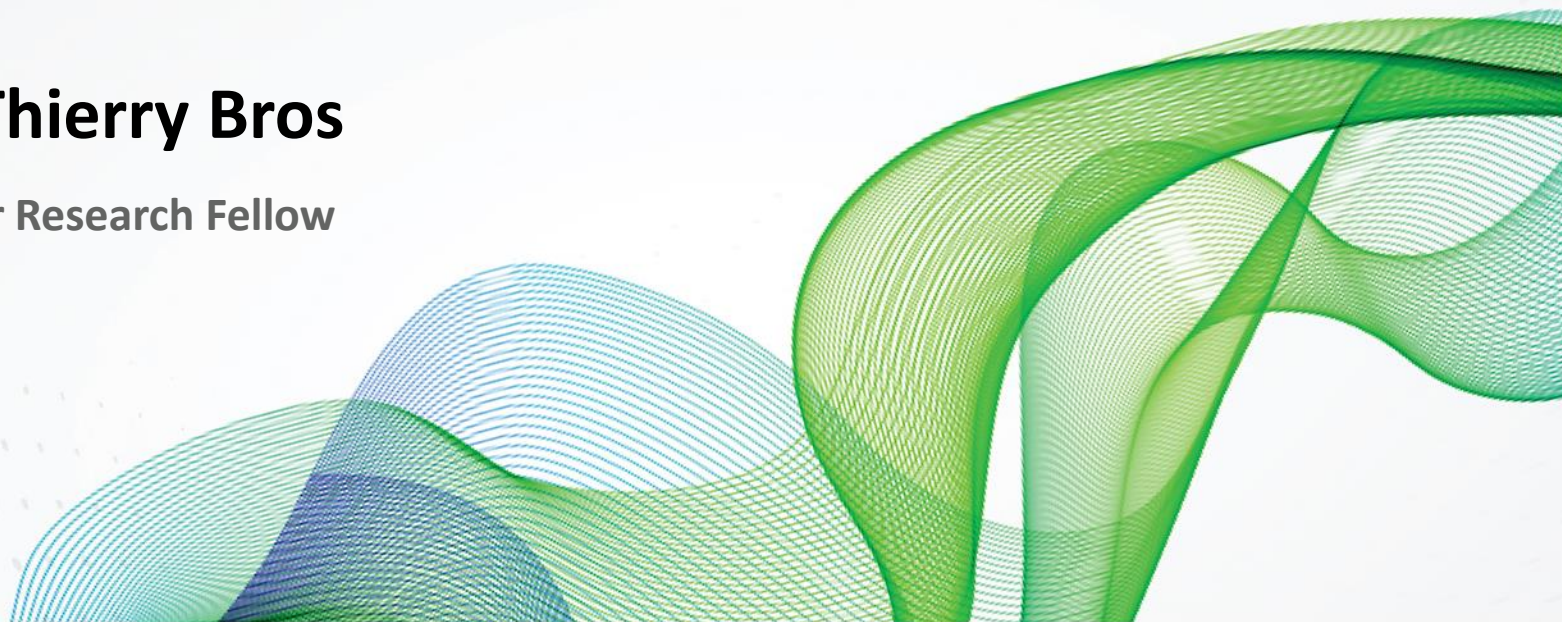


Gas, Renewables & Power in Africa

Dr Thierry Bros

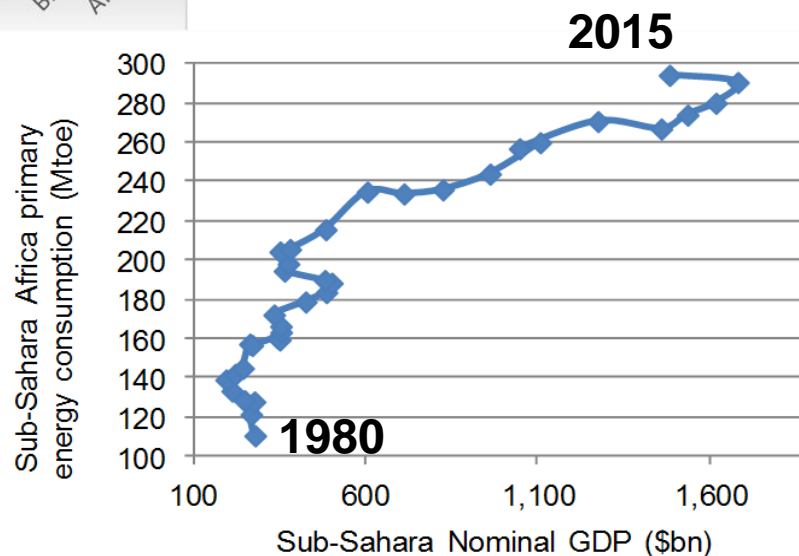
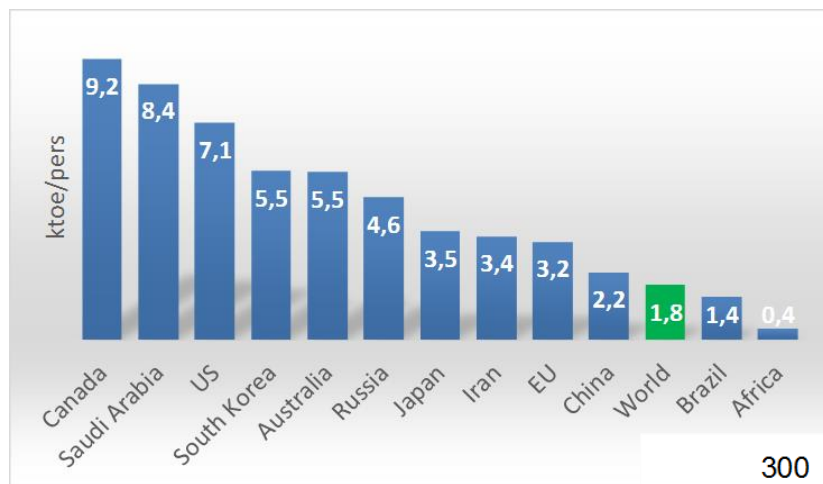
Senior Research Fellow



