

Risk assessment and management for investments in the energy and mining sectors in Africa

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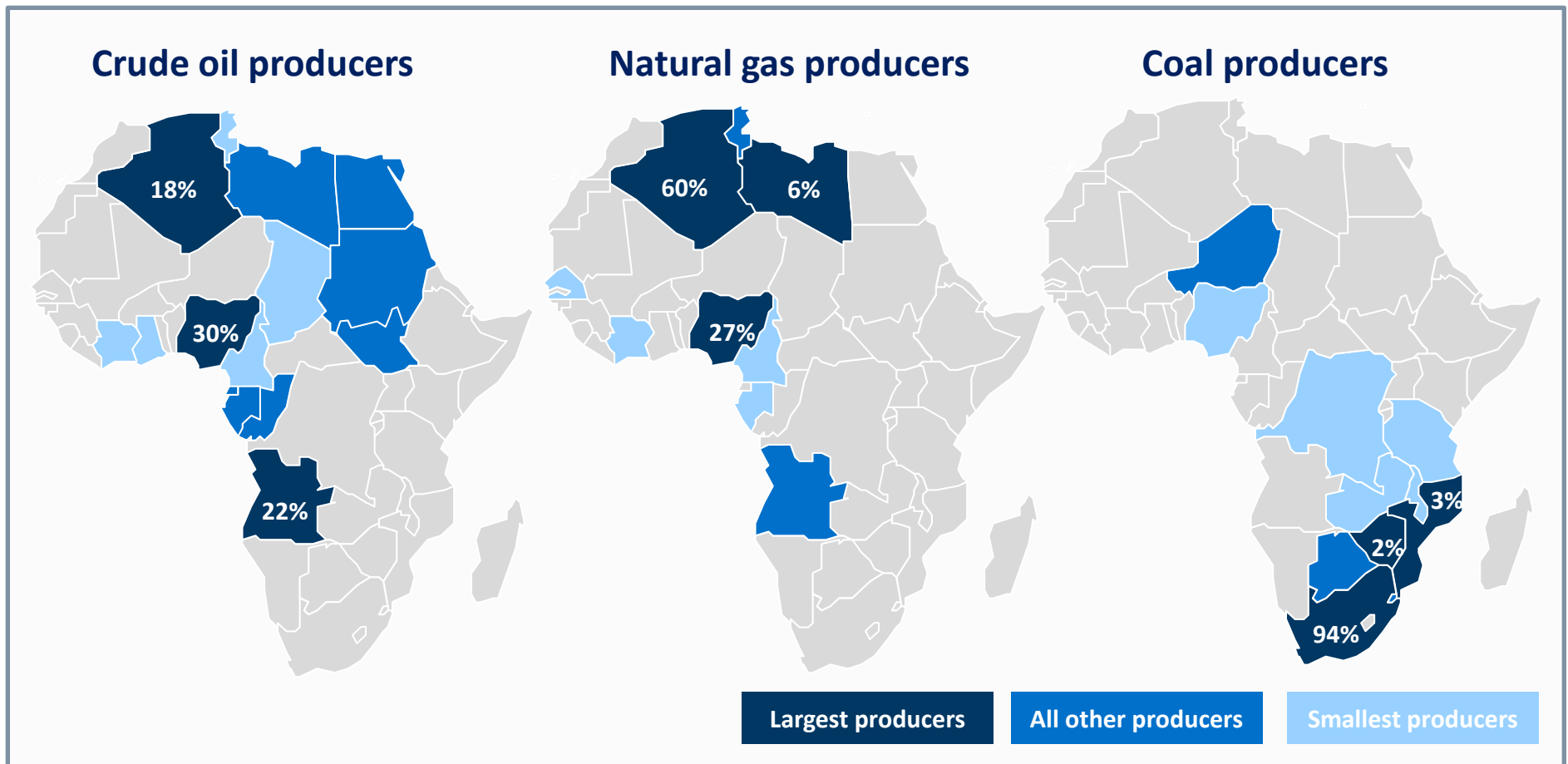
Presented To:



Africa's main energy resources are oil, natural gas, and coal

- In 2015, Africa's share of global energy production comprised **9% of oil, 6% of natural gas, and 4% of coal production**.^[1]
- The majority of Africa's proven oil reserves are located in North Africa (50%) and West Africa (29%), and its proven natural gas reserves are located in North Africa (40%) and West Africa (22%).^[2]

2014 African energy production – countries classified by annual production amount^[3]

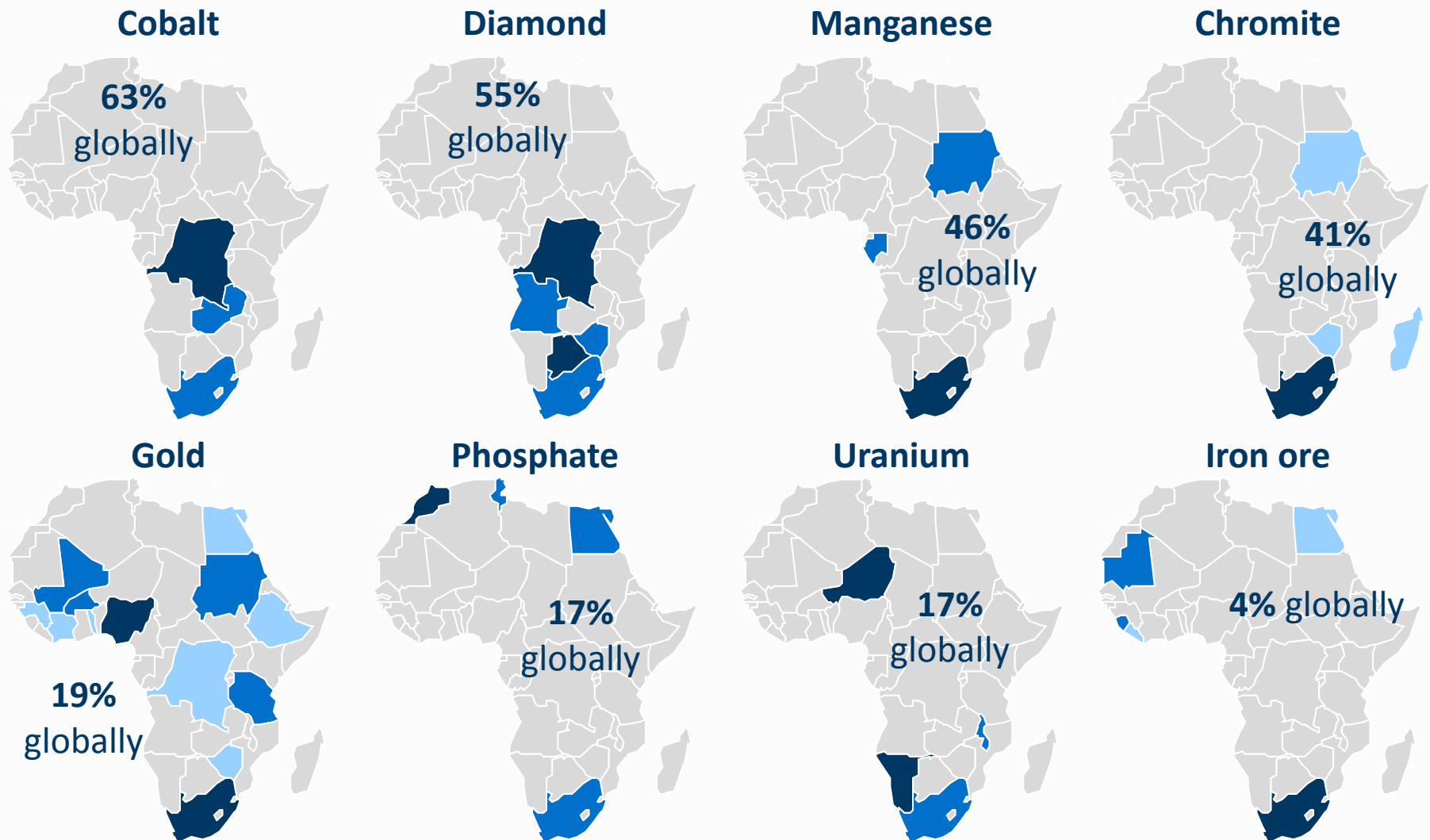


1. Source: BP 2017 Outlook data tables, downloaded 19 Sep 2017.

2. Source: IEA, Africa Energy Outlook 2014, page: 52 - 53.

3. Crude oil includes lease condensate. Source: U.S. EIA data, downloaded 19 Sep 2017.

A significant amount of worldwide mining resources originate from Africa



