

Large scale grid connected renewables - Implementation, finance and regulation

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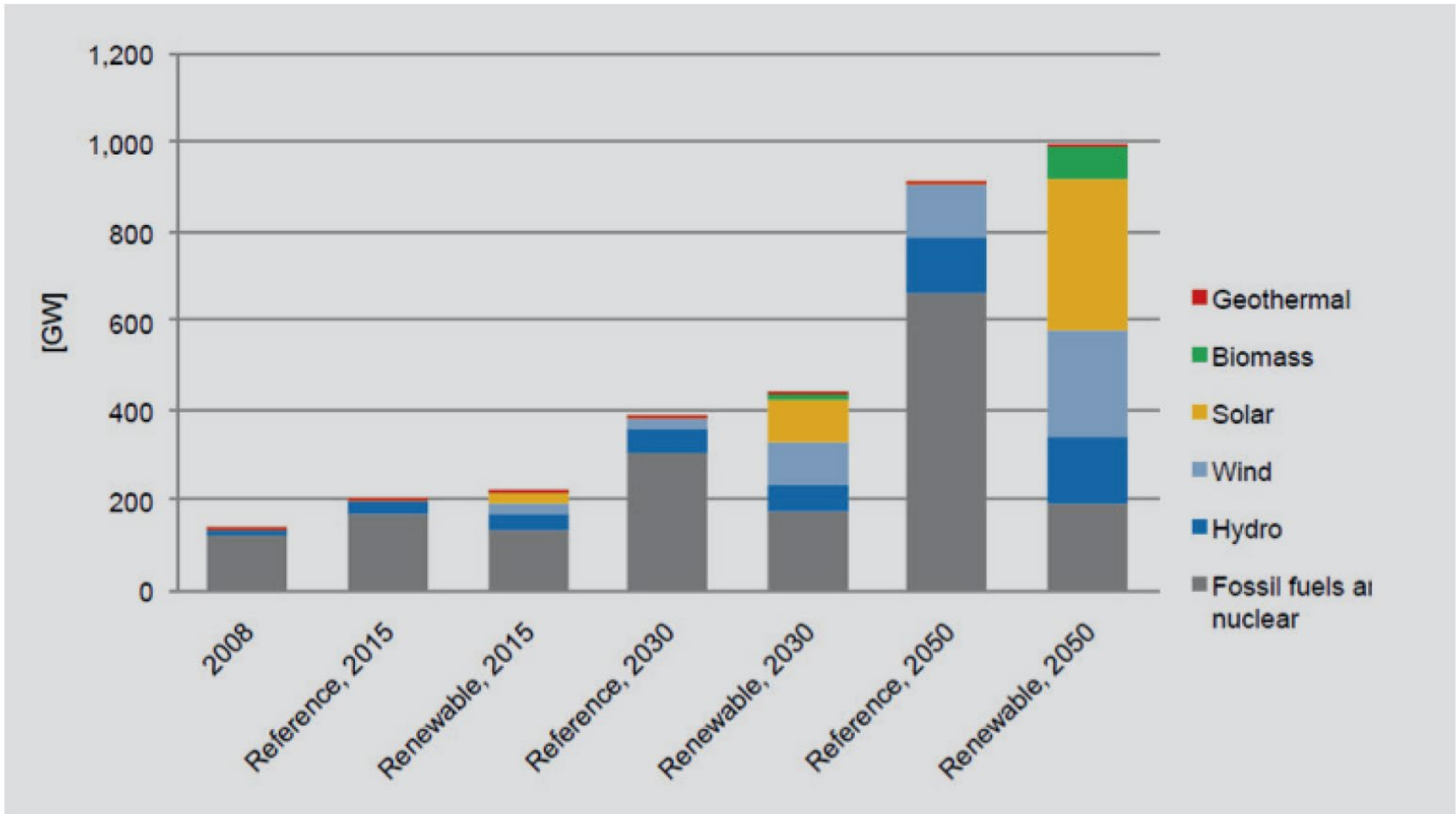
Energy Transition, session 1

Scaling up private sector investments for an ambitious energy transition in Africa

