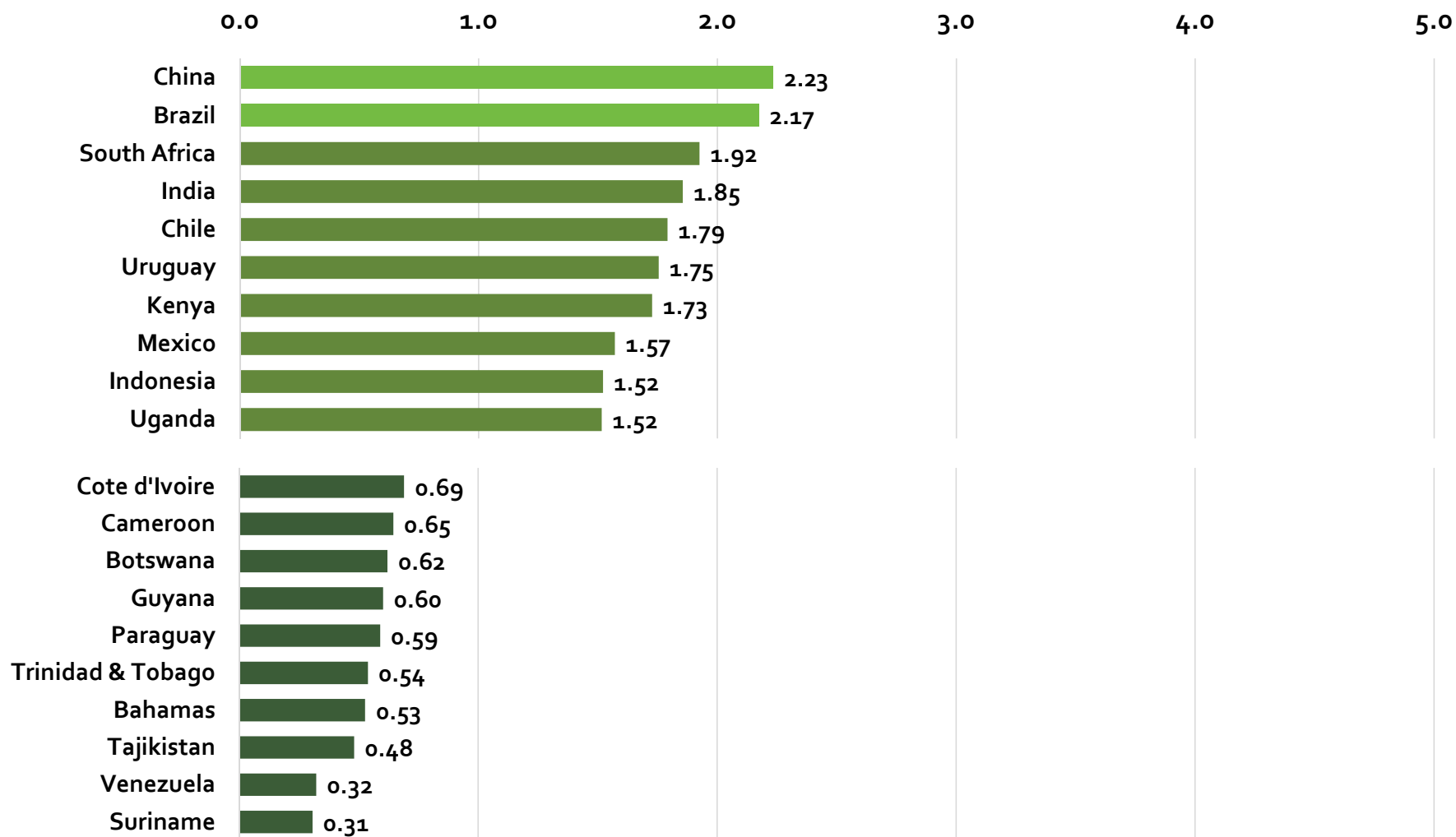
www.global-climatescope.org

Rank	Country	Score	Progress Bar	Icon
1	China	2.23	[Progress Bar]	⚡
2	Brazil	2.13	[Progress Bar]	⚡
3	India	1.85	[Progress Bar]	⚡
4	South Africa	1.84	[Progress Bar]	⚡
5	Chile	1.79	[Progress Bar]	⚡

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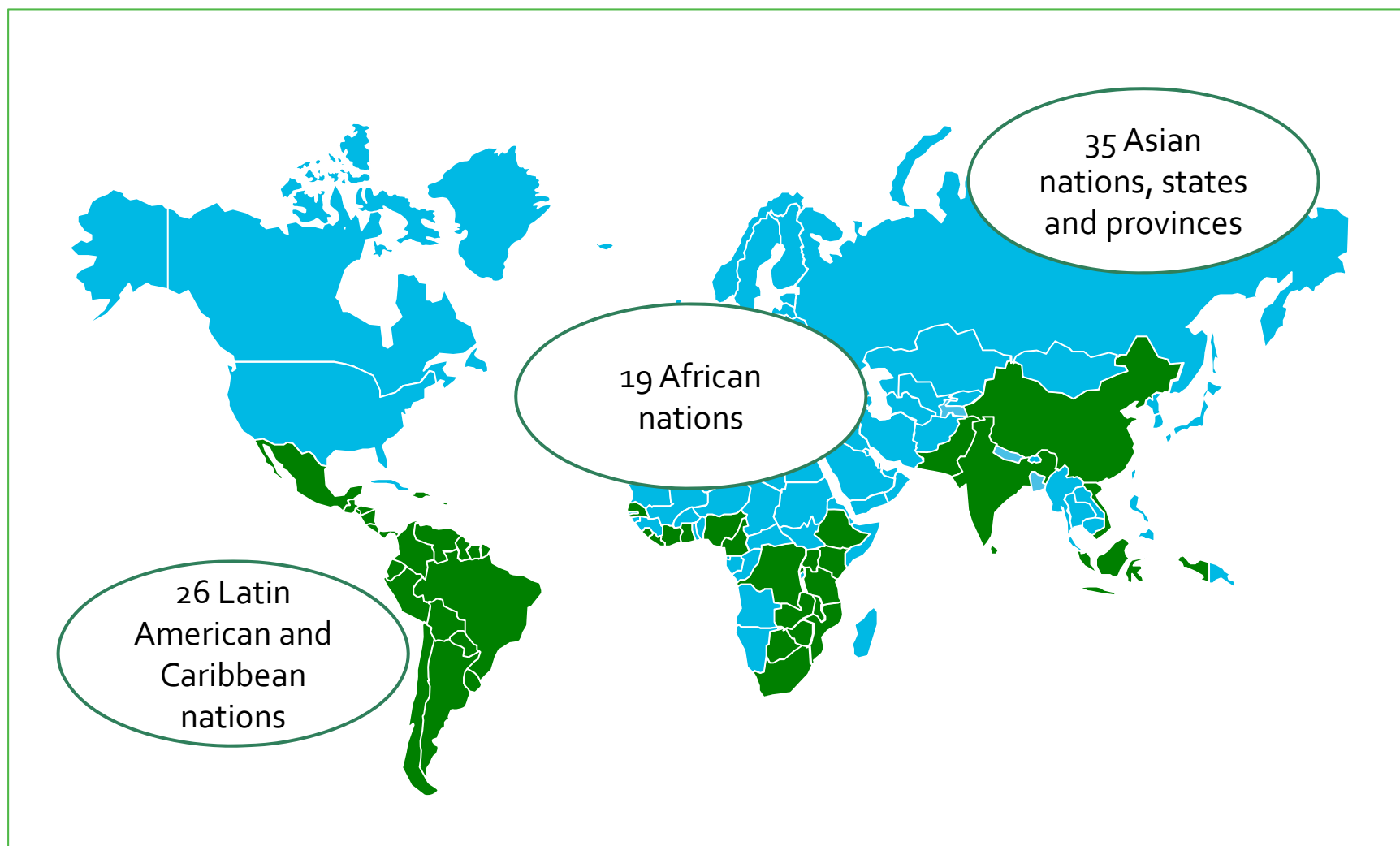
GLOBAL INDEX

Top 10 and bottom 10 overall rankings



Source: Climatescope 2014

Climatescope 2014



How did we build the Climatescope?

ENABLING FRAMEWORK

90 SUB-INDICATORS

CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

14 SUB-INDICATORS

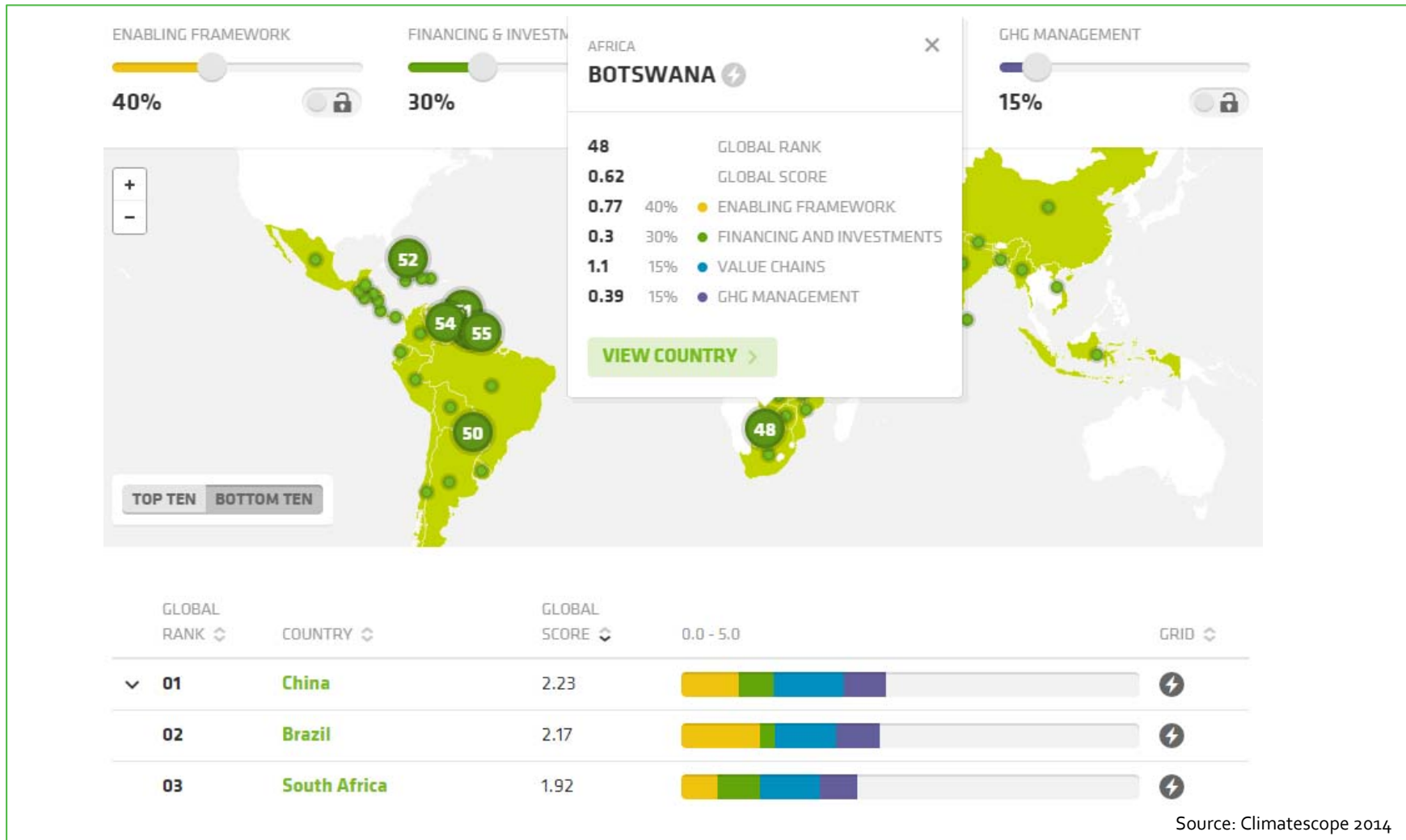
LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

