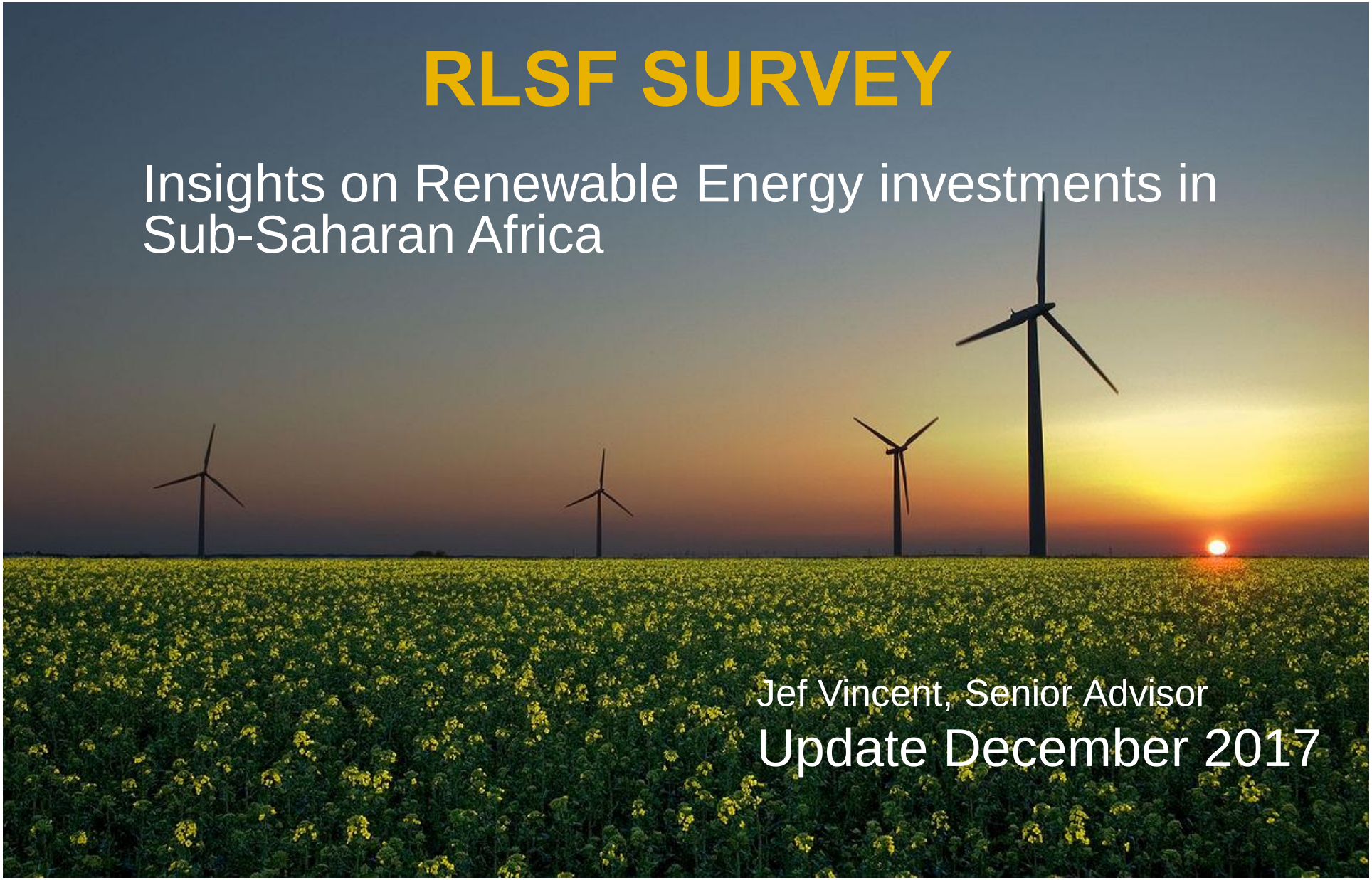


RLSF SURVEY

Insights on Renewable Energy investments in Sub-Saharan Africa

Jef Vincent, Senior Advisor

Update December 2017

The genesis of RLSF

- RLSF is a Regional Liquidity Support Facility that will facilitate investments in RE IPPs by guaranteeing income for 6 months in case of default by the offtaker
- The RLSF initiative was first announced as a project during the Africa Energy Forum conference in June 2017
- Since then, ATI has been in touch with potential projects, investors and governments to promote the concept
- ATI and KfW have fine-tuned the product and it will be ready by the end of 2017
- After 6 months of preparation, we are now focused on deciphering demand
- This survey was distributed to existing contacts to assess the formal interest among potential beneficiaries