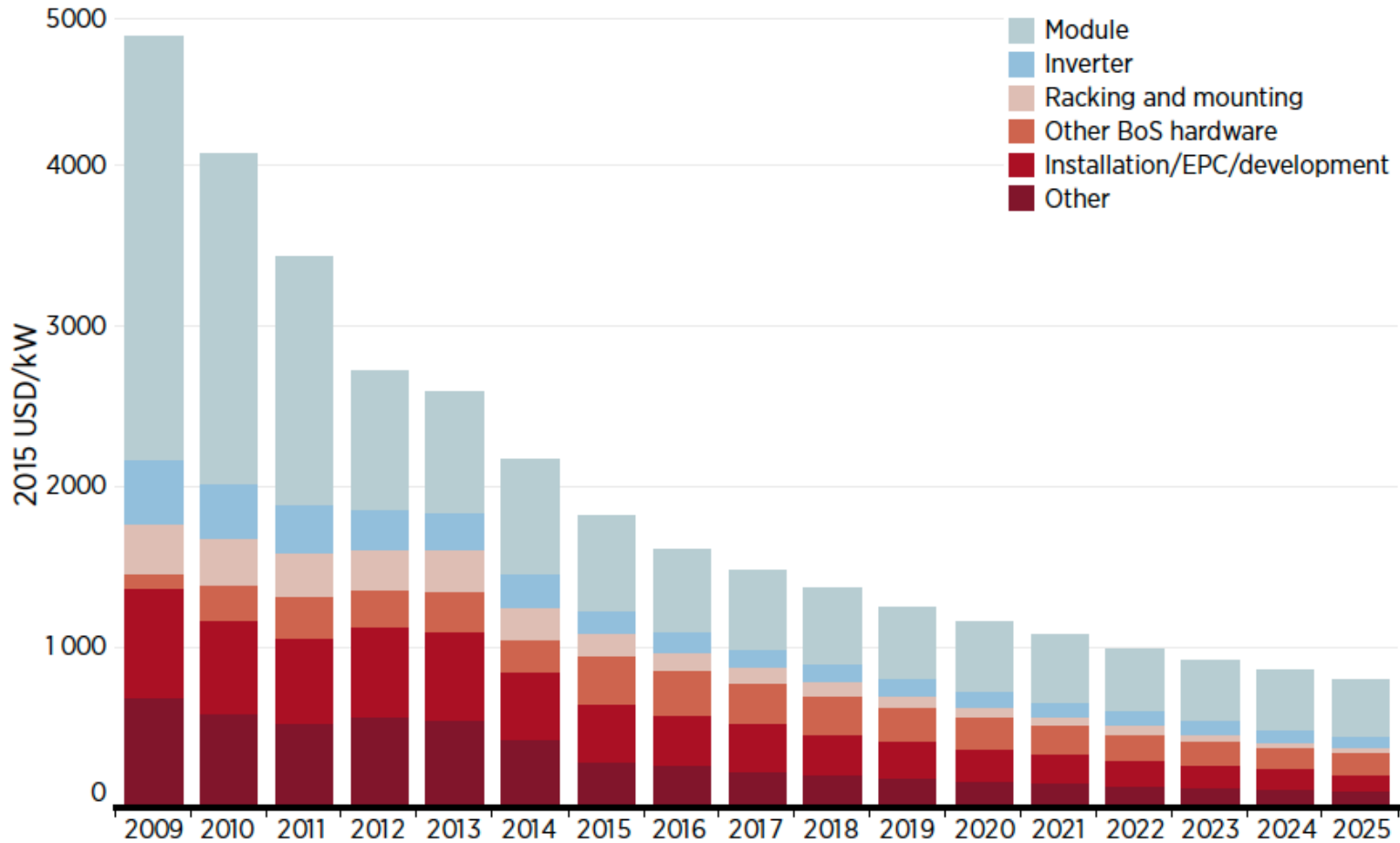
**Africa Climate Week,
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Huge demand for new capacity in SSA

\$490 billion will need to be invested in additional power generation capacity by 2040 to meet projected demand (Eberhard, 2018)