Data as of 2013

Source: USGS Minerals Yearbook, August 2016, downloaded 19 Sep 2017.

Largest producer(s)

Second largest producer(s)

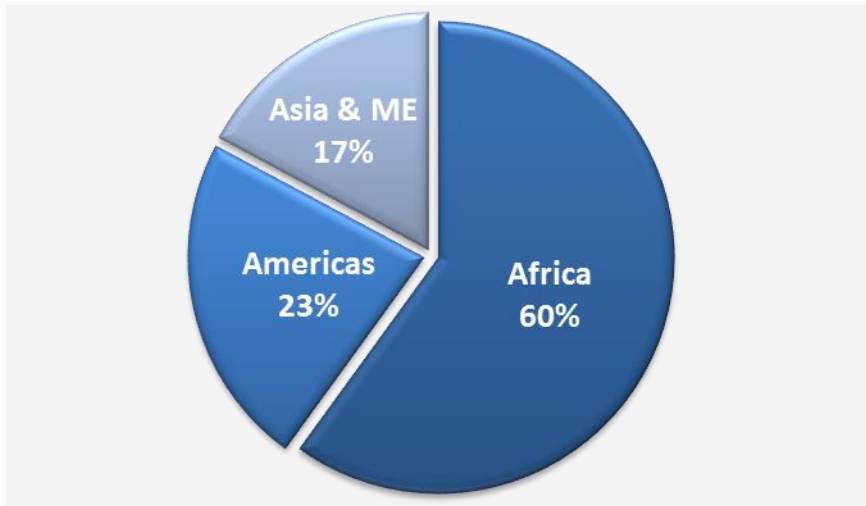
Third largest producer(s)

Trends in the African energy and mining industries

Energy industry ^[1]

- Declining commodities prices have shifted focus towards **cutting costs**
- Industry's primary focus until 2020 is **optimisation and operational excellence**
- Exploration capex decreased **38%** from 2014 to 2015
- The potential impact of **alternative energy** still unknown
- **Untapped African energy resources** will continue to incentivize energy investment

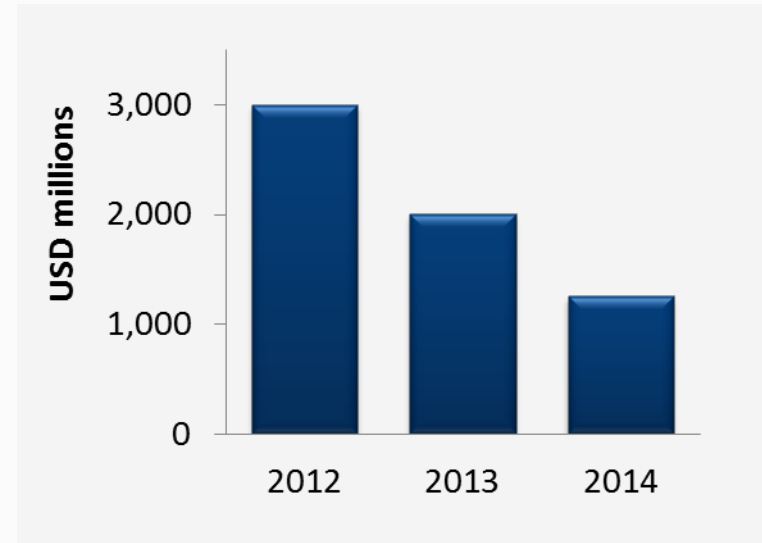
2015 top-20 discoveries in oil and gas by size of reserves