78 SUB-INDICATORS

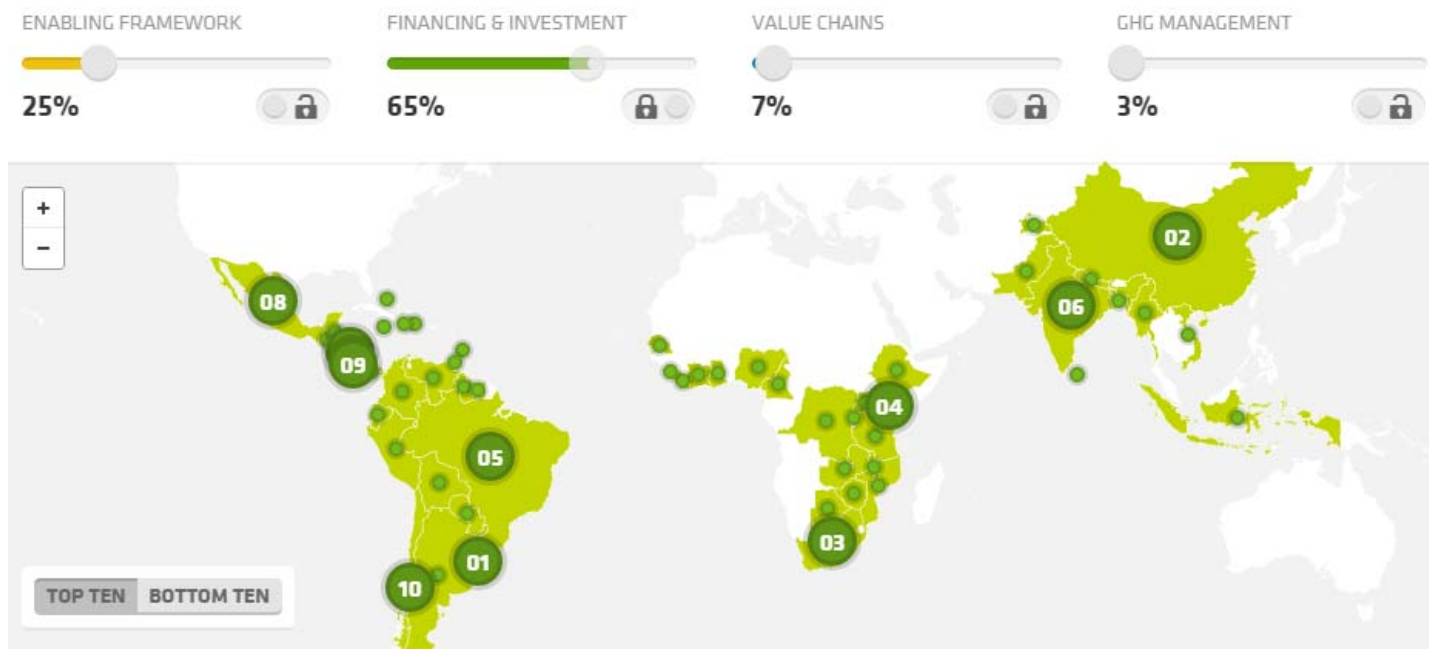
GREENHOUSE GAS MANAGEMENT ACTIVITIES

13 SUB-INDICATORS

Scores weighted by parameters



Adjustable parameter weightings



GLOBAL RANK	COUNTRY	GLOBAL SCORE	0.0 - 5.0	GRID
01	Uruguay	1.84		
02	China	1.68		
03	South Africa	1.63		

Source: Climatescope 2014

Climatescope methodology: overview

ENABLING FRAMEWORK

- Policy and regulation
- Clean energy penetration
- Price attractiveness
- Market size expectation

CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

- Amount invested
- Fund sources
- Green microfinance
- Cost of debt

LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

- Clean energy service providers
- Value chains by clean energy sector
- Financial institutions in clean energy

GREENHOUSE GAS MANAGEMENT ACTIVITIES

- Carbon offsets
- Carbon policy
- Corporate awareness

Climatescope methodology: overview

ENABLING FRAMEWORK

- Policy & regulation
- Clean energy penetration
- Price attractiveness *inc. diesel & kerosene*
- Market size expectation *inc. elec. rate*
- *Distributed energy regulatory framework*
- *Energy access policies*

LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

- Clean energy service providers
- Value chains by clean energy sector
- Financial institutions in clean energy
- *Mini-/off-grid value chains*

CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

- Amount invested
- Fund sources
- Green microfinance
- Cost of debt
- *Grants*

GREENHOUSE GAS MANAGEMENT ACTIVITIES

- Carbon offsets
- Carbon policy
- Corporate awareness

Mini-grid policies and regulations

DISTRIBUTED ENERGY REGULATORY FRAMEWORK

- Cost-reflective tariffs
- Duration of tariffs
- Tariff deregulation
- Standardised PPAs
- PPAs of sufficient duration
- Purchase obligation
- Clear rules on interconnection
- Clear rules on arrival of the main grid
- Quality of service standards
- SPPs can deliver financial services

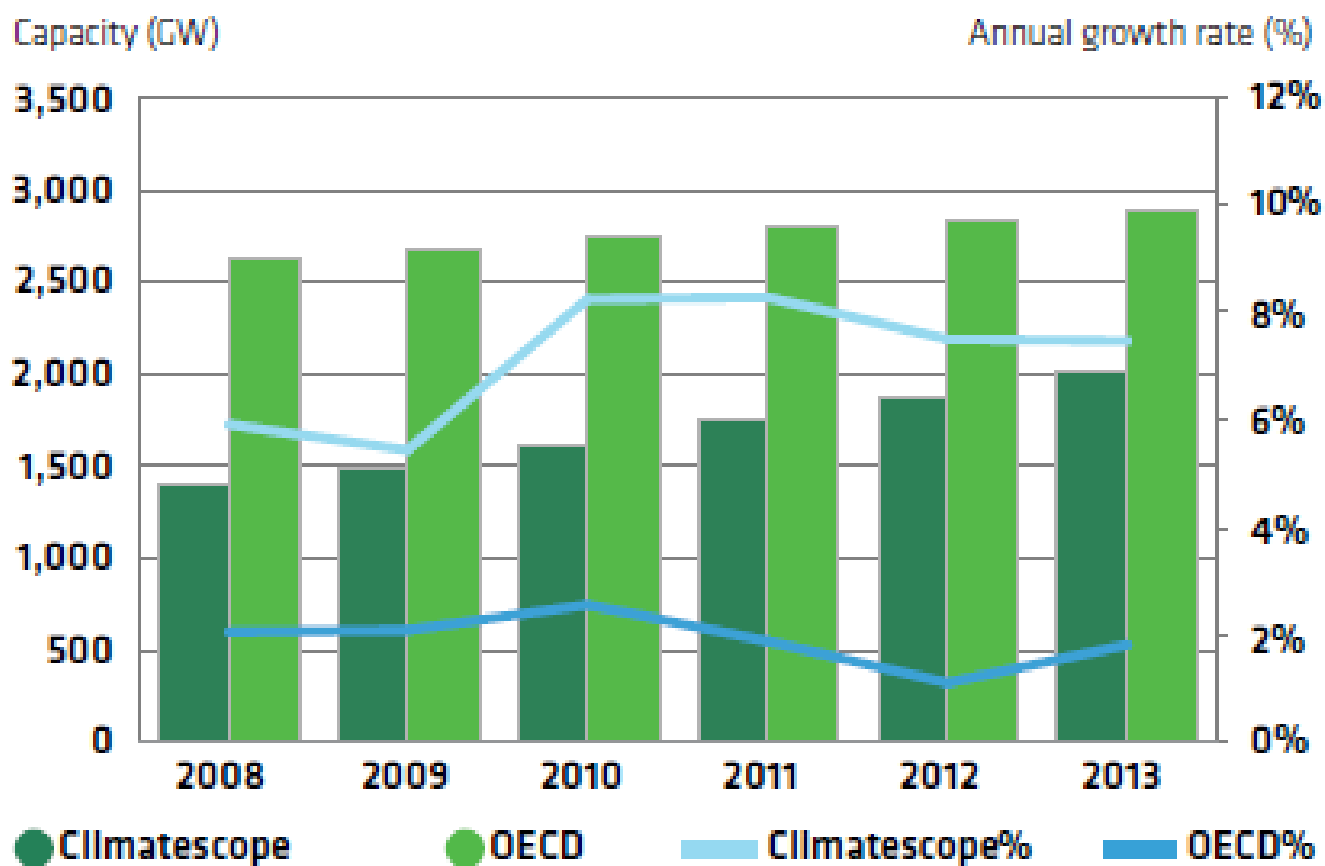
ENERGY ACCESS POLICIES

- Rural electrification programmes
- Program status
- Dedicated agency
- Energy access targets
- Clean energy plan
- Connection grants
- Generation incentives
- Tax / duty reductions
- Mobile money incentives
- Licensing barriers