Cost of PV has fallen dramatically



From FiT to negotiated contracts

- 2008 - 2012 Feed in tariffs in a number of countries,
 - Kenya, Tanzania, Uganda and Ghana. (level 10-12 USD c/kWh)
- Very few projects implemented
 - Kinangop Greenfield Wind Project, Kenya (stalled)
 - 20 MW PV project in Ghana ?
- Rather we see a number of negotiated IPP contracts
 - Lake Turkana, 2017, 300 MW wind, 7.5 EUR c/kWh (DFI)
 - Garissa, 2018, 60 MW PV, 12 USD c/kWh (Chinese)
 - Mali 2015, 33 + 50 MW PV, 13.7 EUR c/kWh (Scatec, DFI)
 - Ghana 2016, 20 MW PV, 11.5 USD c/kWh

South African (REIPPPP) Renewable Energy IPP Procurement Programme

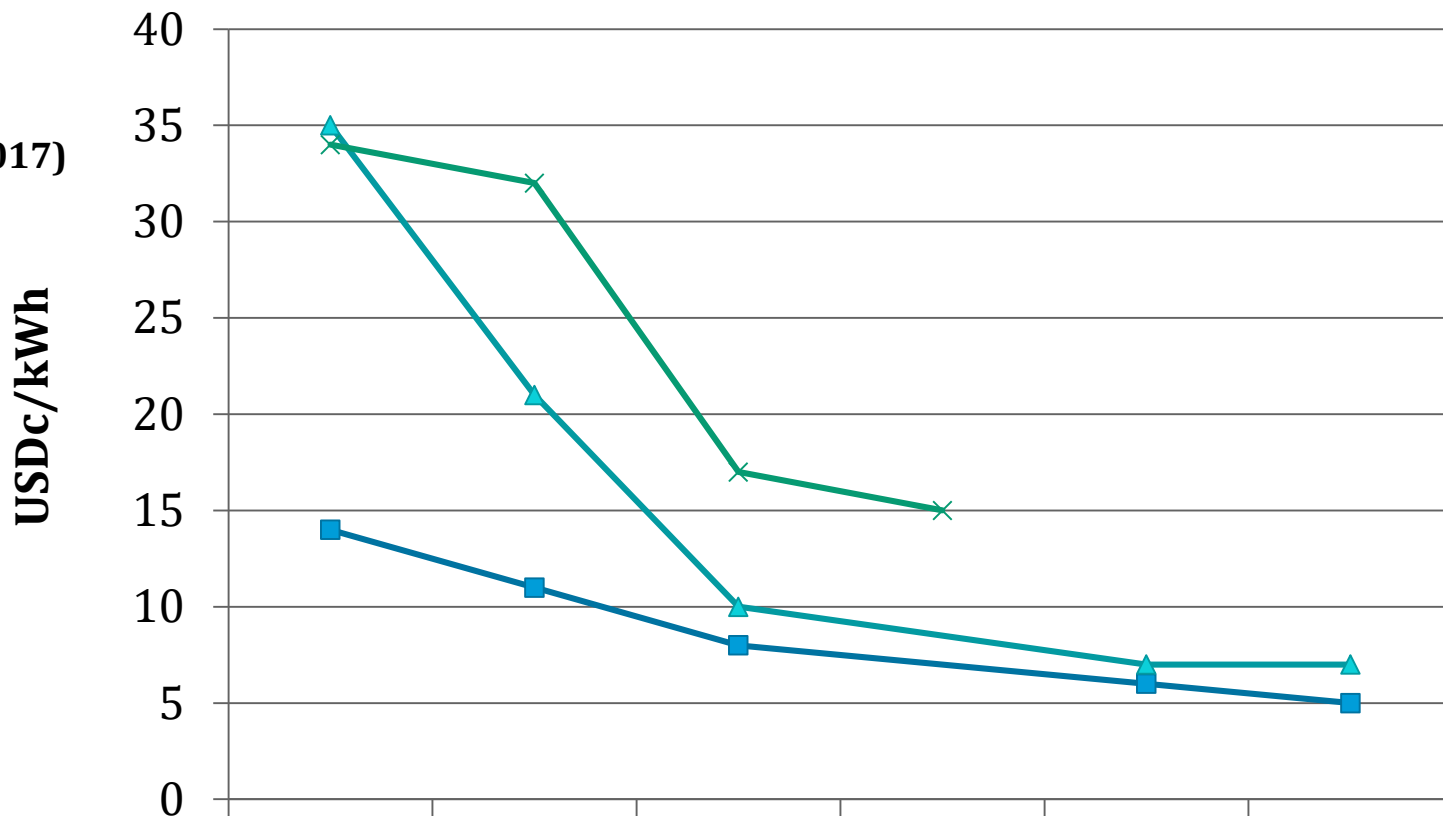
		MW awarded capacity			
Round	Year	Solar PV	Wind	Solar CSP	Total
1	2011	632	634	150	1416
2	2012	417	563	50	1030
3	2013	435	787	200	1422
4	2015	813	1363	2	2178
Total		2297	3347	402	6046
5	2019				1800