Mining industry ^[2]

- **Demand is expected to continue rising** but exploration activity is down, possibly due to infrastructure issues

African mining exploration spend



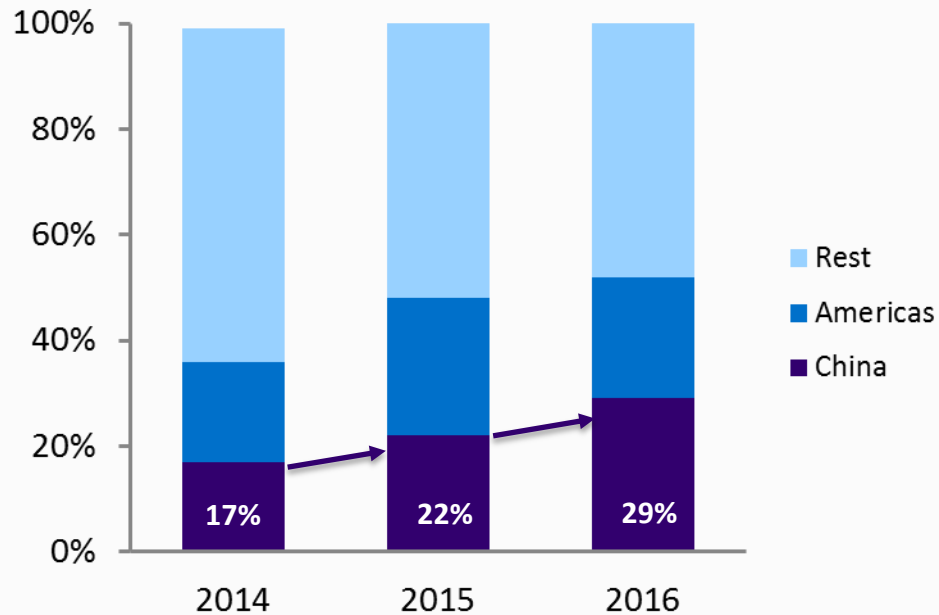
- Investors are still interested in the large amounts of untapped African mining resources
- **USD 18 billion** is currently invested in **about 30 projects** across **9 different types of metals and minerals**

Foreign investment is one of the main sources of funding for energy and mining in Africa

Energy industry ^[1]

- Supported by **direct investments from foreign commodities firms**, such as Glencore, Total, and BHP
- China's foreign direct investment to the industry is steadily rising
- Nearly USD 10 billion** came from China into sub-Saharan energy from 2005 – 2011

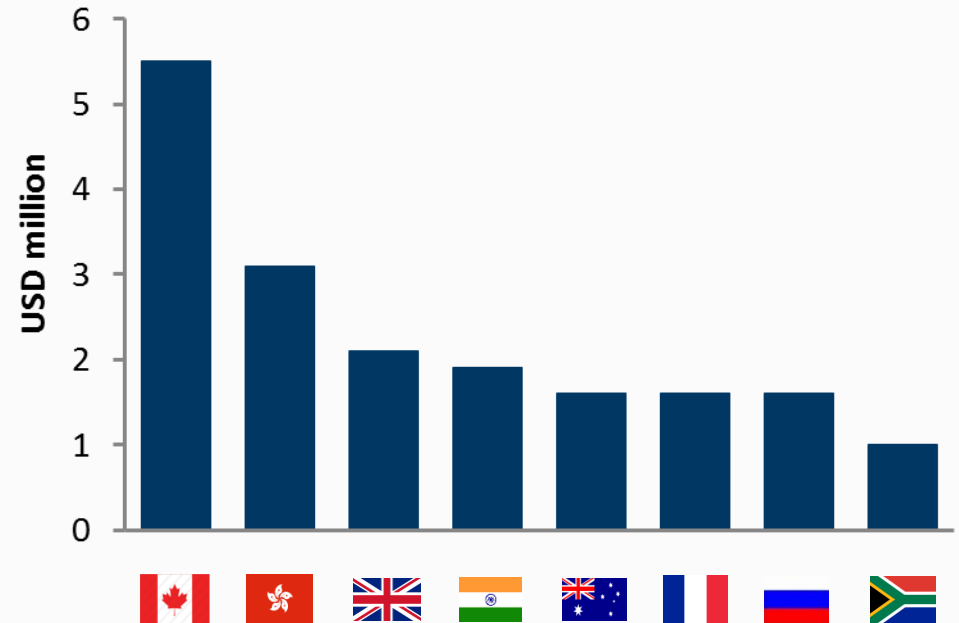
Contribution to oil & gas FDI in Africa by region