Africa Energy Forum – Copenhagen – 8 June 2017

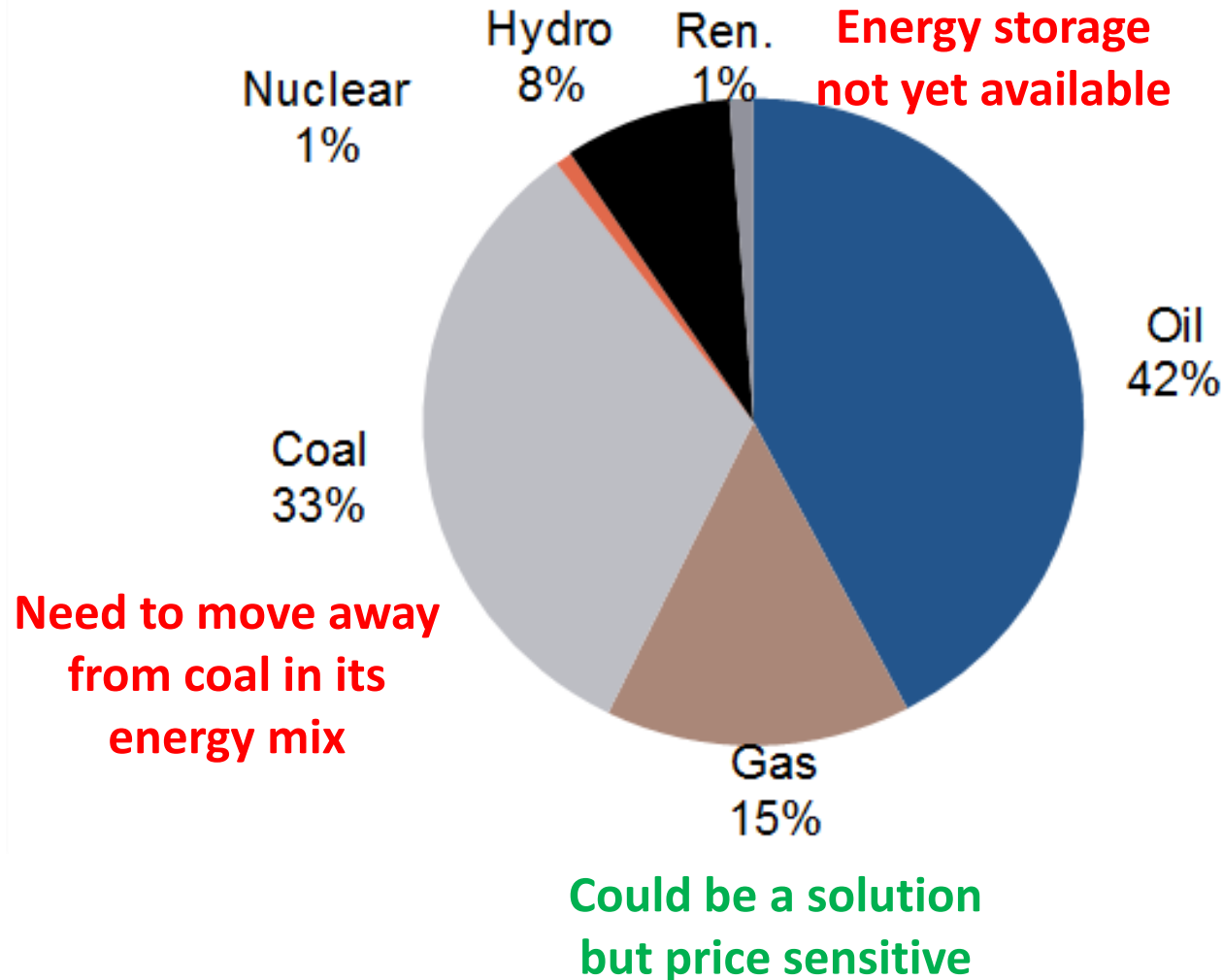


African primary energy demand to grow in the coming decades