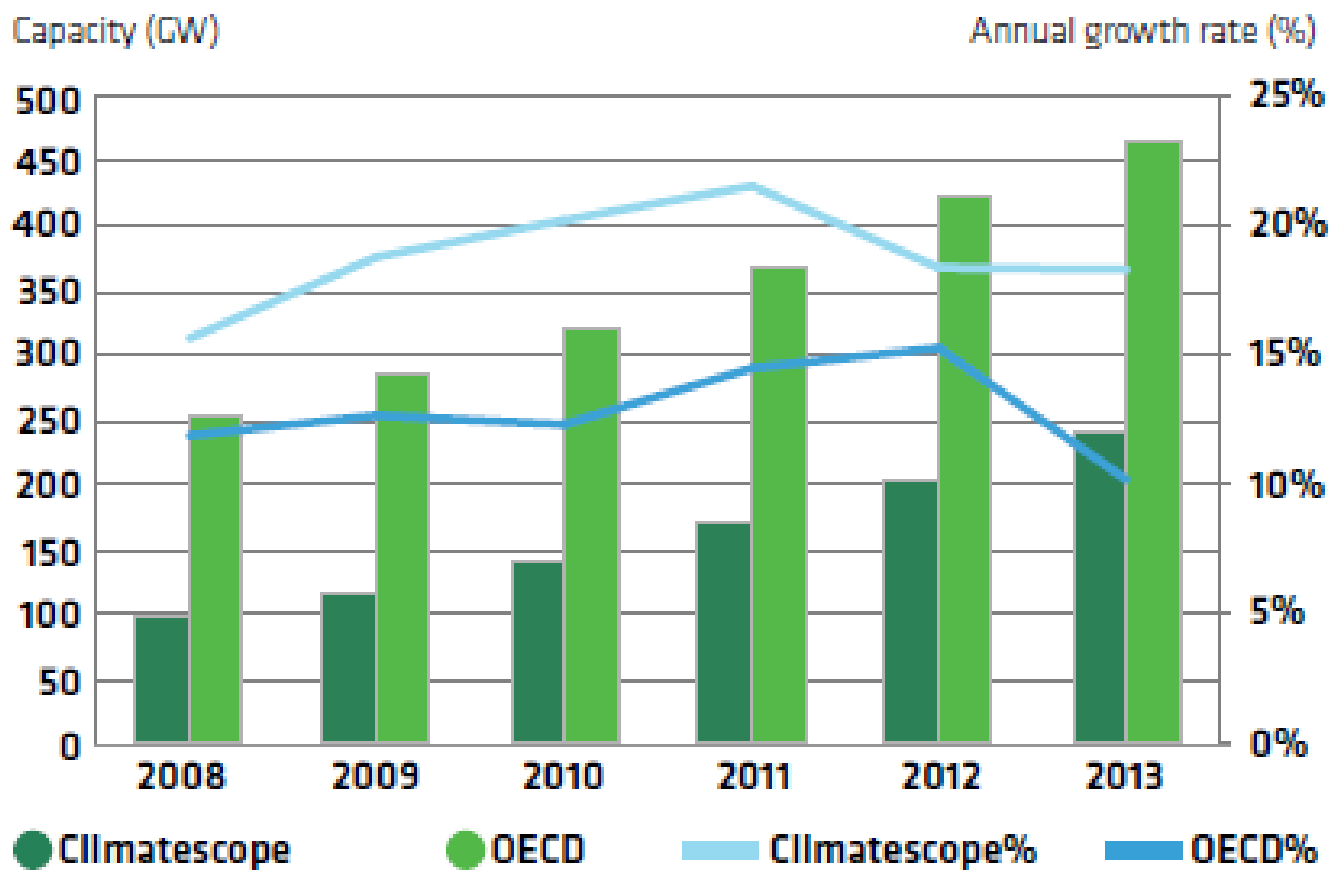
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GLOBAL INSIGHT

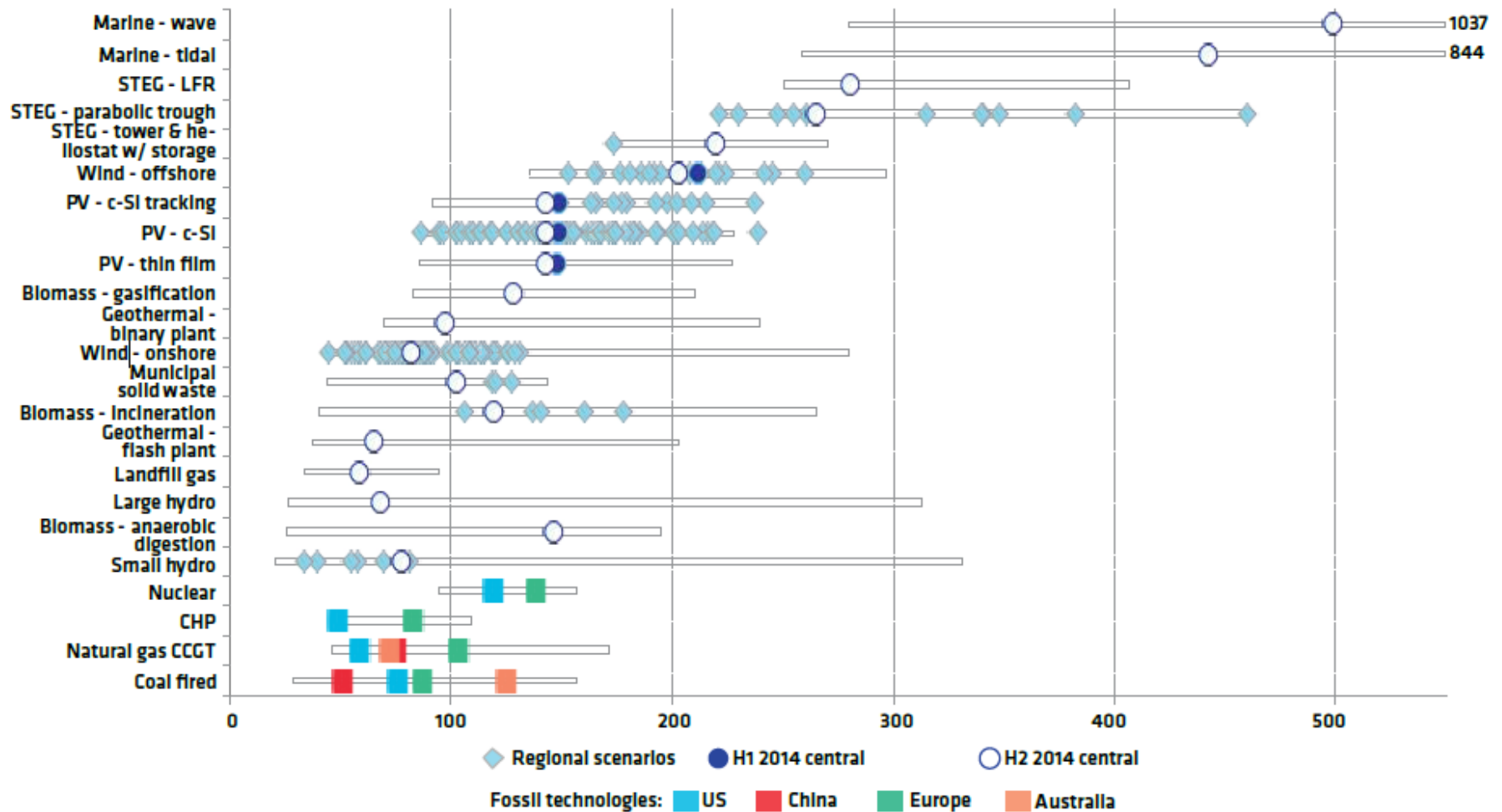
Climatescope vs. OECD countries total installed power generation capacity (GW) and growth (%), 2008-13



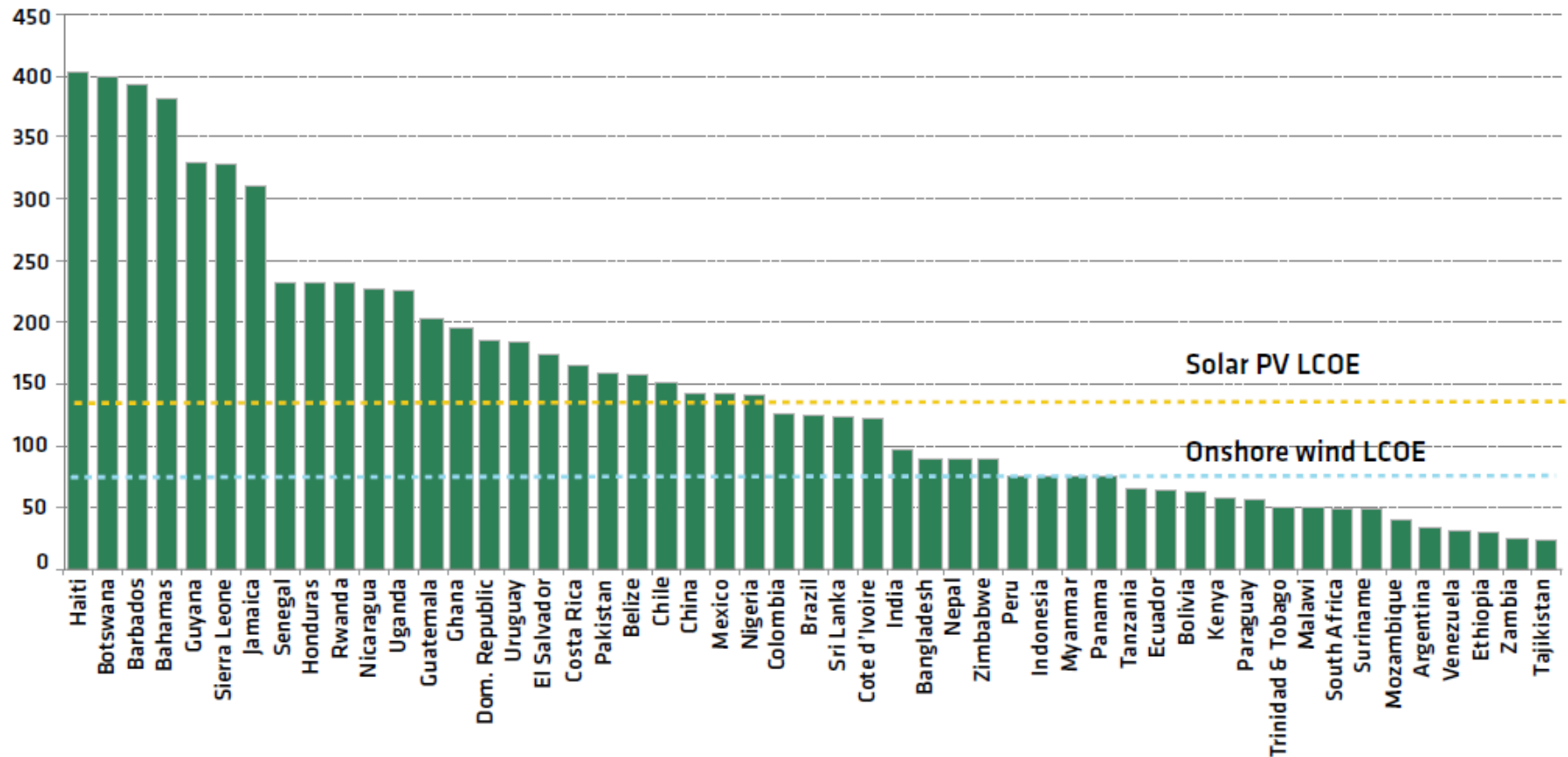
Climatescope vs. OECD countries non-large hydro clean energy installed capacity (GW) and growth (%), 2008-13