Mining industry ^[2]

- Equity markets** have become the main source of finance in recent years
- Asian and emerging stock markets are expected to capture an increasing share of this activity
- Nearly **USD 130 billion** was raised by miners through stock exchange funding in 2009 – 2011

Stock exchange funding of the 29 African mining projects currently in development

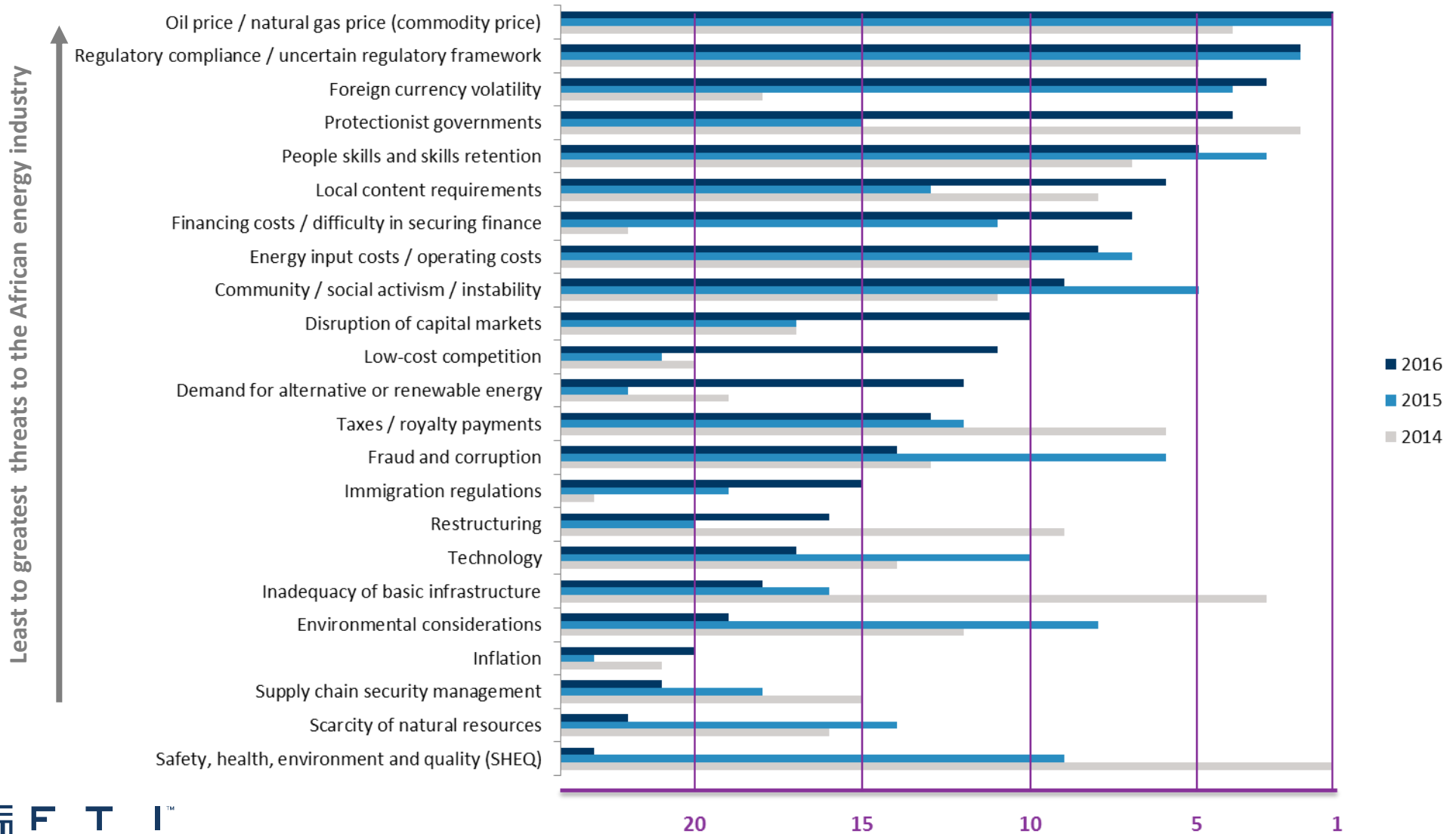