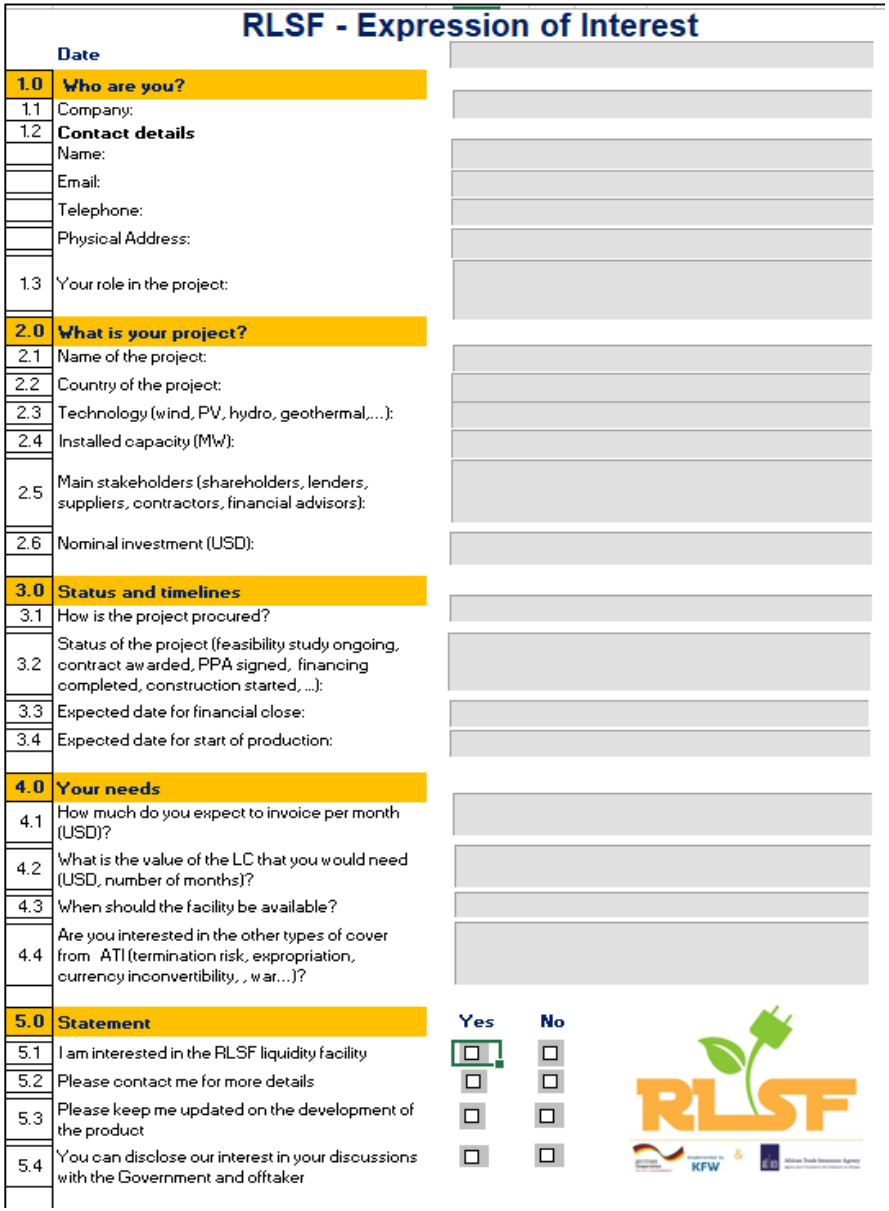
Scope & purpose of the survey

- We contacted 85 companies
- We mentioned the countries where RLSF will likely be available, and most of the answers include projects in these countries
- We are sharing the key results of this exercise because they provide food for thought. Still, keep in mind that:
  - ✓ *The survey is not representative of the market*
  - ✓ *It has no scientific ambitions*
  - ✓ *The data provided have not been checked*
  - ✓ *There is a possibility for different interpretations of some answers*

The survey can be completed in 10 minutes!

The content of the questionnaire addresses the following key topics:

- ✓ Country, type, installed capacity & investment volume of the project
- ✓ Procurement and timeline of the project
- ✓ Expected dates for financial close and start of production
- ✓ Needs for cover, related to the LC value and other political risk perils to be covered
- ✓ General statement on further interest in RLSF



RLSF - Expression of Interest

	Date	
1.0	**Who are you?**	
1.1	Company:	
1.2	**Contact details**	
	Name:	
	Email:	
	Telephone:	
	Physical Address:	
1.3	Your role in the project:	
2.0	**What is your project?**	
2.1	Name of the project:	
2.2	Country of the project:	
2.3	Technology (wind, PV, hydro, geothermal,...):	
2.4	Installed capacity (MW):	
2.5	Main stakeholders (shareholders, lenders, suppliers, contractors, financial advisors):	
2.6	Nominal investment (USD):	
3.0	**Status and timelines**	
3.1	How is the project procured?	
3.2	Status of the project (feasibility study ongoing, contract awarded, PPA signed, financing completed, construction started, ...):	
3.3	Expected date for financial close:	
3.4	Expected date for start of production:	
4.0	**Your needs**	
4.1	How much do you expect to invoice per month (USD)?	
4.2	What is the value of the LC that you would need (USD, number of months)?	
4.3	When should the facility be available?	
4.4	Are you interested in the other types of cover from ATI (termination risk, expropriation, currency inconvertibility, , war...)?	
5.0	**Statement**	**Yes** / **No**
5.1	I am interested in the RLSF liquidity facility	☐ / ☐
5.2	Please contact me for more details	☐ / ☐
5.3	Please keep me updated on the development of the product	☐ / ☐
5.4	You can disclose our interest in your discussions with the Government and offtaker	☐ / ☐

RLSF

The responses in a nutshell

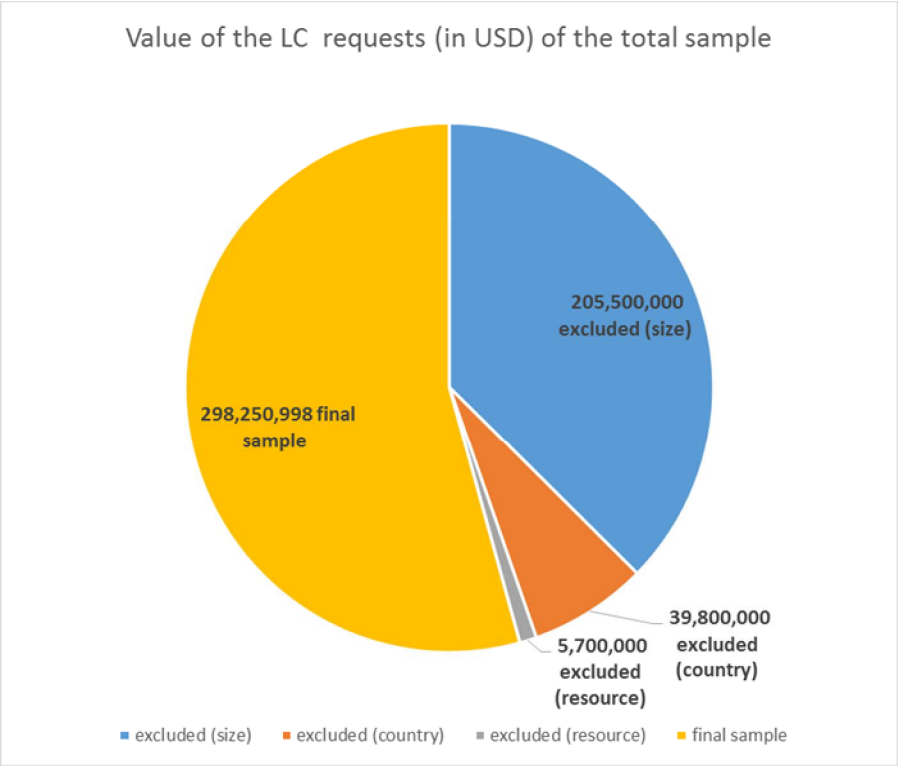
- We received expressions of interest (EOI) from 27 respondents (32% response rate)
- They gave data for 74 projects. 19 were excluded for reasons of size (>100 MW), resource (gas powered) and/or location (not in ATI member states or in Ghana)
- The size of the projects vary from 0.5 MW to 400 MW. The average size of eligible projects is 25.6 MW
- The total capacity of the projects is 2,864 MW (eligible projects cover 1,412 MW)
- The total value of the projects is USD7.4B (for eligible projects: USD3.8 B)