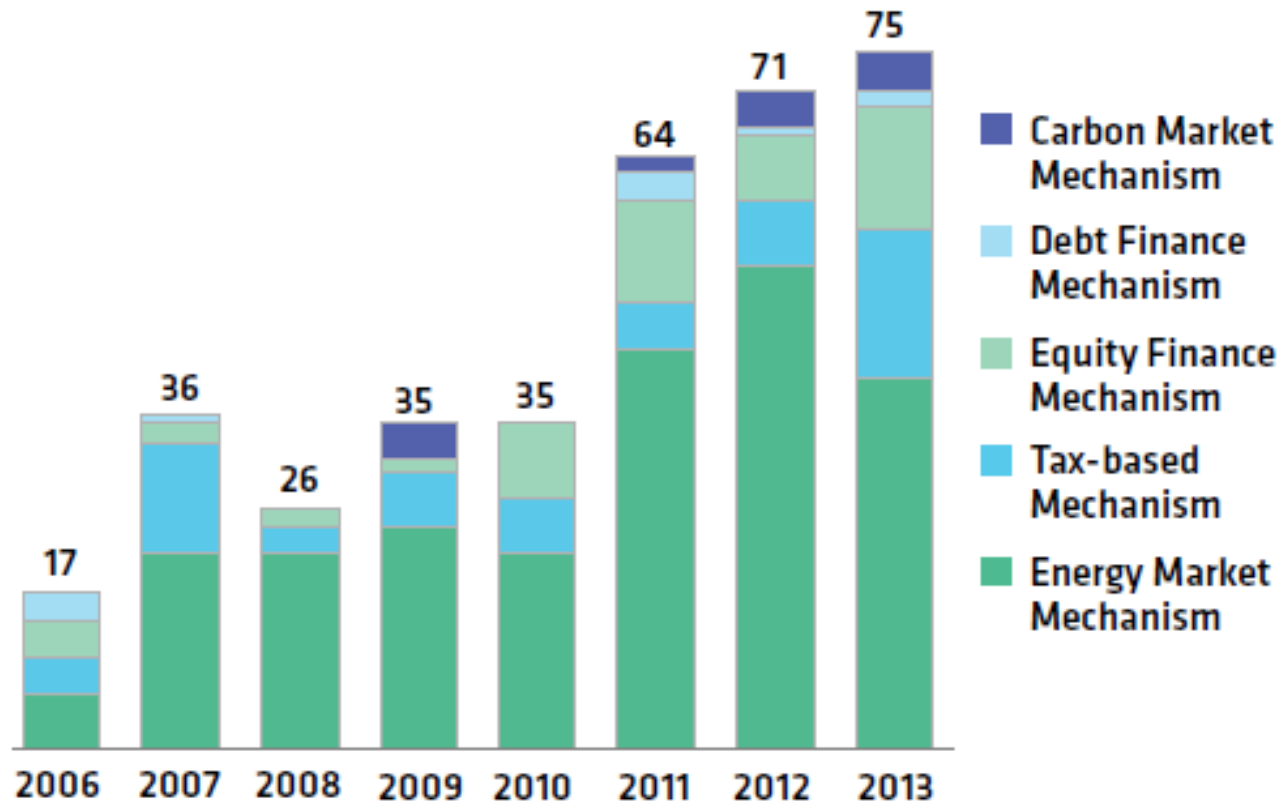
BNEF levelized cost of electricity, H2 2014



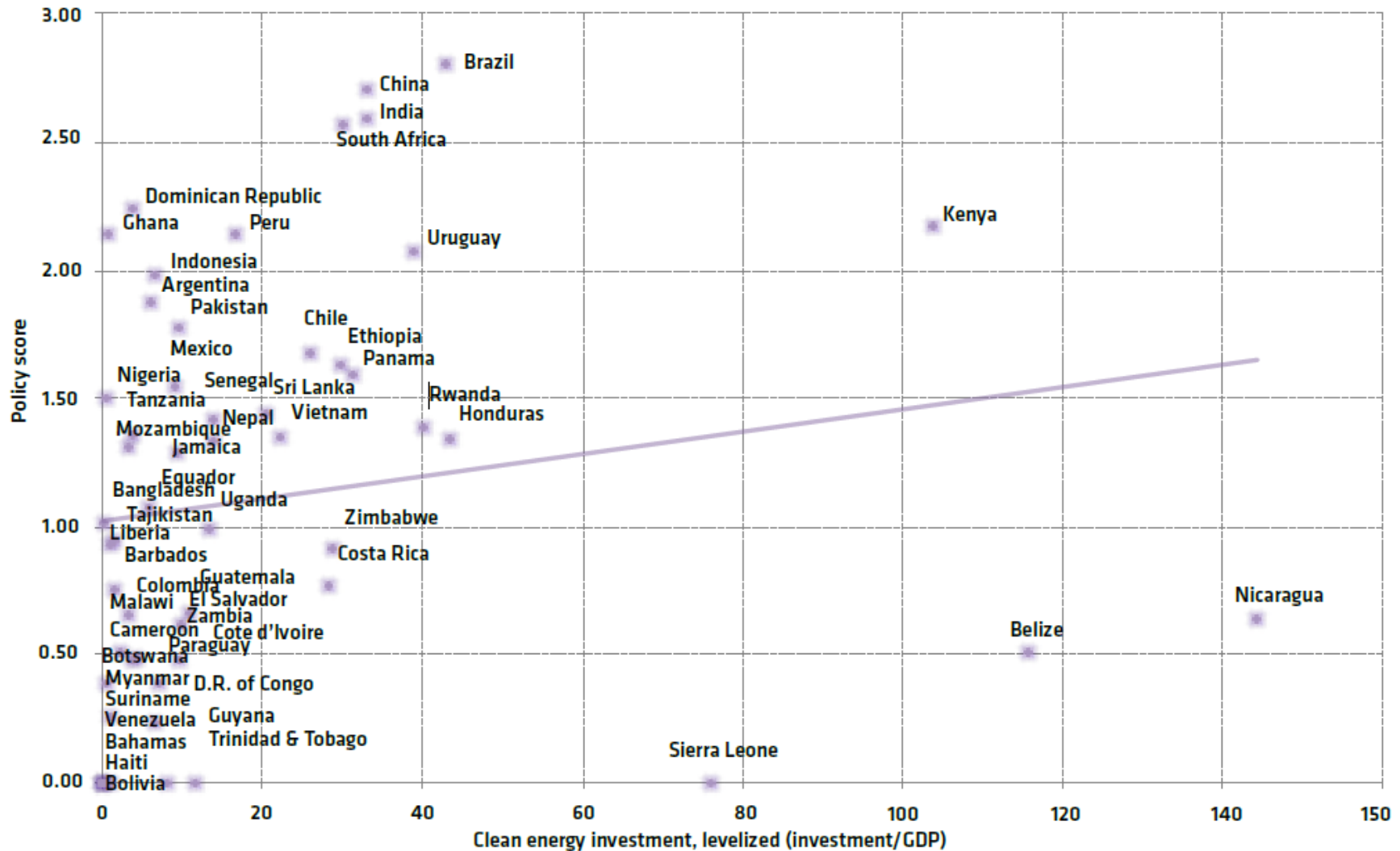
Industrial power prices vs onshore wind and solar photovoltaic LCOE, 2013 (\$/MWh)



Climatescope countries: policies in force by type and year of establishment



Policy scores vs clean energy investment



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**PARAMETER
SCORES**

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- Amount invested
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LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

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- Value chains by clean energy sector
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GREENHOUSE GAS MANAGEMENT ACTIVITIES

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- Carbon policy
- Corporate awareness

Parameter I: Enabling framework

Rank	Country	Score	Reason
1	Brazil	2.14	Supportive local policy framework, growth of installed renewables capacity, rising biofuel production and high spot power prices
2	Rwanda	1.74	High relative level of clean energy penetration compared to a smaller economy, supportive energy access policies and high local energy prices
3	China	1.57	Strong local clean energy policy structures, rapidly rising overall demand for generation
4	Kenya	1.57	Positive efforts on energy access policies, including a rural electrification program; very high local energy prices
5	Dominican Republic	1.54	Strong clean energy policy regime, including net metering, feed-in tariffs and tax incentives.