1. Source: FTI analysis; IEA, Africa Energy Outlook, 2014, page: 24; and PWC 2016 Oil & Gas Review, page 20.

2. Source: Economic Commission for Africa, Minerals and Africa's Development, page 33; Deloitte, State of Mining in Africa, 2015, page: 9; and PWC, Executing a successful listing Markets for miners, Feb 2012, page: 3

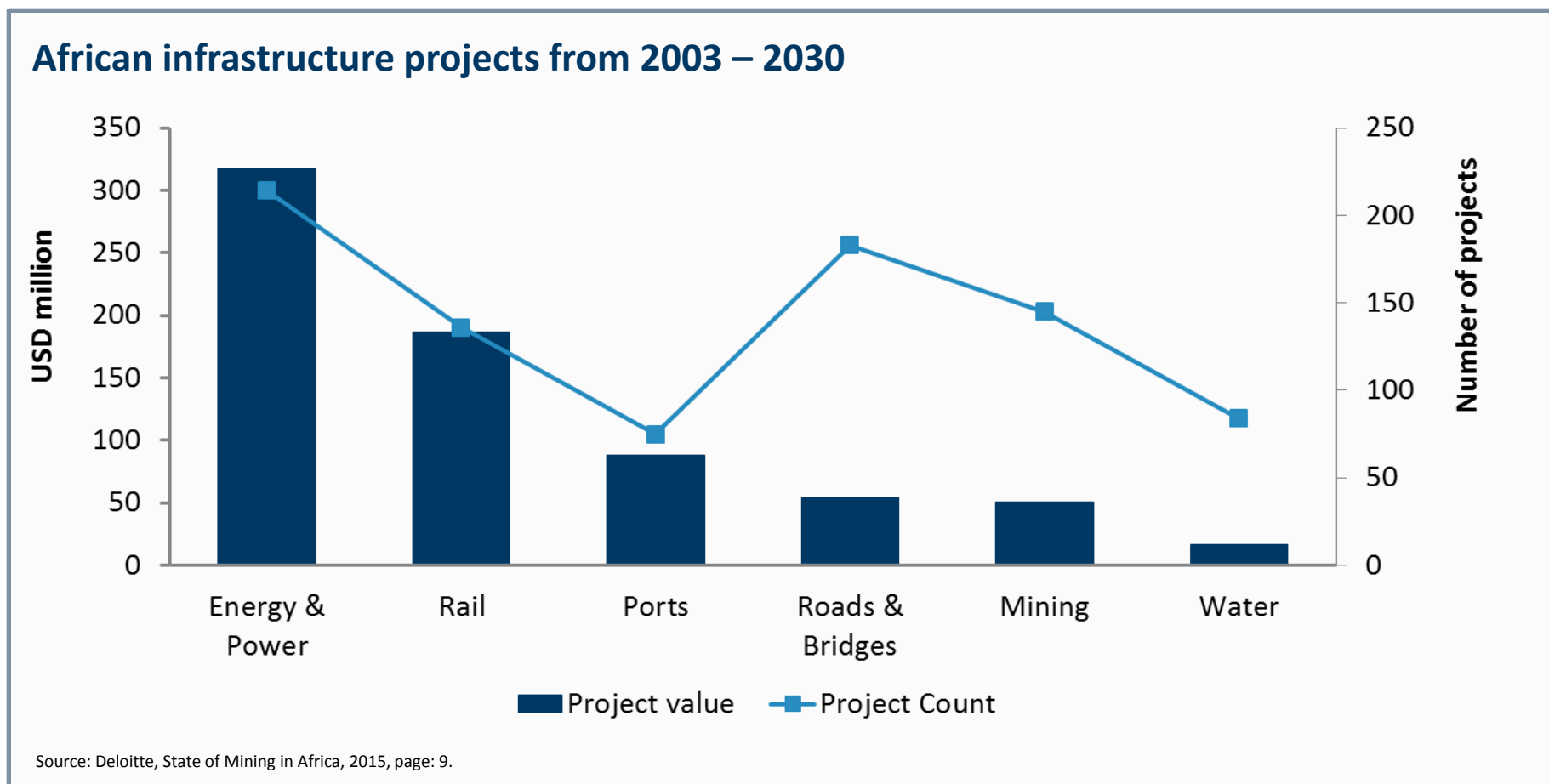
Low commodity prices and regulatory uncertainty are the biggest risks for the African energy industry in the near future