The responses (cont'd)

- The total value of the LCs required is USD549 M (capped at 6 months income of the IPP)
- The total value of the LCs for eligible projects is USD298M
- 51 projects ask for an LC that represents 6 months of payment; 4 projects are satisfied with 3 months
- Most projects want to have RLSF committed at financial close
- Three to five projects would require RLSF already in the next 6 months

The total value of all eligible & excluded LCs is USD 549.2 M

Projects	MW	number	Investment	LC value
excluded (size)	1,013	5	2,956,000,000	205,500,000
excluded (country)	419	13	606,160,000	39,800,000
excluded (resource)	20	1	20,000,000	5,700,000
final sample	1,412	55	3,855,130,000	298,250,998
total	**2,864**	**74**	**7,437,290,000**	**549,250,998**



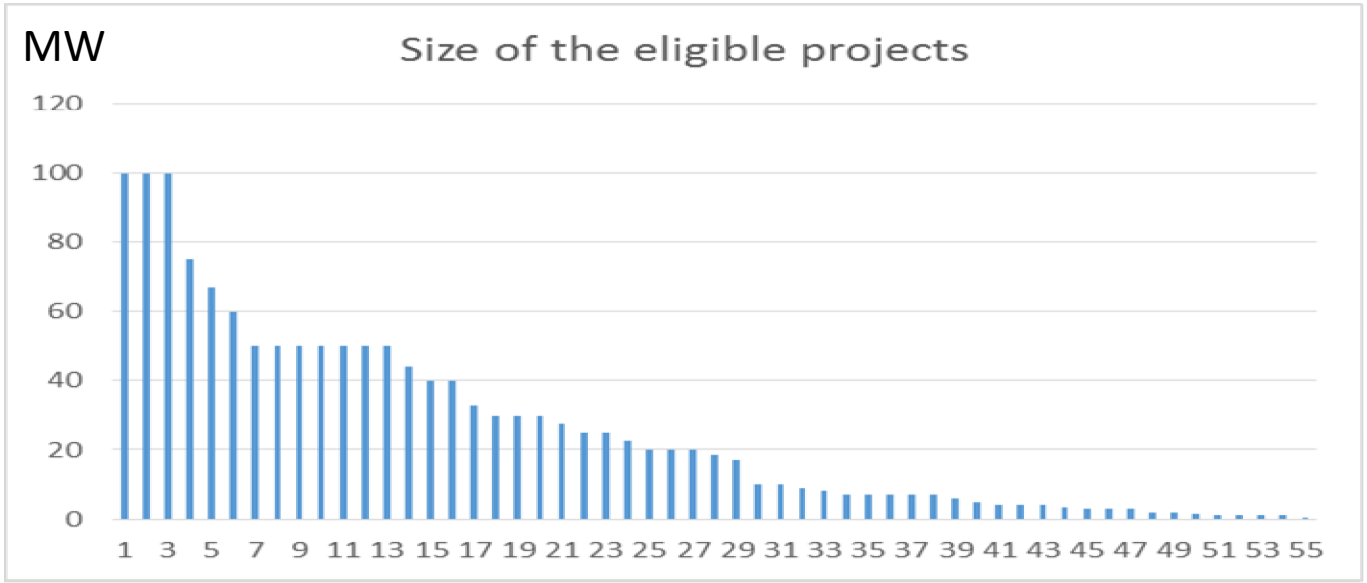
The following slides relate only to the final sample with the eligible projects.

All amounts are expressed in USD

Eligible projects cover the full range between 0.5 – 100 MW

- As presented in the graph below, the median of all eligible projects is around 20 MW, the average is 26MW

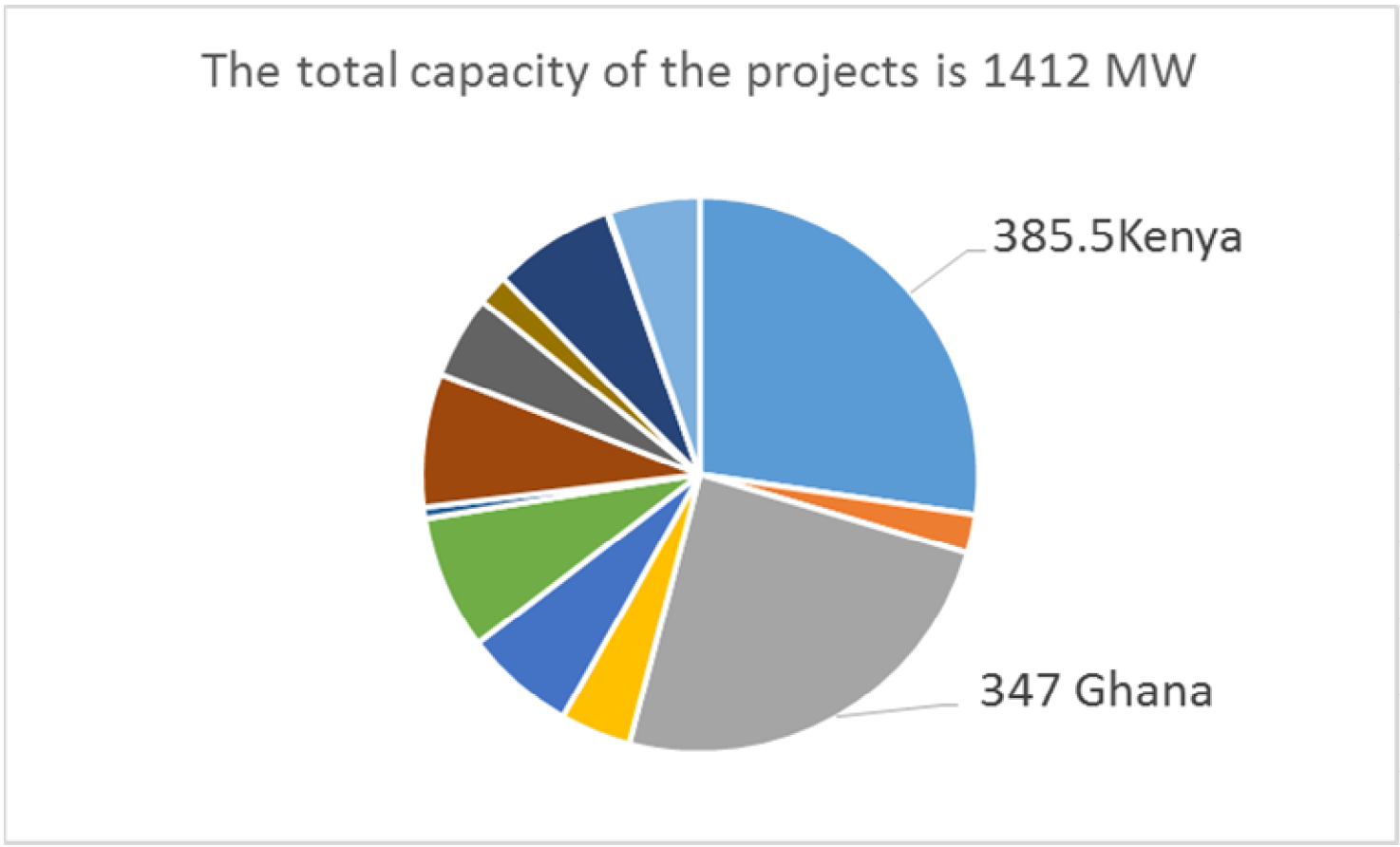
- Only 6 projects exceed 50 MW; projects of up to 100 MW are still eligible on a case-by-case basis