Based on Wlokas and Baker (2015) and

www.eskom.co.za/Whatweredoing/Pages/RE_IPP_Procurement_Programme.asp

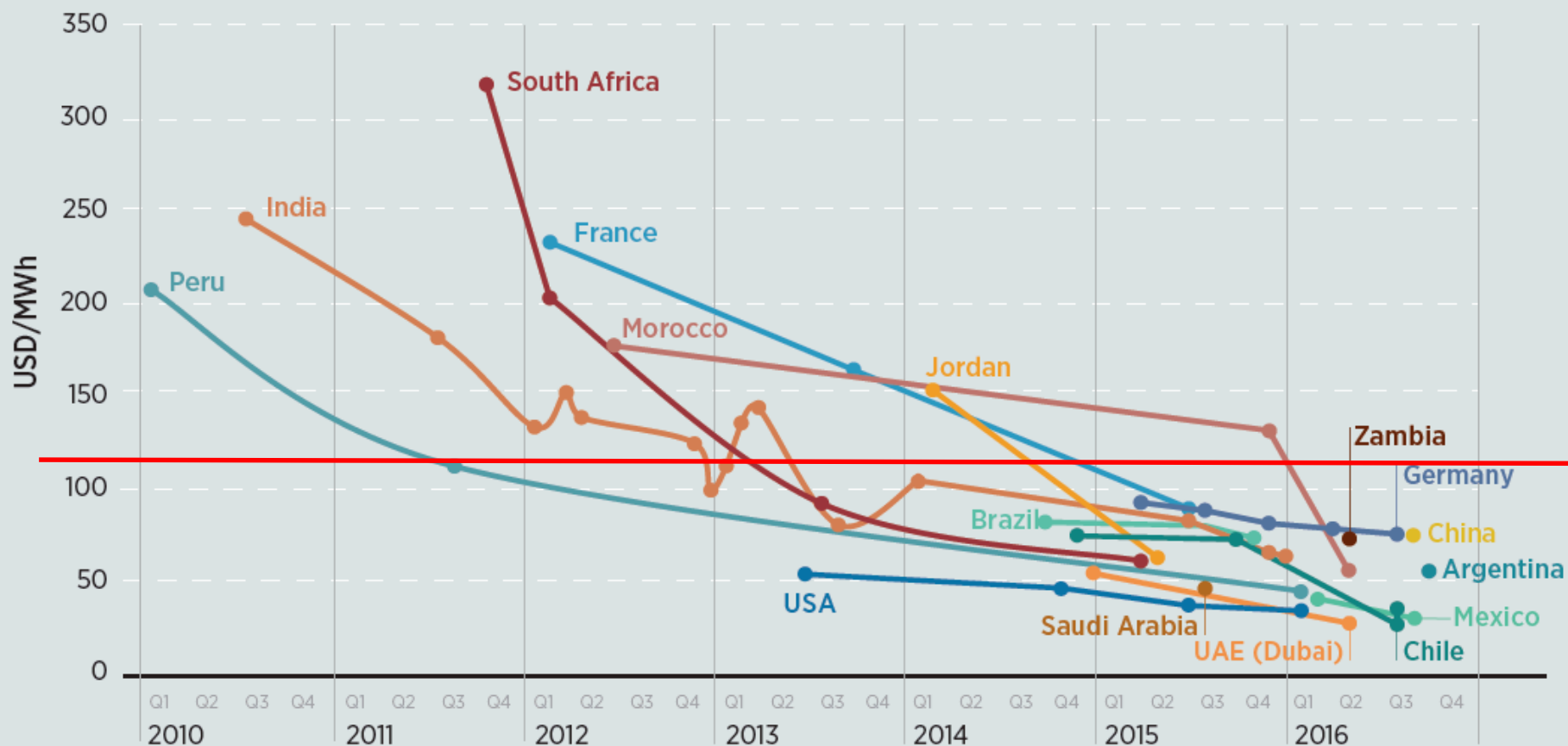
South African (REIPPPP) Renewable Energy IPP Procurement Programme