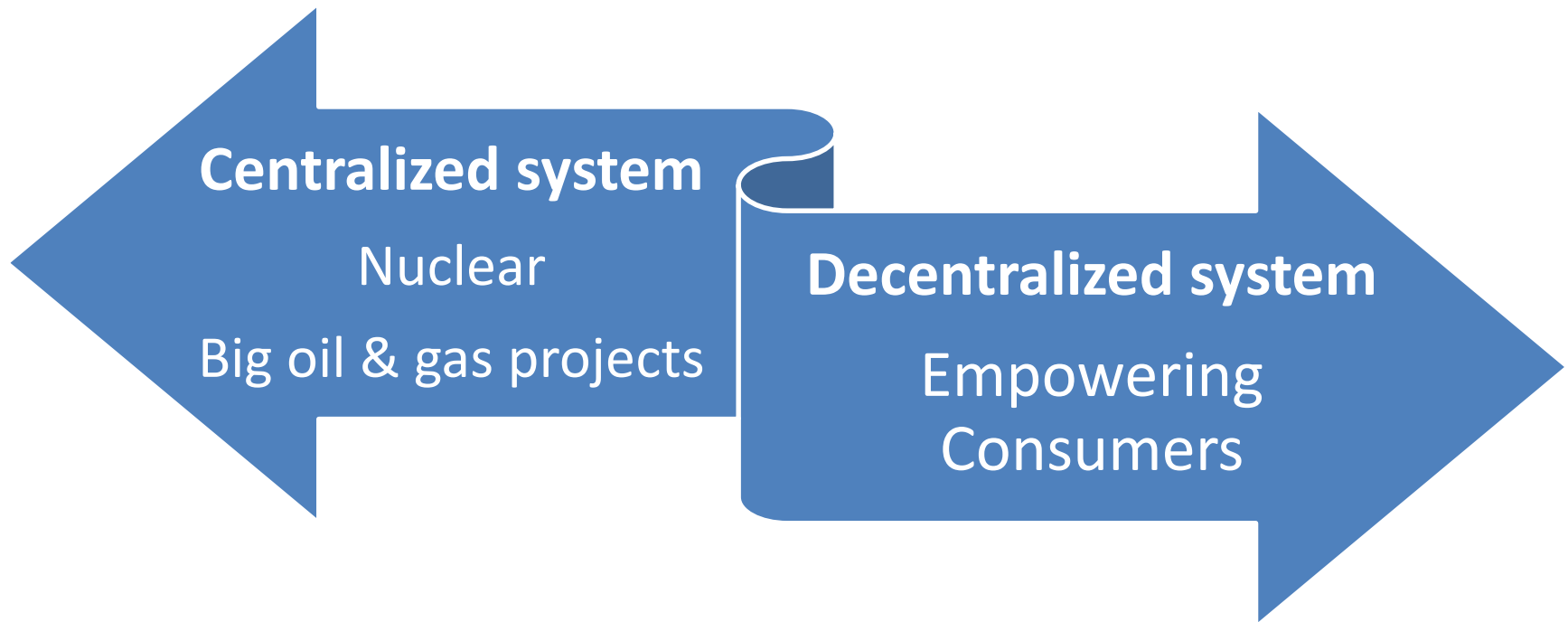


Source: BP Statistical Review June 2016, IMF, thierrybros.com

Africa comes on the energy scene post-COP21...