Results per Country – High demand in Kenya & Ghana, most ATI member countries covered

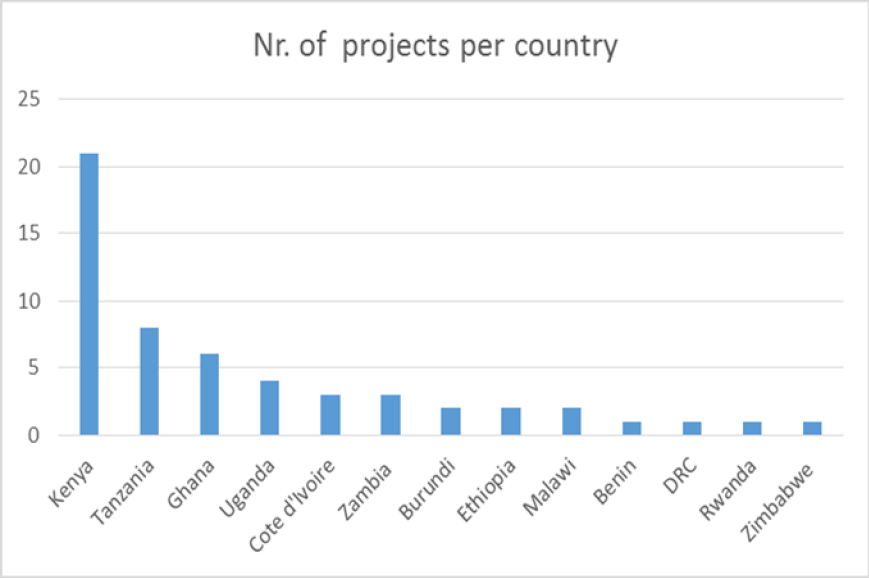
Country	Nr. projects	Capacity	Investment ($)	Investment cost / MW
Benin	1	25	35,000,000	1,400,000
Burundi	2	9.1	34,000,000	3,736,264
Cote d'Ivoire	3	91.5	346,200,000	3,783,607
DRC	1	100	115,000,000	1,150,000
Ethiopia	2	110	630,000,000	5,727,273
Ghana	6	347	809,000,000	2,331,412
Kenya	21	385.5	1,045,600,000	2,712,322
Malawi	2	67.7	73,000,000	1,078,287
Rwanda	1	1.7	6,900,000	4,058,824
Tanzania	8	31.5	53,850,000	1,709,524
Uganda	4	58	160,080,000	2,760,000
Zambia	3	110	451,500,000	4,104,545
Zimbabwe	1	75	95,000,000	1,266,667
Total /Average	55	1,412	3,855,130,000	2,730,262

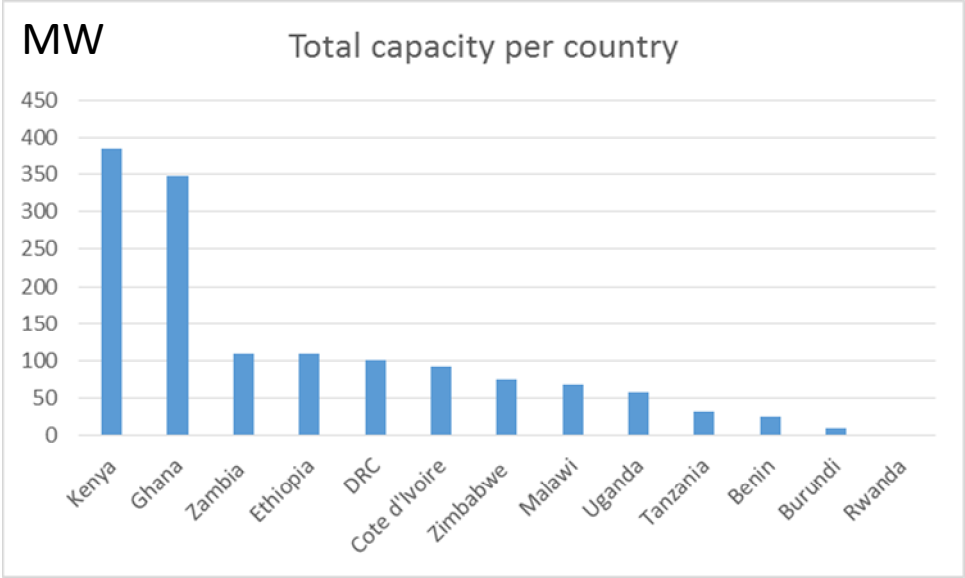
Kenya and Ghana represent more than half of the total capacity



Why Kenya and Ghana?