Source:
Wikus Kruger (2017)



	BW1	BW2	BW3	BW 3.5	BW4(b)	BW4(a)
■ Wind Average Tariff	14	11	8		6	5
▲ Solar PV Average Tariff	35	21	10		7	7
✕ CSP Average Tariff	34	32	17	15		

Solar PV Auction Results 2010 - 2016

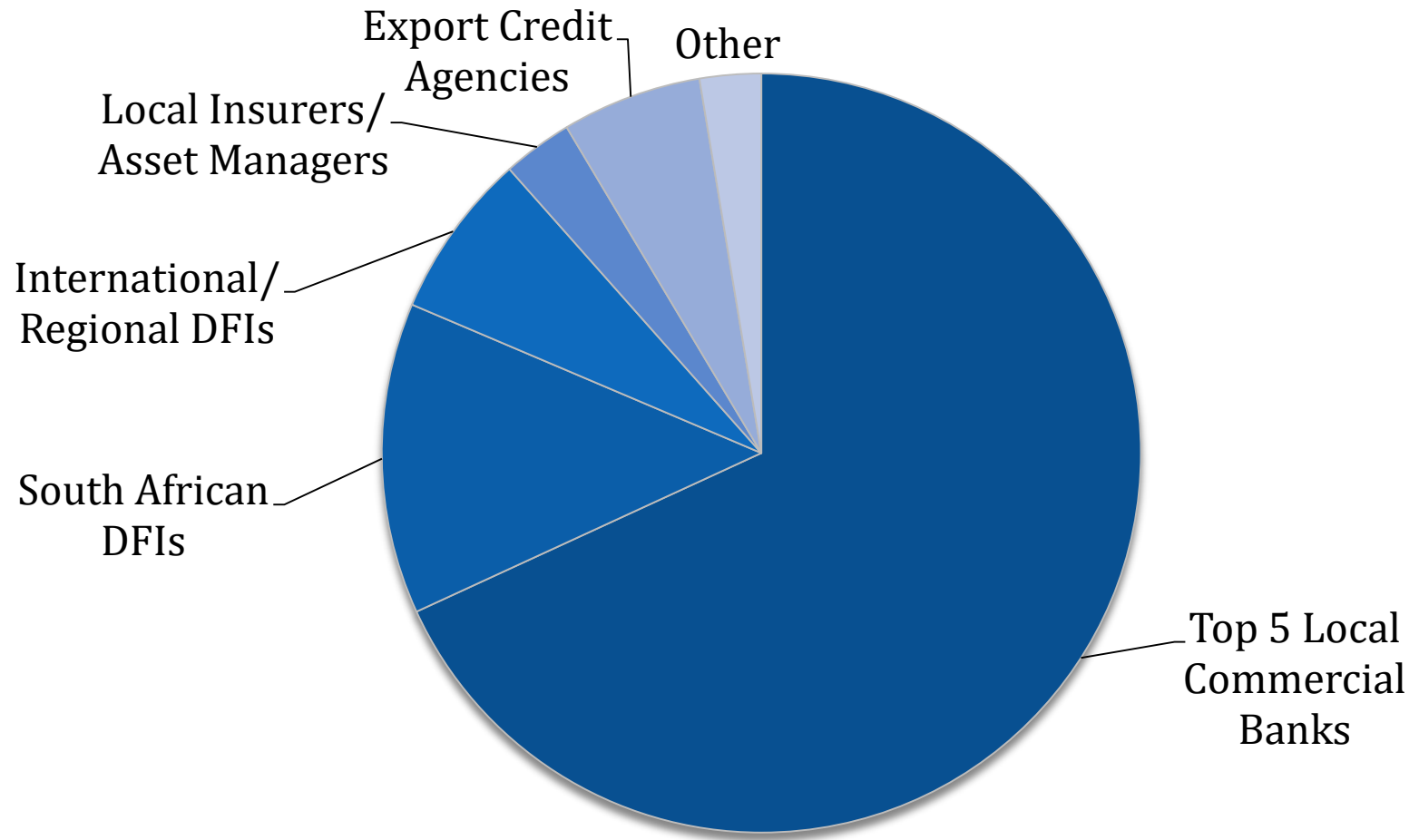