- An industry survey conducted by PwC found that oil & gas industry respondents' view of the greatest upcoming risks to the energy industry in the near future have changed over the last 3 years.



Slow infrastructure development and regulatory inefficiency are the great issues for the mining industry in Africa

- **Regulatory:** includes ineffectiveness of regulatory regimes and a lack of policies to mitigate rent-seeking and corruption
- **Infrastructure:** well-developed infrastructure can raise economic reliability and lower costs for mining operations, but the focus is currently on energy & power projects





Strategic communication and intelligence is a key tool in mitigating regulatory, compliance and dispute risks

Risks exist in emerging markets, particularly when entering a market, exiting a market, and negotiating contracts ^[1]

- **Fast-changing regulations** according to government's current agenda
- Increased **compliance** burden
- Risks associated with **public – private contracts**, due to complexity of process and size of financial interests
- Further risk when dealing with a business or industry with **no track record** (eg. Renewables)
- Higher risk of error, fraud and corruption when there is a **lack of central oversight**, which risks complicating negotiations and transaction prices
- **Expropriation** risks are particularly high in these markets

These problems can be mitigated with sufficient market and strategic intelligence

- **Mapping risks**, such as power-mapping, can be helpful
- Understanding all the issues at stake prior to and during a dispute is strategic

Case Study from FTI Consulting

FTI Consulting demonstrated the value of **power-mapping and investigative skills** when it was hired by some government body to perform a forensic audit at an entity, to unravel the extent of fraud, determine the perpetrators, and advise on the next course of action.

1. Source: Standard Chartered, Managing risk in Emerging Markets, 2016, page: 7; and OECD, Preventing corruption in public procurement, page: 6.

Out of 44 ICSID disputes in African energy and mining since 1978, there are four most commonly occurring underlying causes

Underlying cause	Claimant	Respondent	Industry	Registered
I. Breach of contract	Maritime Int'l Nominees	Guinea	Mineral transportation	1984
	SIREM	Burkina Faso	Mining	1997
	Joy Mining Machinery	Egypt	Mining	2003
	RSM Production Corp	CAR	Petroleum exploration and production	2007
	Ampal-American Israel	Egypt	Natural gas export	2012
	Lundin Tunisia	Tunisia	Oil exploration and production	2013
II. Illegal seizure	AGIP	Congo	Oil products distribution	1978
	Ilunga Jean Mukendi et. al.	DR Congo	Mining	2003
	Shell Nigeria Ultra Deep	Nigeria	Hydrocarbons exploration	2007
	Carnegie Minerals	Gambia	Mining	2009
	Sudapet Company	South Sudan	Hydrocarbons exploration	2012
	Interocean Oil Development	Nigeria	Oil exploration and production	2013
	AngloGold Ashanti	Ghana	Mining	2016
III. Licensing / titles	Ridgepointe Overseas	DR Congo	Mining	2000
	Daniela Contri et. Al.	South Africa	Quarrying and trading	2007