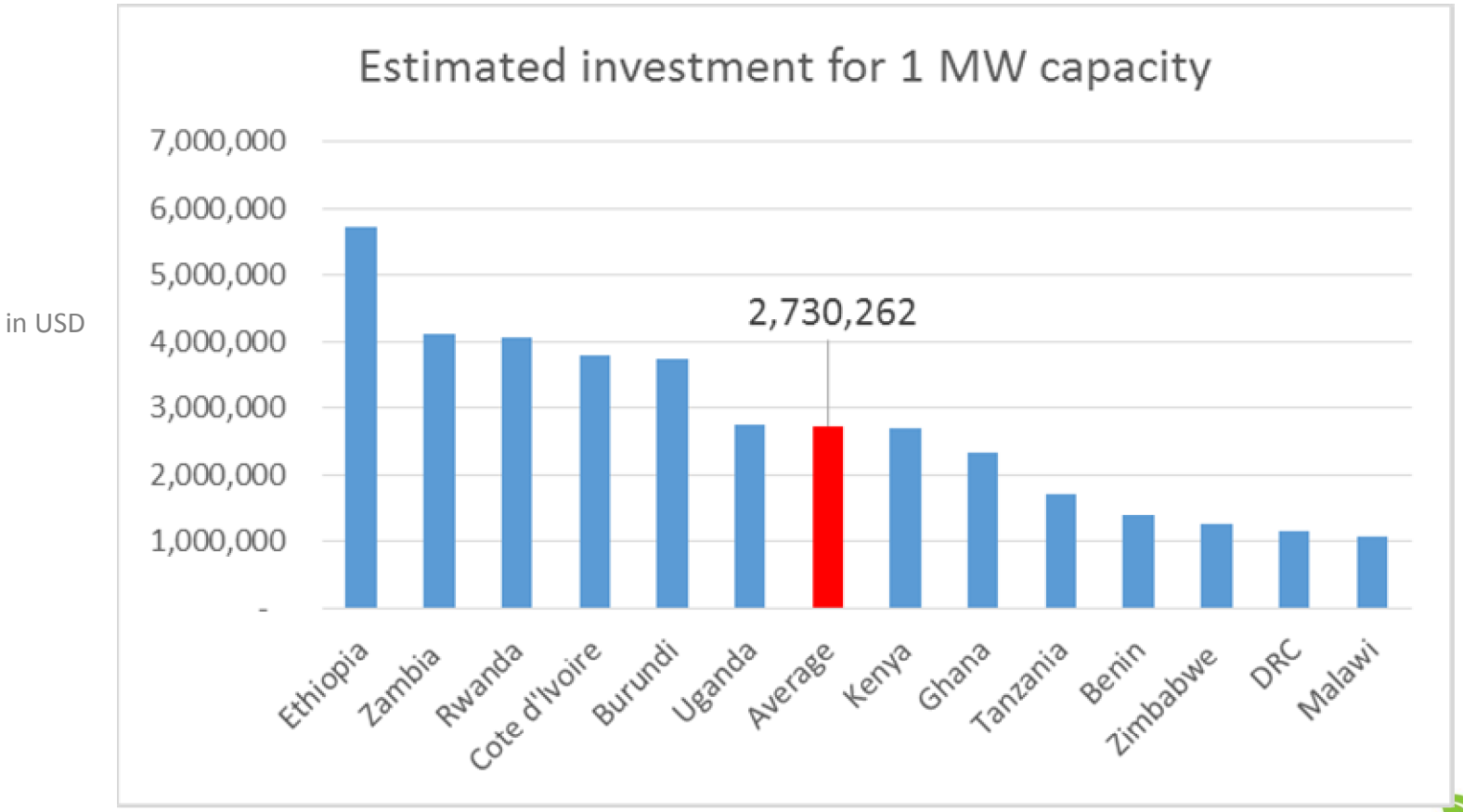
- The focus on Kenya may be related to the visibility and reputation of ATI in its host country
- The high demand in Ghana is in line with the Governmentôs initiative to promote the renewable energy sector