Moving back to competitive bidding

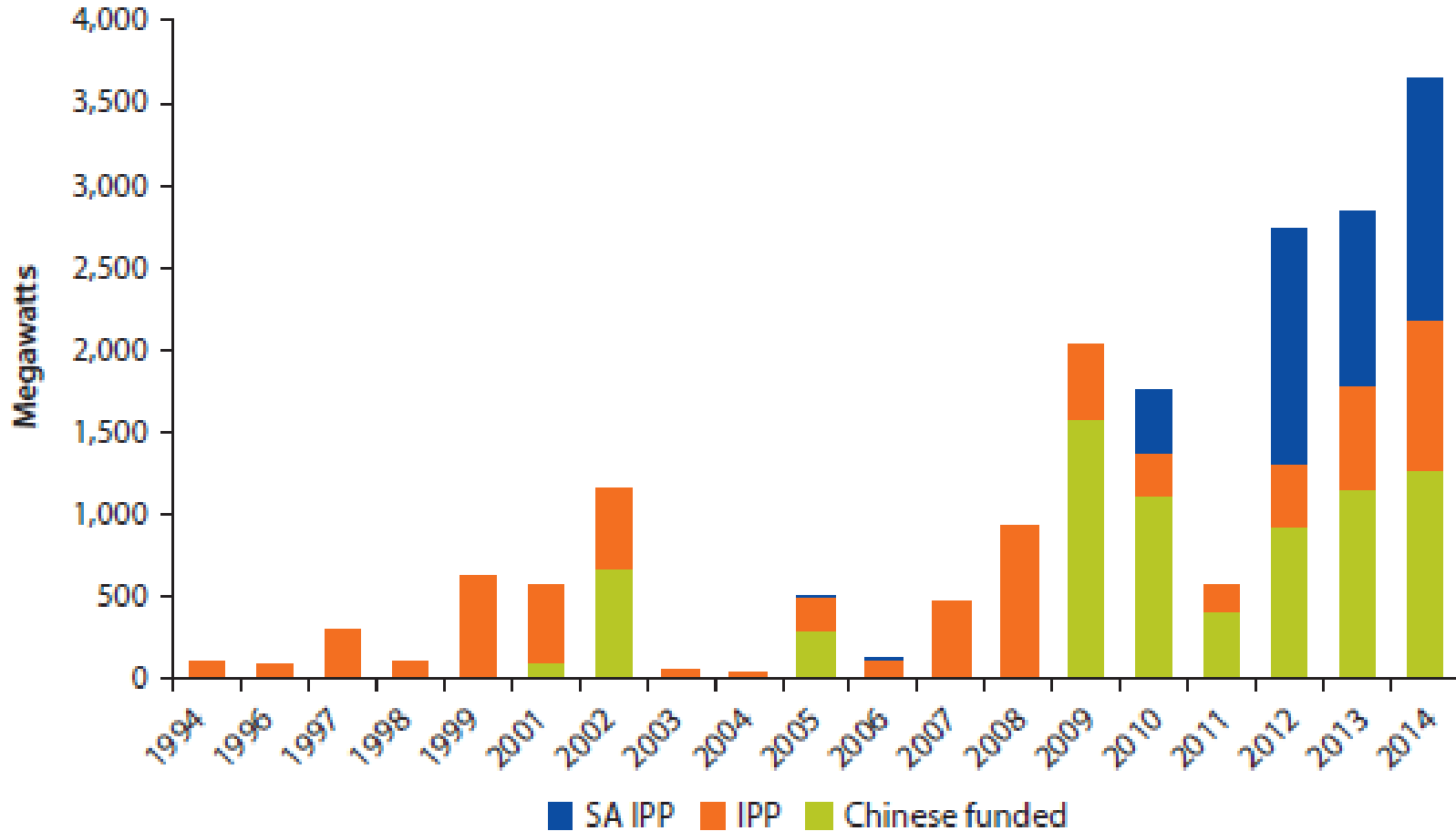
Country	Year	Capacity	Tech.	Bid price
Uganda	2014	4 x 5 MW	PV	16 USDc.
Zambia	2016	2 x 50 MW	PV	6.0 USD c
Namibia	2017	1 x 37 MW	PV	6.0 USD c
Malawi	2017	1 x 80 MW	PV	NA
Ethiopia	2017	1 x 100 MW	PV	NA