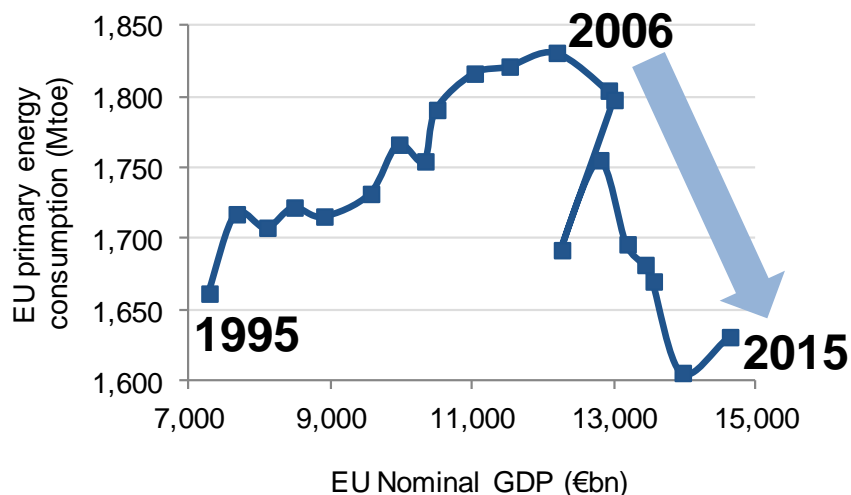
... When energy transition is in full swing...



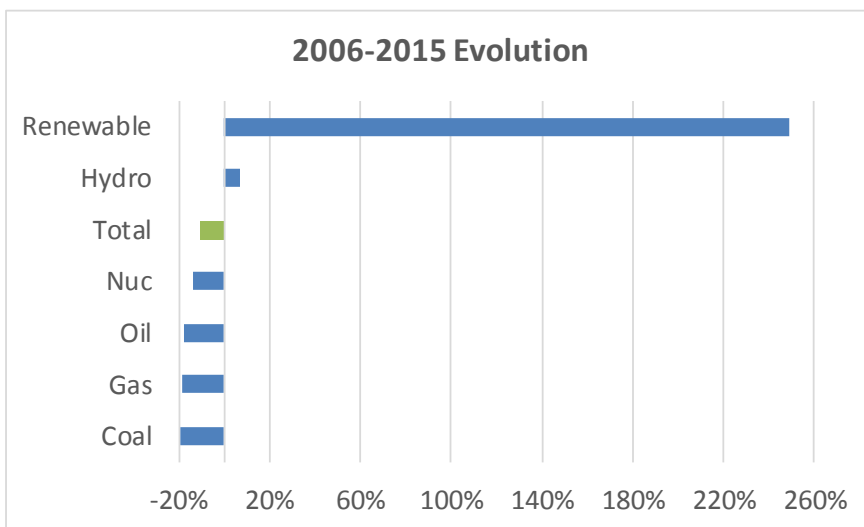


...With unexpected results in Europe!