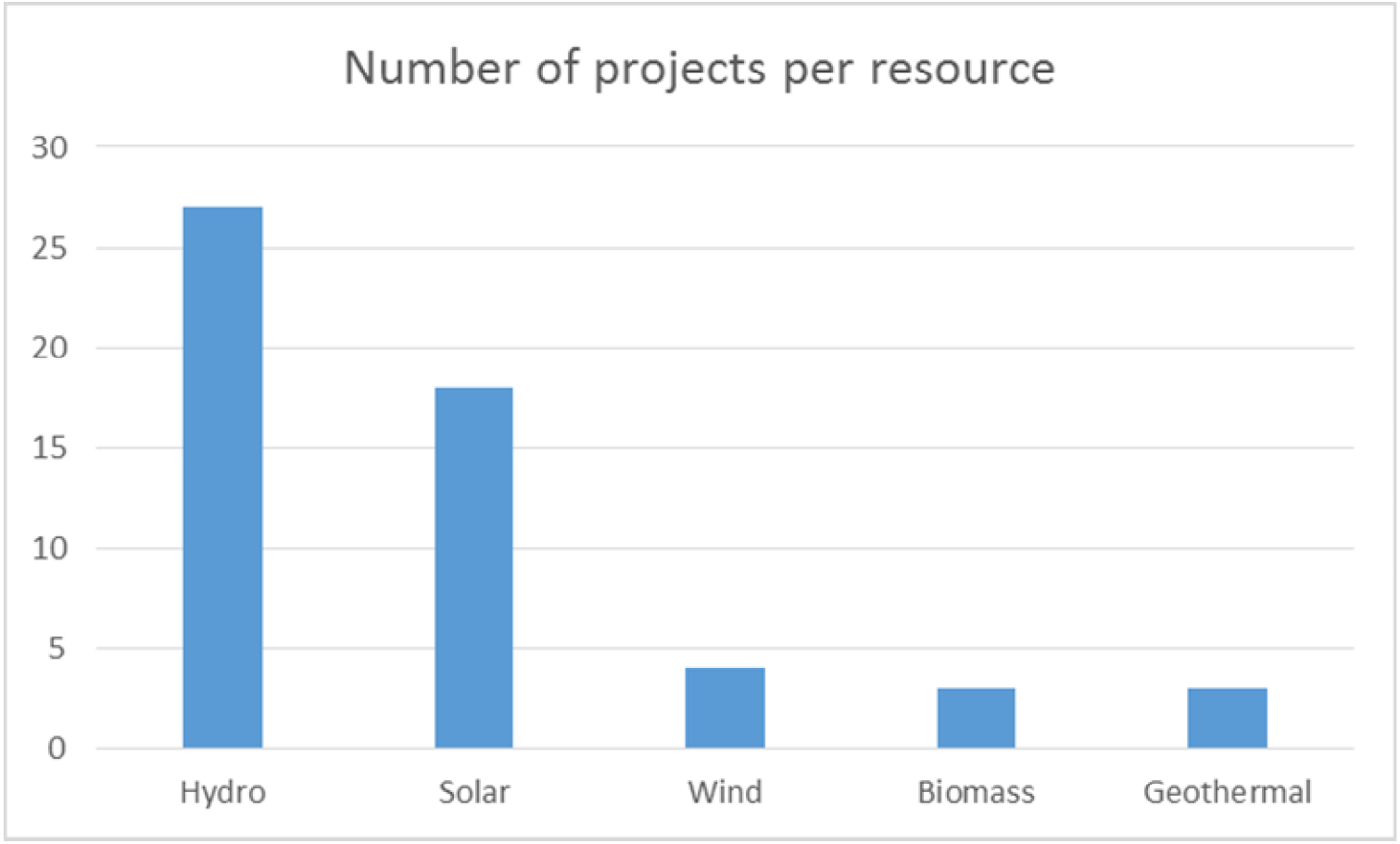


Investment costs per MW vary significantly among countries

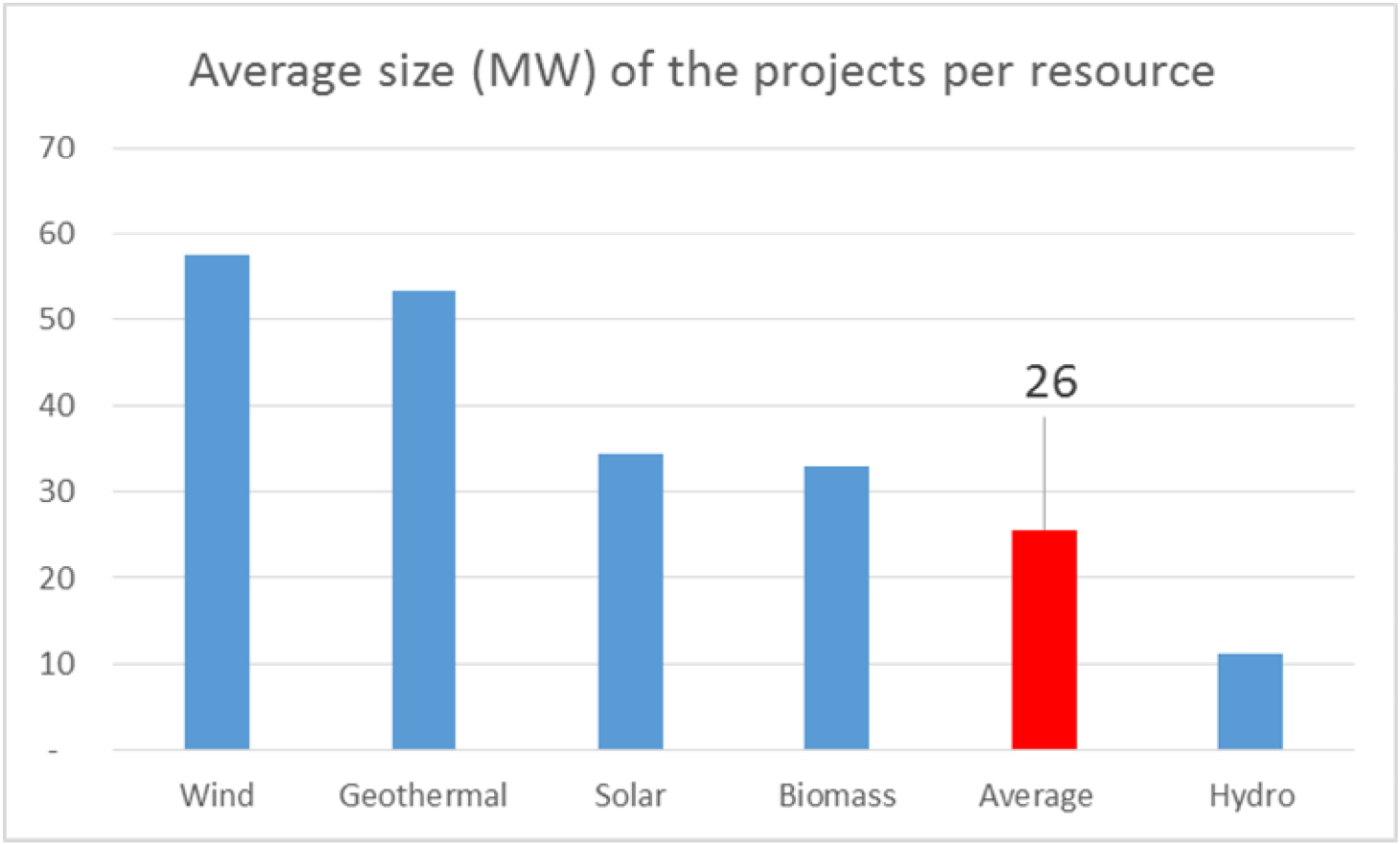
- Reasons include; resource, size, procurement, timing etc.