Source: Climatescope 2014

Parameter II: Clean energy investment

Rank	Country	Score	Reason
1	Uruguay	2.03	\$1.3bn in new funds secured, a huge haul compared to its \$56bn GDP economy
2	South Africa	1.53	\$10.5bn 2006-2013 cumulative investment; scored highly for its clean energy investment growth rate, and for the volume secured locally
3	China	1.29	The global leader in clean energy investment on a dollar volume basis
4	Nicaragua	1.16	Since 2006, a Climatescope leader with \$1.6bn secured cumulatively; high number of local green microfinance institutions
5	El Salvador	1.12	Attracted \$51m for its first large-scale PV plant in 2013; significant green microfinance network

Source: Climatescope 2014

Parameter III: Low carbon business and clean energy value chains

Rank	Country	Score	Reason
1	China	5.00	World's largest clean energy equipment maker has players in every value chain segment surveyed
2	Brazil	4.41	Local content rules tied to Brazil development bank financing have accelerated a local clean energy value chain build-out
3	South Africa	4.34	Traditionally strong presence of local financial firms plus concerted effort to expand manufacturing through local content rules
4	Pakistan	4.13	Strong presence of players facilitating off-grid renewables development
5	India	4.10	Substantial wind manufacturing capacity and ample service and financial providers; expanding photovoltaic manufacturing capacity

Source: Climatescope 2014

Parameter IV: GHG management activities

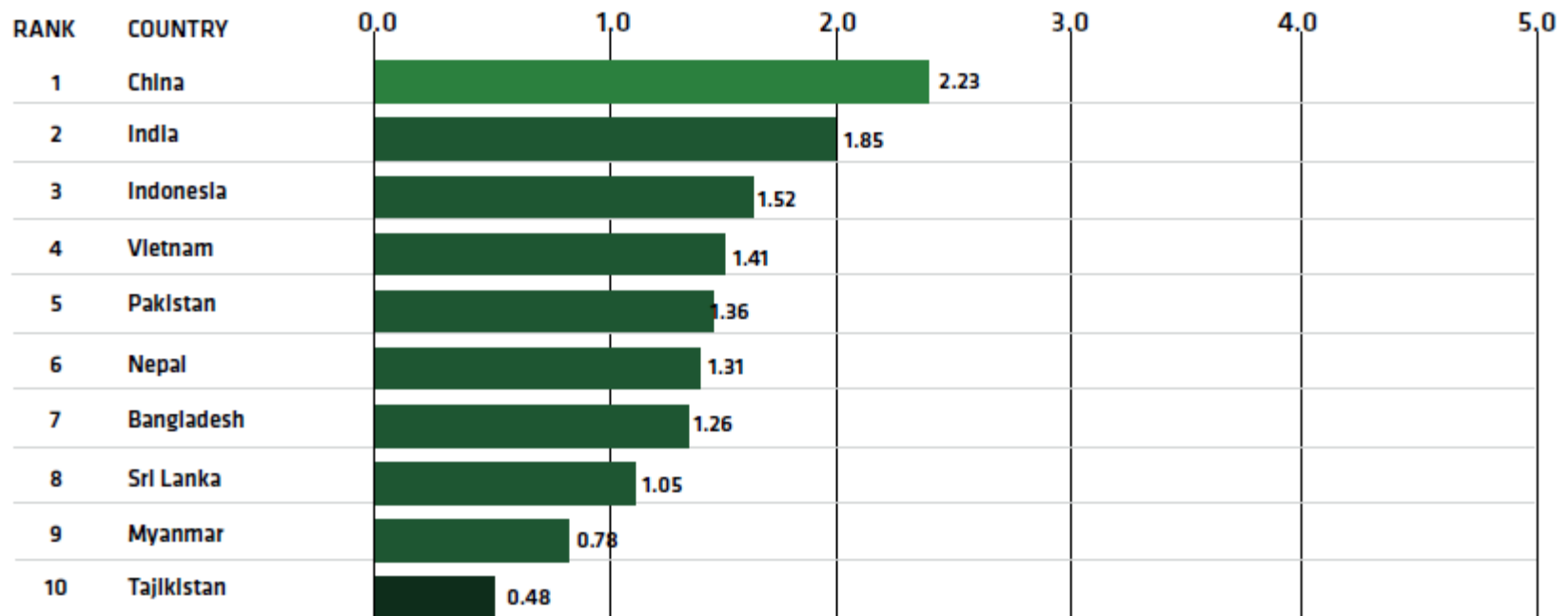
Rank	Country	Score	Reason
1	Chile	3.48	Has 120 GHG offset projects registered internationally with more on the way. Has approved South America's first carbon tax
2	Brazil	3.24	409 GHG offset projects registered internationally and 86 corporates who report GHG activity
3	China	3.12	Despite being world's largest emitter scored highly thanks to wide-reaching CO2 registries and targets set to cut emissions, plus local cap-and-trade programs
4	Mexico	3.02	Target set of 30% reduction in emissions by 2020, developing a tracking tool for NAMAs, has 194 GHG offset projects registered. Carbon tax rolled out earlier this year
5	Colombia	2.95	Member of Partnership for Market Readiness initiative to reduce GHG, has 69 GHG offset projects across a wide spectrum of sectors

Source: Climatescope 2014

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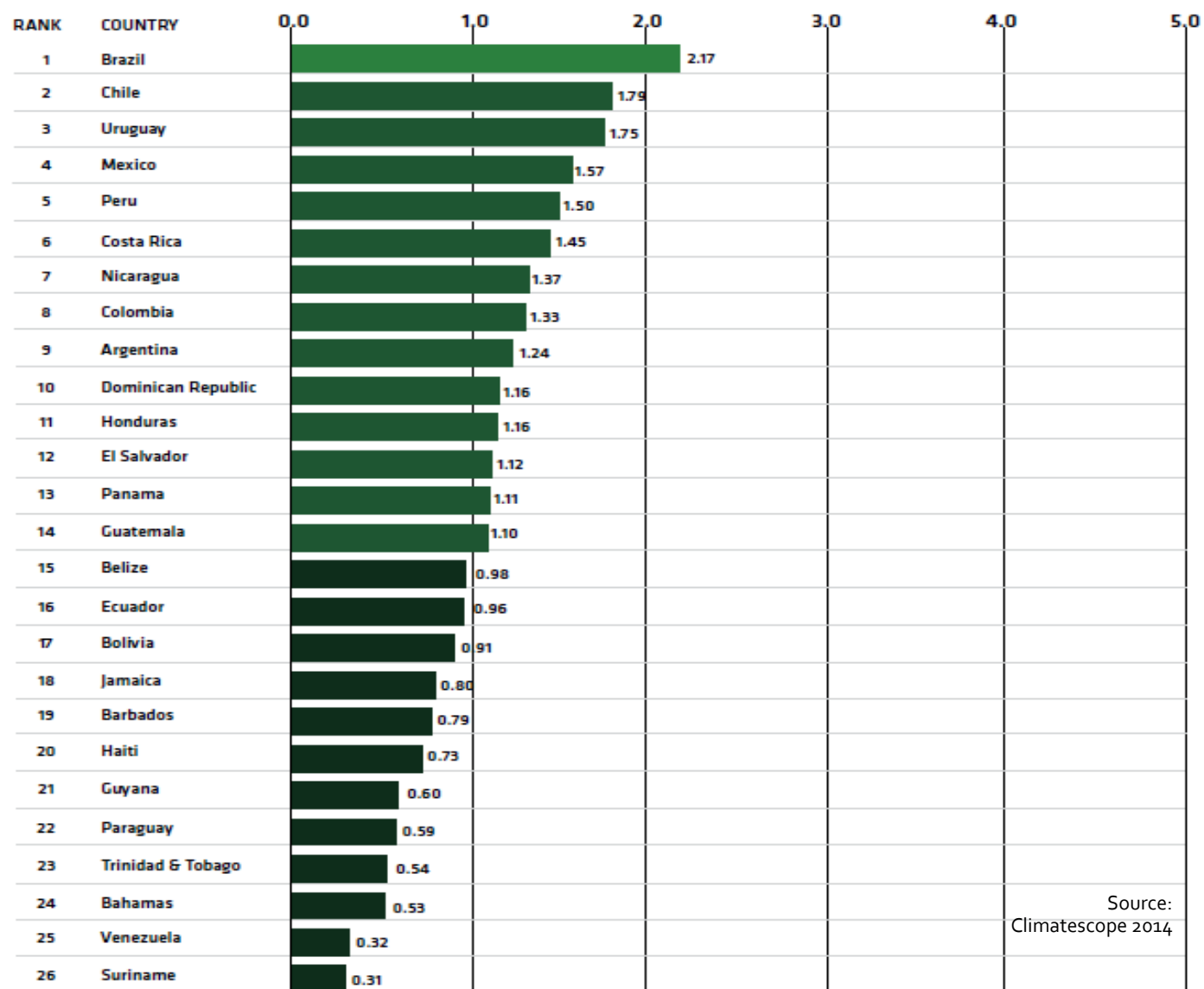
REGIONAL SCORES