**EU Primary energy consumption
Down by 10,9% since 2006**



**Most fuels down
Renewable x3.5**



Source: BP Statistical Review June 2016, Eurostat, thierrybros.com

Way ahead for Africa

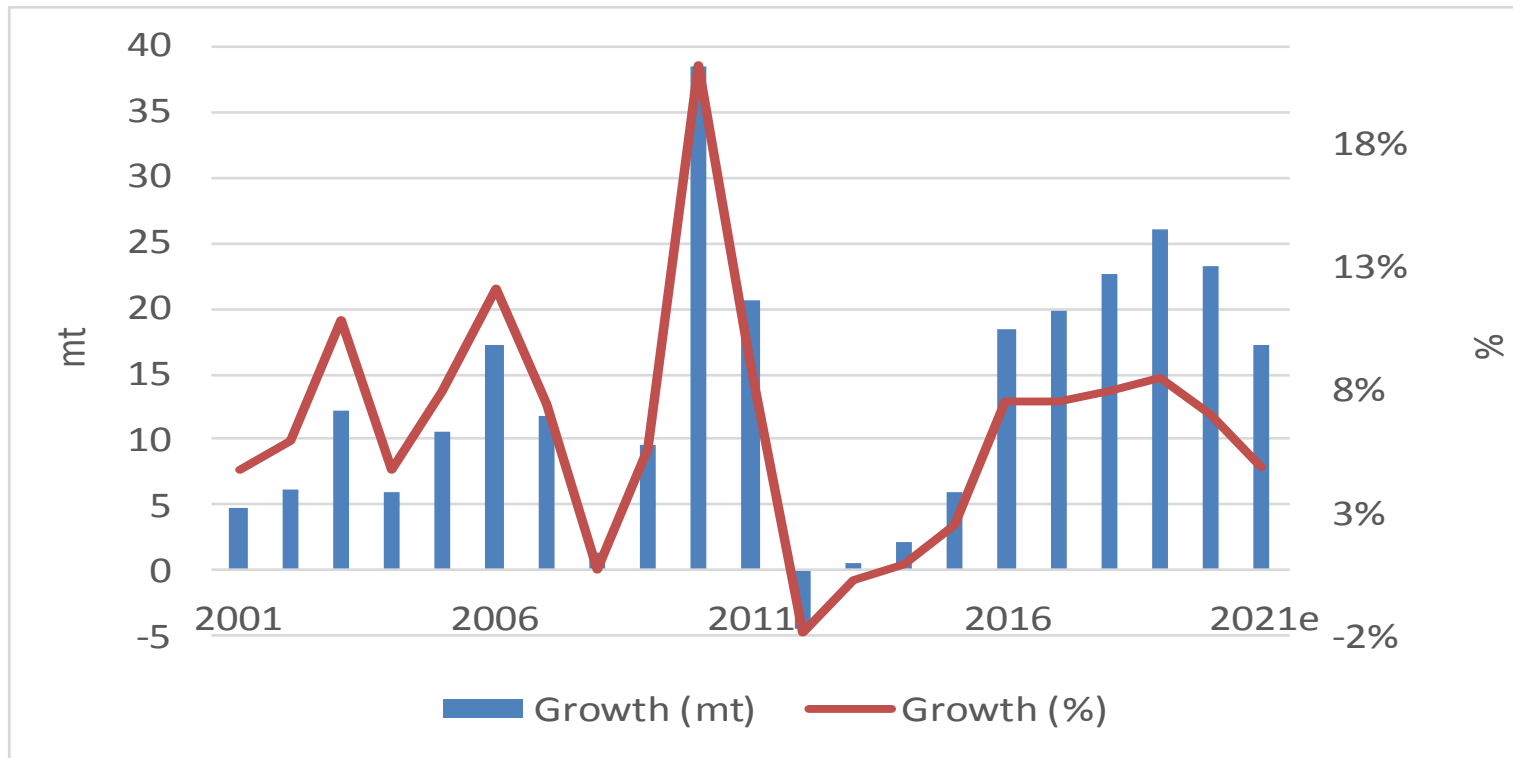
	+	-	Solution
People	More primary energy to sustain growth	No infrastructure, little money	Local decentralized solar & gas
Energy mix	Move away from coal	Storage	Gas as a transitional fuel and FSRU for storage
Governments	Skills transfer. LNG could kick start domestic gas production	Links with electric incumbent	Need to demonstrate a robust simple plan
Gas companies	Need to find additional demand	Profitable not too small projects	Concentrate on power plant for demand with FSRU
Infrastructure companies	Geographical monopoly	Visibility of revenues	Bundled or unbundled?
International organisations	UN 2030 Agenda - Sustainable Development Goal n°7: Affordable and Clean Energy	Fast tracking new projects	Grants & loans New business models with cheaper solutions

Power in Africa

- **Anchor electricity customer**
 - ❖ Long term power purchase agreement to ensure reliable off-take of all generated electricity
 - ❖ Creditworthiness?
 - ❖ Putting every requisite component in place can be challenging
 - ❖ Reduced risks (technology, forex, etc.)
- **From renewables**
 - ❖ Bright future but integration not straightforward
 - ❖ Difficult to manage grid with variable generation
- **From floating regas**
 - ❖ Short term solution that fills a strategy gap
 - ❖ Illiquid asset with a readily accessible route for an exit



LNG supply growth provides an opportunity



Source: *thierrybros.com, GIIGNL for historical data*

In India, LNG landed prices declined by 38% in 2016 vs 2015, allowing a volume increase of 30%



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The Future of Gas in the Global Energy Mix