Hydro remains the most popular RE technology



On average hydro projects have the smallest capacity

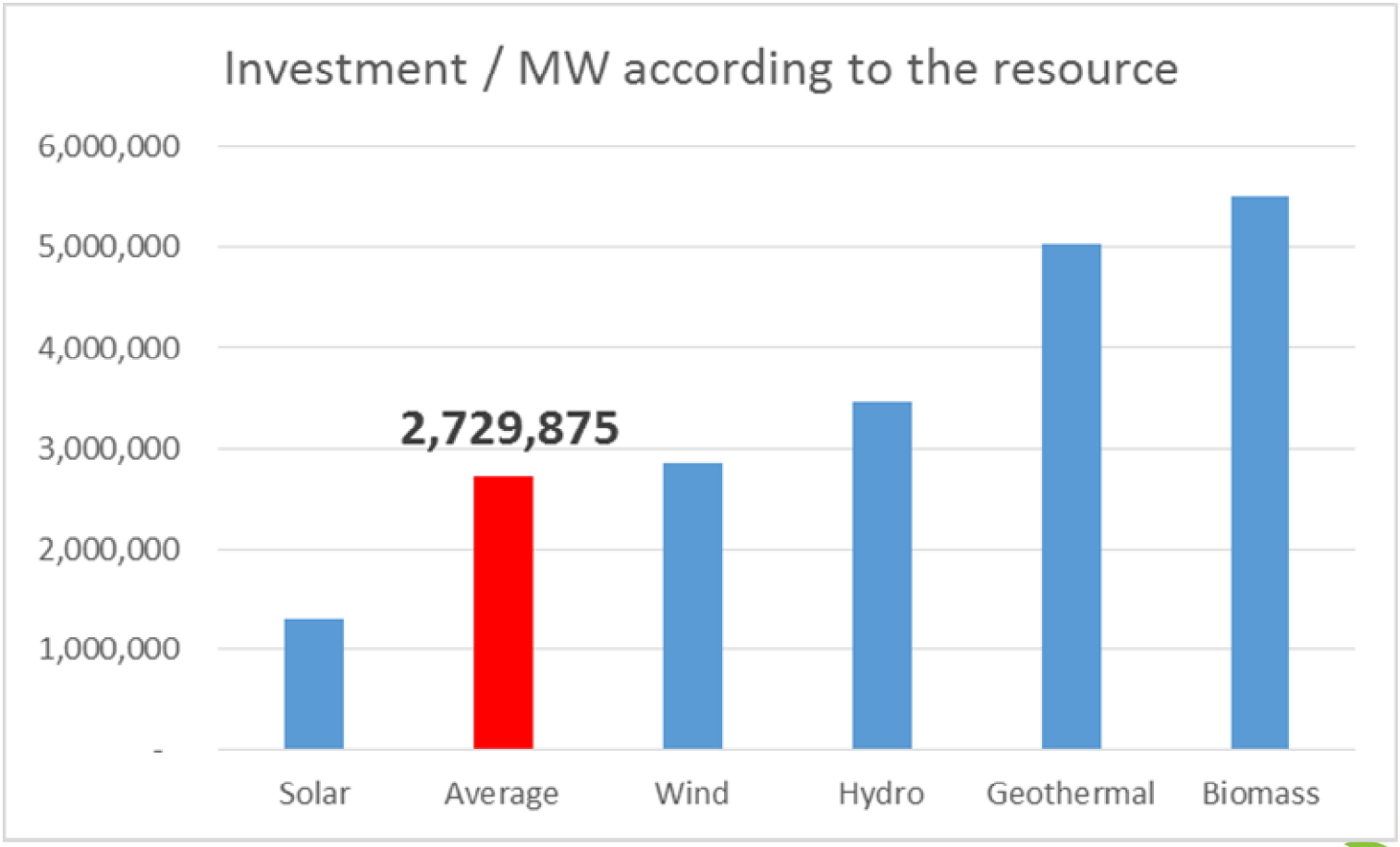


Solar has become the cheapest resource

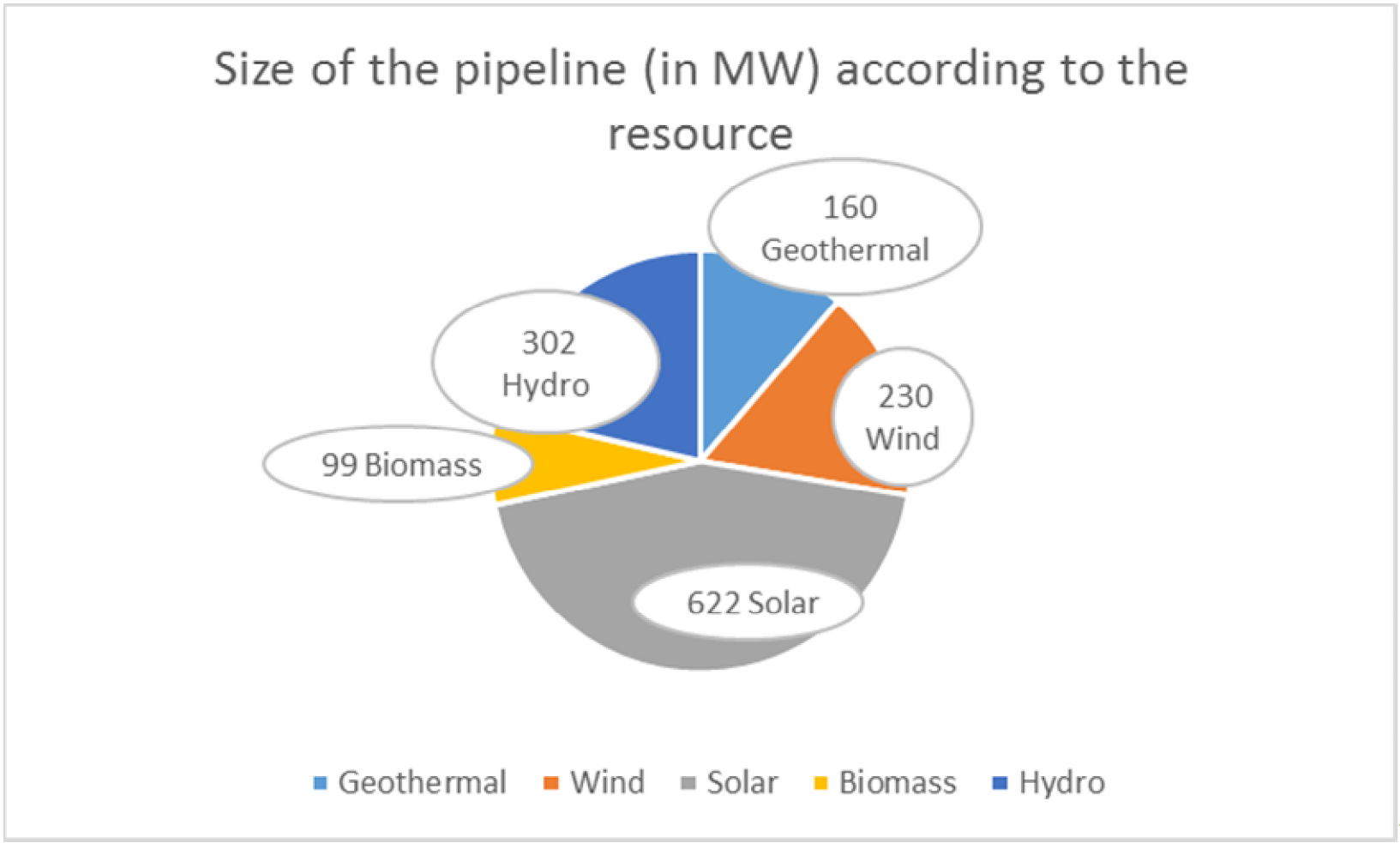
Resource	Nr.	MW	investment (USD)	cost/MW	size/IPP
Geothermal	3	160	805,000,000	5,031,250	53.33
Wind	4	230	654,600,000	2,846,087	57.50
Solar	18	622	805,400,000	1,295,480	34.54
Biomass	3	99	543,000,000	5,512,690	32.83
Hydro	27	302	1,047,130,000	3,467,318	11.19
Total / Averag	55	1,412	3,855,130,000	2,729,875	25.68