Climatescope index: Asia



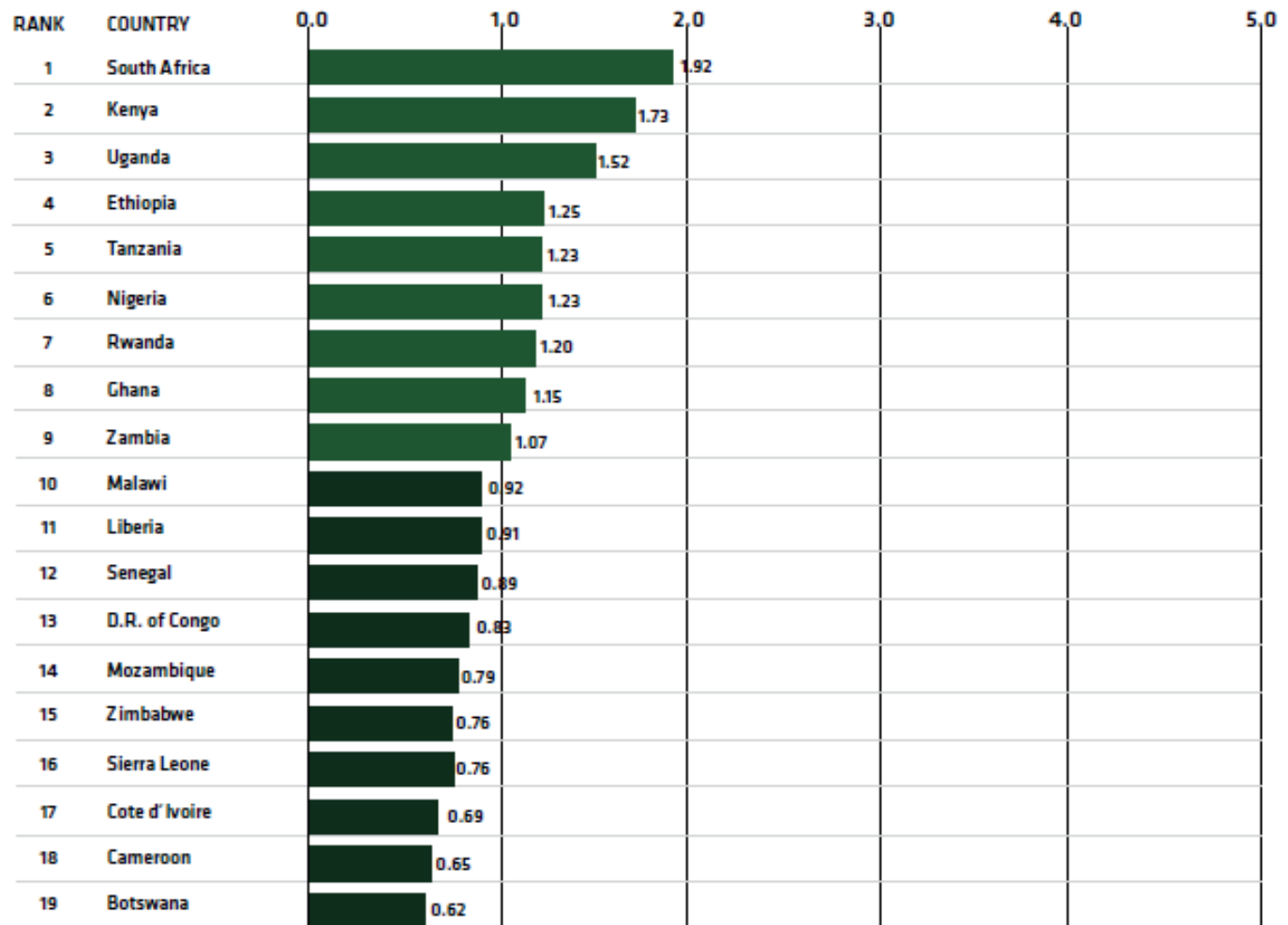
Source: Climatescope 2014

Climatescope index: LatAm & Caribbean

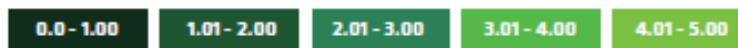


Source:
Climatescope 2014

Climatescope index: Africa



Colors show range for overall score

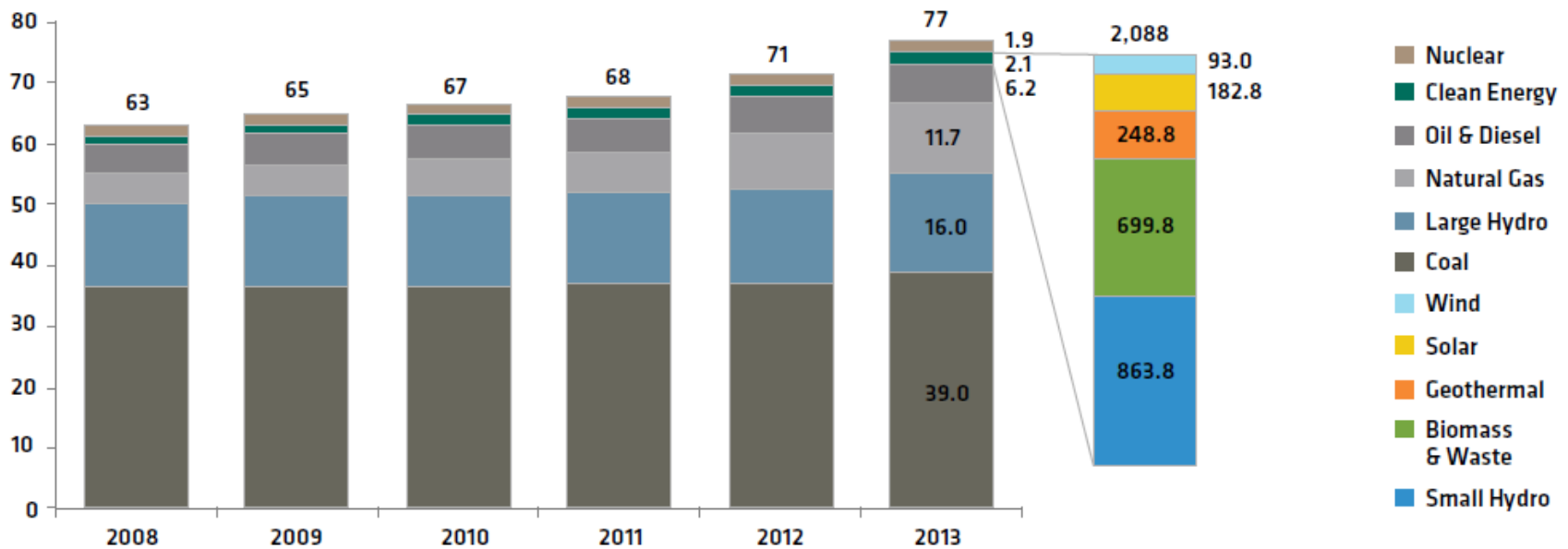


Source: Climatescope 2014

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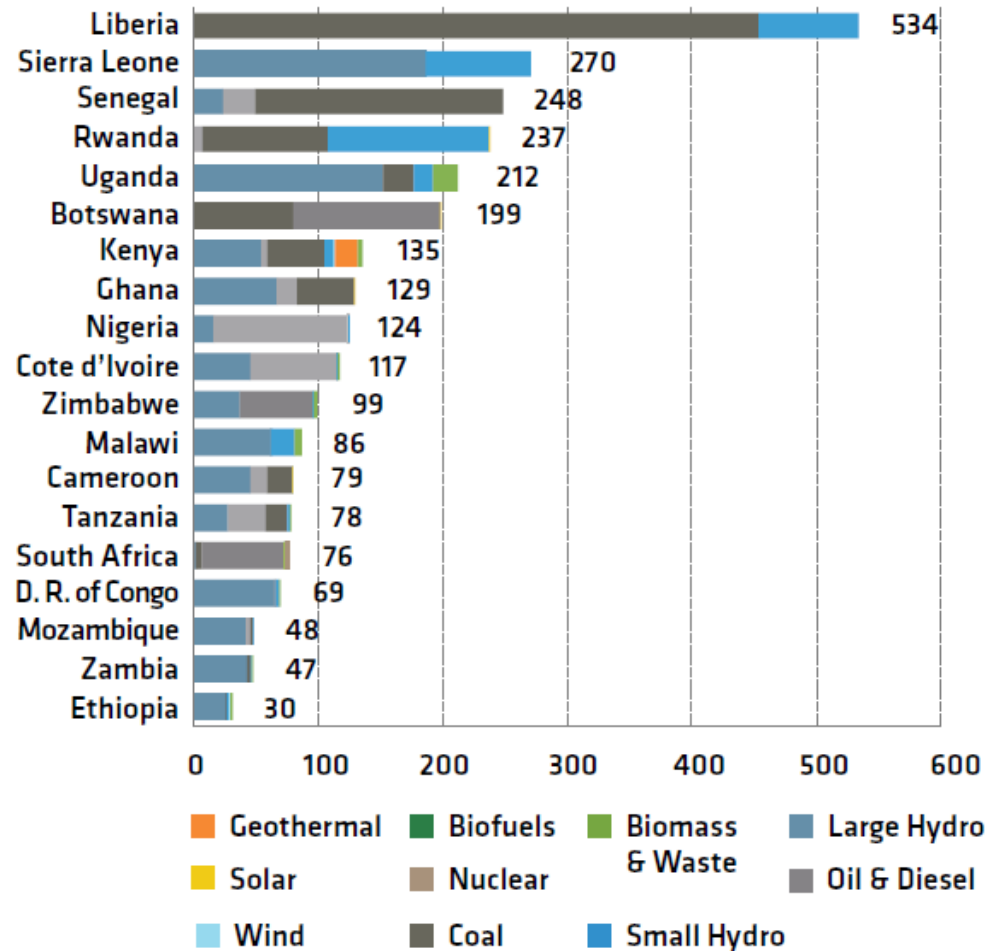
AFRICA INSIGHT

Climatescope Africa installed capacity (GW) and clean energy by sector (MW)