In Zambia 11 companies were prequalified for bidding

Majority of debt financing from local banks



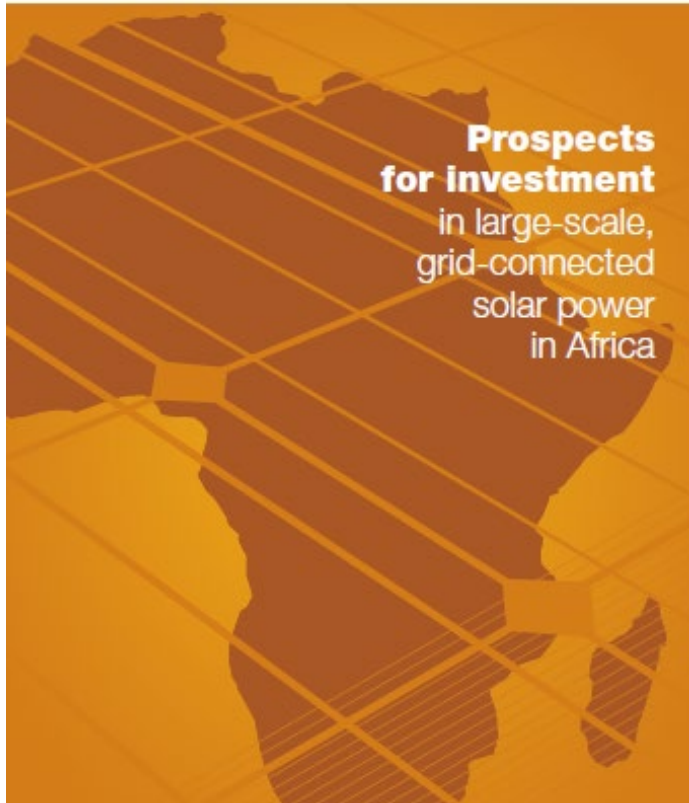
IPPs and Chinese-Funded Power Projects Sub-Saharan Africa, 1994–2014



Take a way points

- Huge need for capital for investment to meet electricity demand in SSA
- LCOE for solar, wind, geothermal are rapidly decreasing and in most cases competitive to fossil fuels
- IPPs are essential to supplement new production capacity and competition is a must
- Development Finance Institutions are playing an essential role supply equity capital and risk guarantees
- SA experiences should be used as input to auction programmes in other SSA countries
- Finance and technology from China provides an important contribution to the green transition
- Important question:
 - how to ensure that the green transition will provide new jobs, and industrial development in SSA
 - How to ensure that RE installations will be to the benefit for local people

Thanks for your attention !



Main Sources:

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