- Hydro has the most projects (27), followed by Solar (18)
- Solar has the highest capacity (622 MW)
- For Solar, the investment cost per MW ranks highest (lowest cost) with USD1.3M/MW
- The average size of an IPP in MW ranks highest for Wind (57 MW) and Geothermal (53 MW), but for Geothermal we only recorded the first phases of the projects

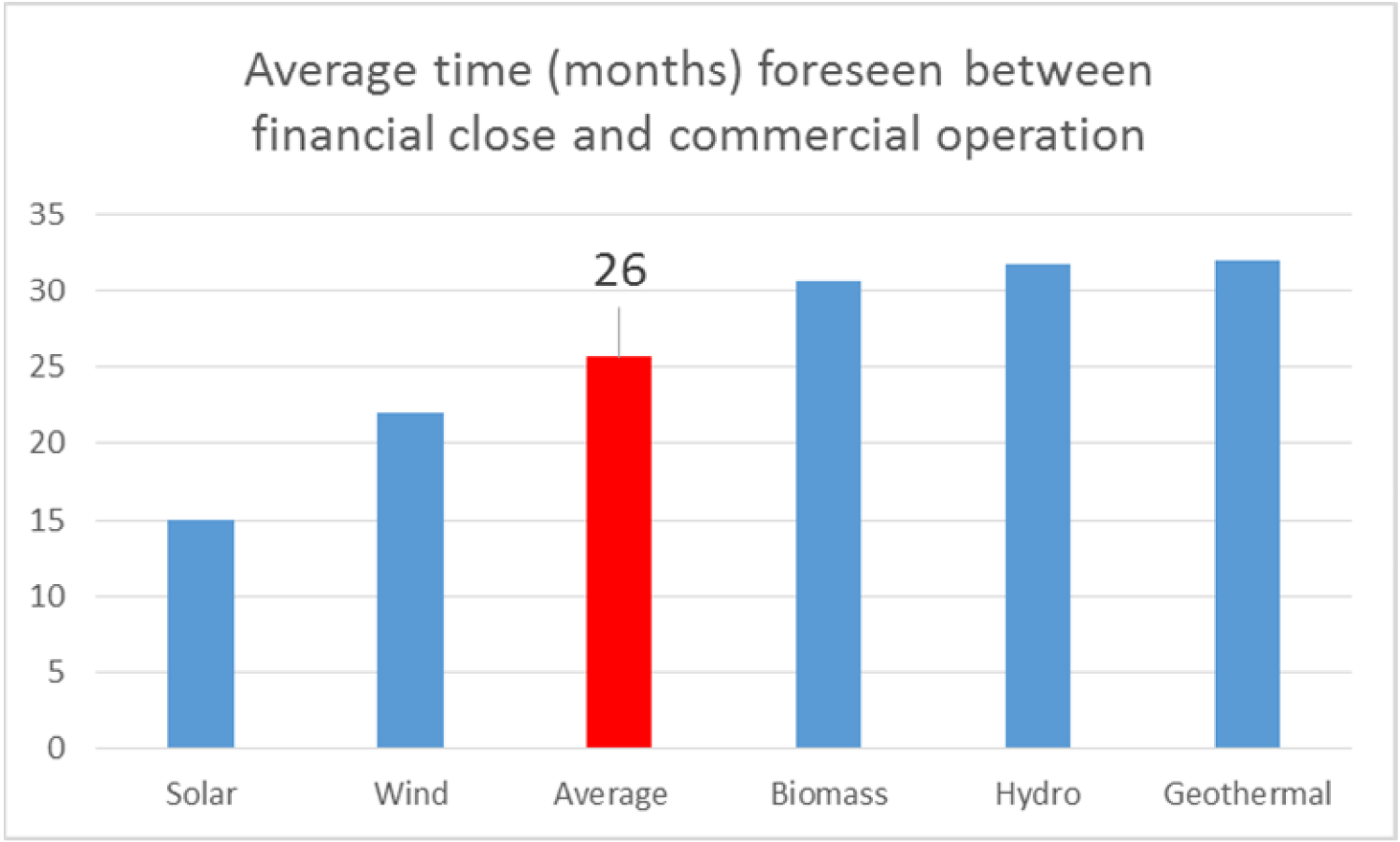
Solar requires the lowest investment / MW capacity



Solar will become the main source of renewable energy



On average, projects foresee 26 months between financial close & COD



Conclusion – RLSF is relevant

- There certainly is demand for a liquidity facility like RLSF
- However, IPPs face more hurdles than the liquidity guarantee
- A number of countries already have an over capacity and are looking for options to reduce the tariffs and cancel / postpone commitments that were made in the past
- The emergence of cross-border transmission lines and regional power pools will further affect the conditions under which IPPs will be able to operate
- For the two key countries in our survey, Ghana and Kenya, we know for sure that the number of projects that will go live will be much smaller than suggested

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