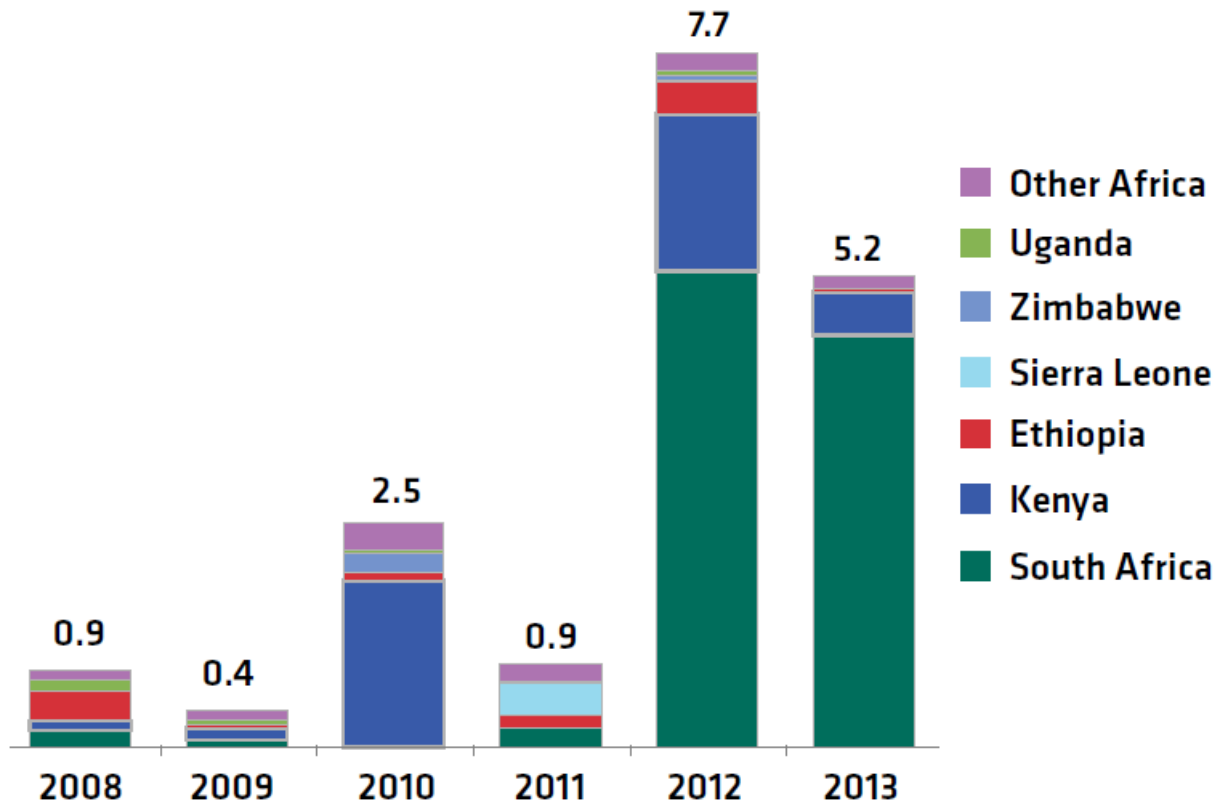
Source: Climatescope 2014

Average retail electricity prices (\$/MWh) by power mix, 2013



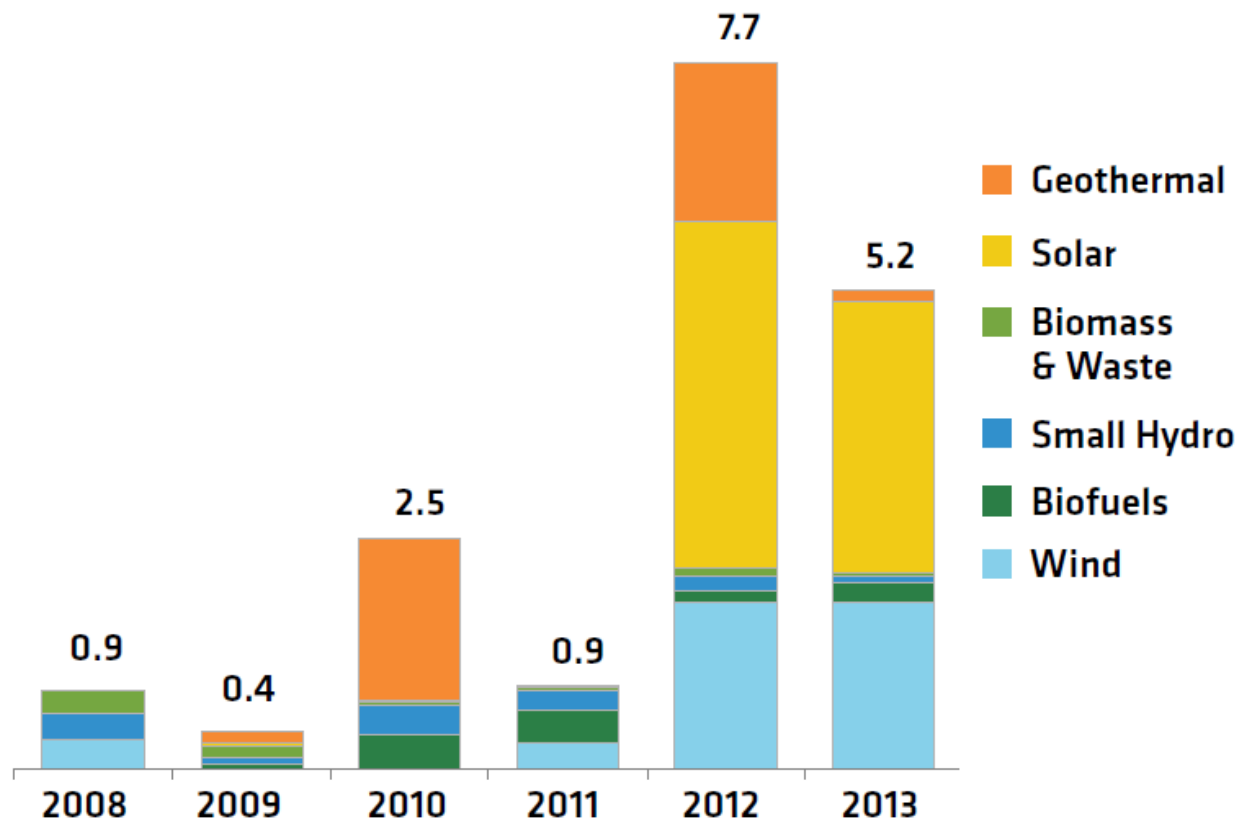
Source: Climatescope 2014

Climatescope Africa total investment in clean energy by country, 2008-2013 (\$bn)



Source: Climatescope 2014

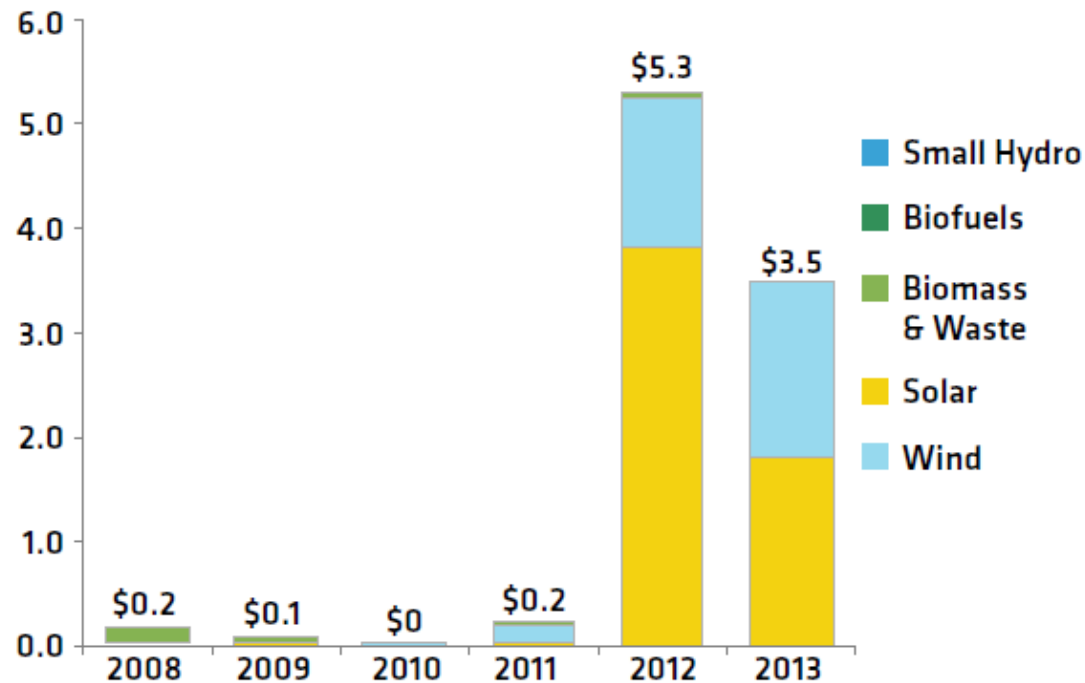
Climatescope Africa total investment in clean energy by sector, 2008-2013 (\$bn)



Source: Climatescope 2014




South Africa investment in clean energy by sector, 2008-2013 (\$bn)

\$9.4bn total cumulative investment



Source: Climatescope 2014

South Africa top three clean energy asset finance deals, 2013

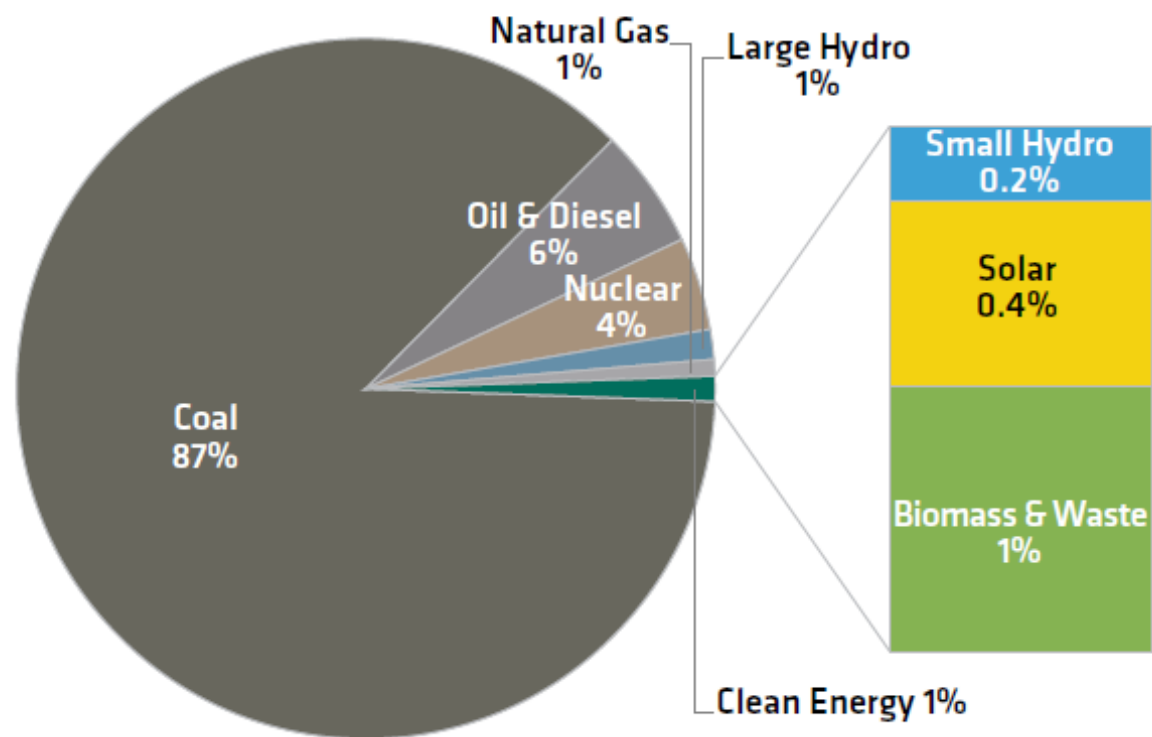
Rank	Sector	Project (MW)	Developer	Value
1st		Eskom Upington Solar Thermal Plant (100MW)	Eskom	\$1197m
2nd		ACWA & SolAfrica Bokpoort Solar Thermal Plant (50MW)	ACWA & SolAfrica	\$506m
3rd		Cennergi Amakhala Emoyeni Wind Farm (134MW)	Cennergi	\$412m

Notes: Figures refer to asset finance investments committed in 2013 and include balance sheet commitments.