Out of 44 ICSID disputes in African energy and mining since 1978, there are four most commonly occurring underlying causes

Underlying cause	Claimant	Respondent	Industry	Registered
III. Licensing / titles (cont'd)	Diamond Fields Liberia	Liberia	Mining	2011
	RSM Production Company	Cameroon	Hydrocarbons exploration	2013
	African Petroleum Gambia	Gambia	Petroleum exploration and production	2014
	BSG Resources	Guinea	Mining	2014
	Bumi Mauritania	Mauritania	Mining	2014
	Cortec (Pty) Limited	Kenya	Mining	2015
IV. Tax	Alain Goetz et. al.	Burundi	Mining	1995
	Mærsk Olie et. al.	Algeria	Hydrocarbons exploration	2009
	Lundin Tunisia	Tunisia	Oil exploration and production	2012
	Tullow Uganda Operations	Uganda	Petroleum exploration and production	2012
	Société des Mines de Loulo	Mali	Mining	2013
	Tullow Uganda	Uganda	Natural gas liquefaction	2013
	Total E&P Uganda	Uganda	Oil exploration and production	2015
Miscellaneous	Guadalupe Gas Products	Nigeria	Natural gas liquefaction	1978
	National Oil Corp	Libyan Sun Oil	Oil exploration and production	1985

Out of 44 ICSID disputes in African energy and mining since 1978, there are four most commonly occurring underlying causes

Underlying cause	Claimant	Respondent	Industry	Registered
Miscellaneous	Alain Goetz et. al.	Burundi	Mining	2001
	Compagnie Minière et. al.	DR Congo	Mining	2010
	National Gas SAE	Egypt	Gas pipelines construction	2011
	Unión Fenosa Gas	Egypt	Natural gas liquefaction	2014
	SA Interpétrol Burundi	Burundi	Petroleum products supply	2014
Insufficient information	Société Kufpec	Congo	Petroleum exploration and production	1997
	Banro American et. al.	DR Congo	Mining	1998
	Société Mines d'Or de Sadiola	Mali	Mining	2001
	TG World Petroleum	Niger	Oil exploration and production	2003
	Russell Resources Congo	DR Congo	Mining	2004
	RSM Production Corp	Cameroon	Hydrocarbons exploration	2011
	Hess Equatorial Guinea et. al.	Eq. Guinea	Hydrocarbons exploration	2012
	Equatorial Guinea	CMS Energy	Oil and gas enterprise	2012
	BSG Resources et. al.	Guinea	Mining	2015

Key issues in quantum aspects for energy and mining cases

Energy industry

- Sources may differ on projected **prices**
- **Capex projections**, which may include the future investments required to close the facility
- Cost structure
- The **discount rate** to be determined can be hard to estimate, and should reflect inter alia:
 - Country risk
 - Capital structure
 - Rates applied to similar comparables



Mining industry

- Key inputs to the mining industry **are similar to the ones of the energy industry**
- Price must take into account:
 - The **source** to use for projection of prices
 - The **purity** of the metal
 - **Transport**
- The **volume** of metal that is expected to be extracted
- The **determination of the stage of development** of the mine is often key in the debate as it influences the valuation methodology to be used

Valuation	DCF	Market comparables	Costs
Exploration	No	Yes	Yes
Pre-development	Some cases	Yes	Some cases
Development	Yes	Yes	No
Production	Yes	Yes	No

Source: Code VALMIN 2015; ICMVaL Standards and Guidelines

Experts with Impact TM

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