Source: Climatescope 2014

South Africa power mix, 2013

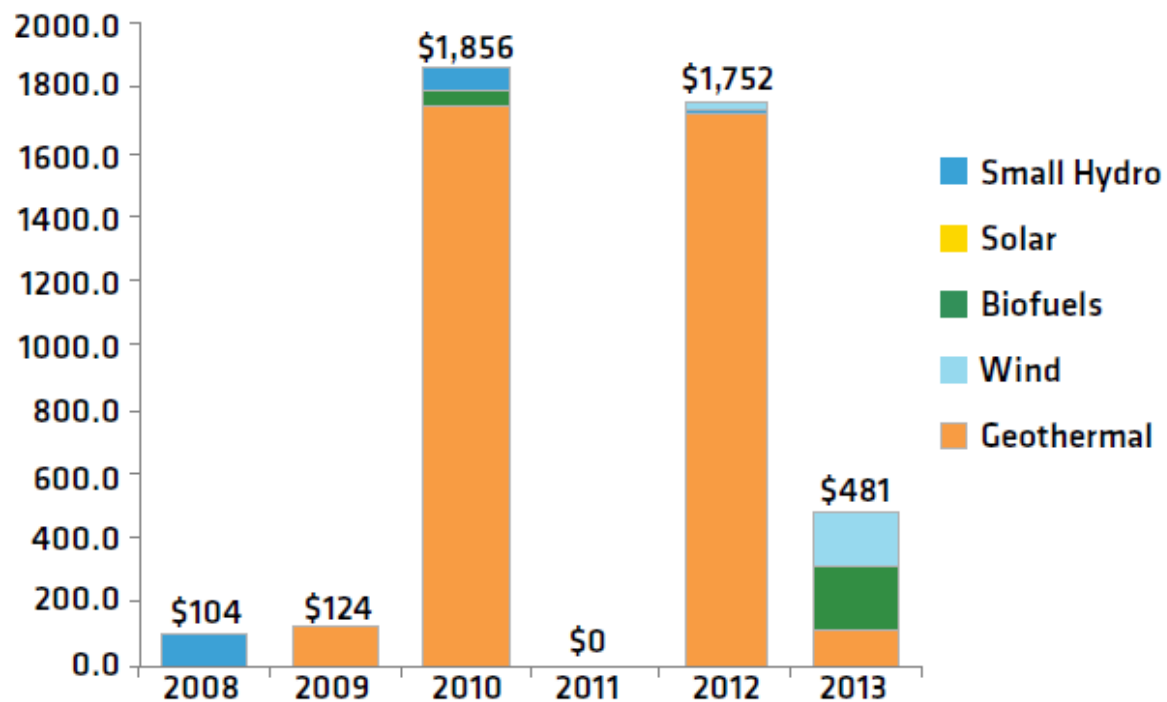
43.4GW total installed capacity



Source: Climatescope 2014

Kenya investment in clean energy by sector, 2008-2013 (\$bn)

\$4.7bn total cumulative investment



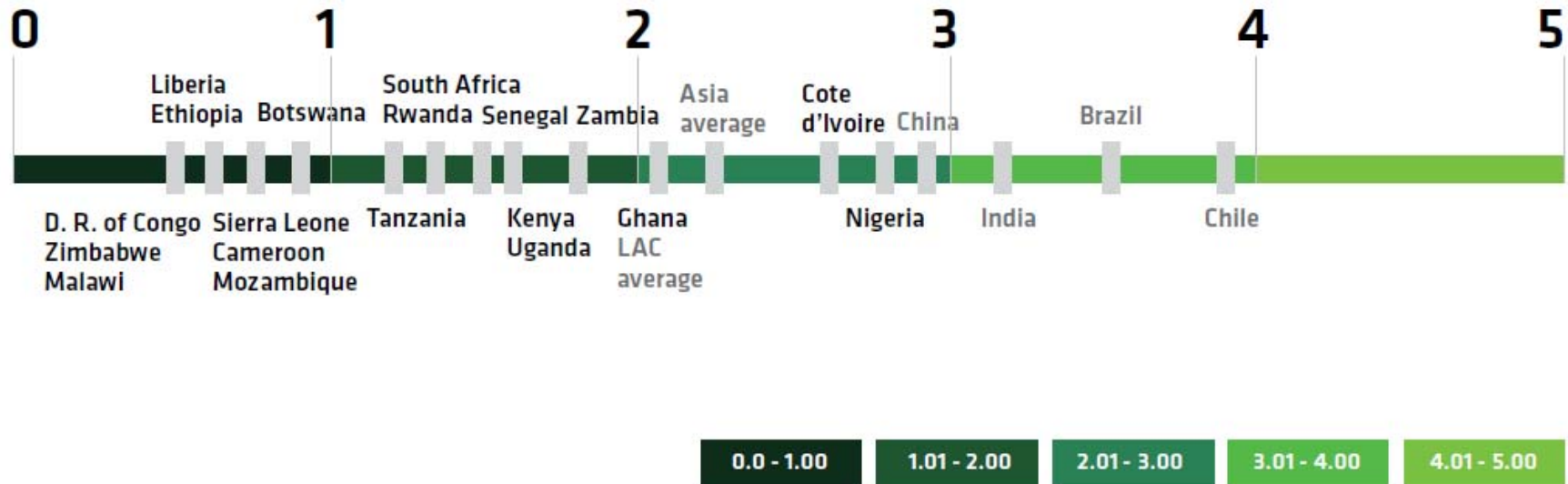
Source: Climatescope 2014

Climatescope Africa clean energy policy matrix

	Botswana	Cameroon	Cote d'Ivoire	D. R. of Congo	Ethiopia	Ghana	Kenya	Liberia	Malawi	Mozambique	Nigeria	Rwanda	Senegal	Sierra Leone	South Africa	Tanzania	Uganda	Zambia	Zimbabwe
Energy target			●		●	●	●	●		●	●	●	●		●	●	●		
Feed-in tariff						●	●				●	●					●		
Auctions			●									●	●		●		●		
Net metering							●						●						
Biofuels blending mandate					●				●	●	●								●
Debt/equity incentives					●				●	●	●	●			●	●	●	●	●
Tax incentives	●	●		●	●	●	●	●	●	●	●	●	●		●	●	●	●	●
Utility regulation		●				●	●								●	●			

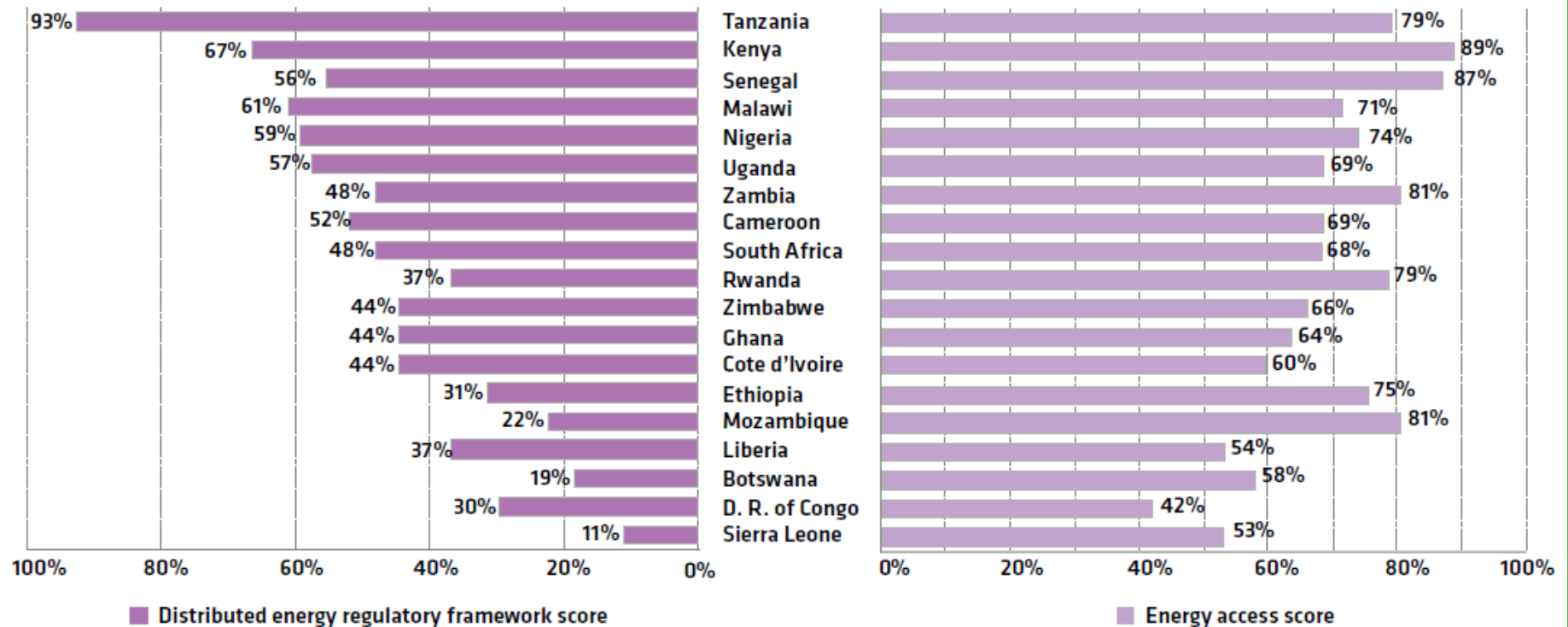
Source: Climatescope 2014

Climatescope Africa power sector score barometer



Source: Climatescope 2014

Climatescope Africa distributed energy and energy access scores



Source: Climatescope 2014

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2015

Climatescope 2015



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Q&A

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