17th INTERNATIONAL CONFERENCE & EXHIBITION ON LIQUEFIED NATURAL GAS (LNG 17)




East Africa: Opportunities and Challenges for LNG in a New Frontier Region

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Agenda

- BG Group in East Africa
- Tanzania LNG project
- Global LNG context
- Potential socio-economic impacts of a LNG project in Tanzania
- Closing thoughts

Emerging hydrocarbon province

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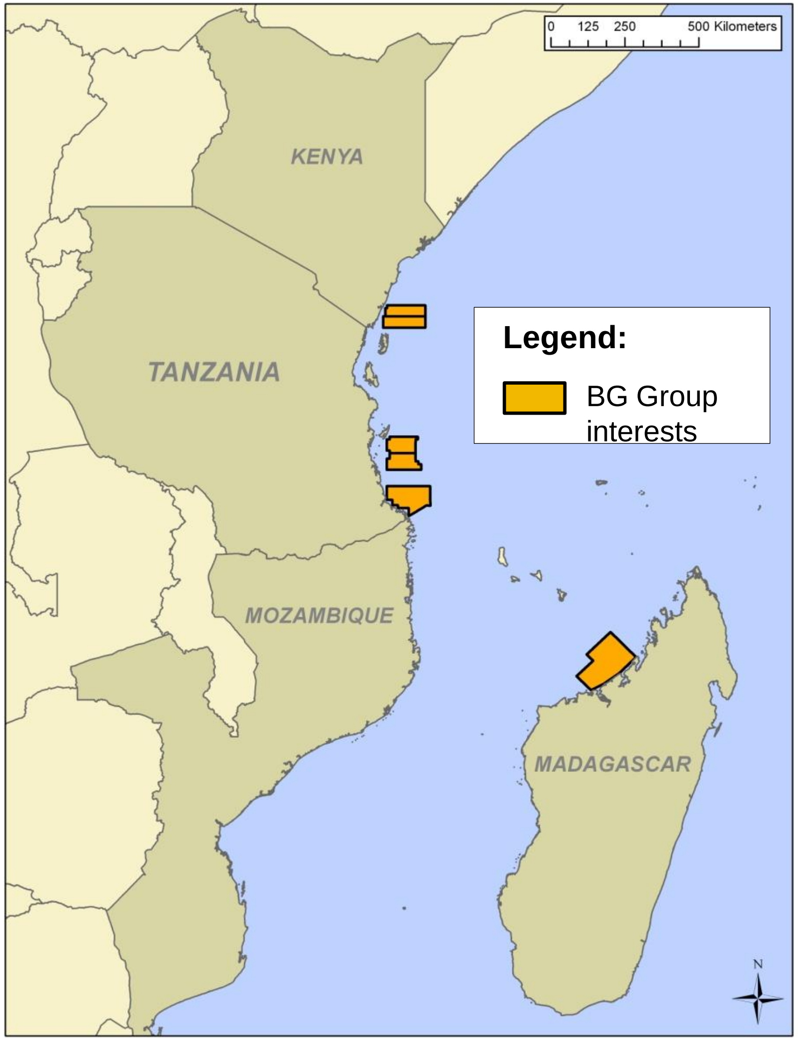
- Relatively unexplored frontier play
- East Africa: new exploration hotspot with recent material discoveries
- Reliable government institutions
- Favorably positioned to access robustly priced Asia-Pacific LNG markets
- Likely to underpin next wave of LNG developments
- BG Group has a strong acreage position in East Africa



BG Group in Tanzania

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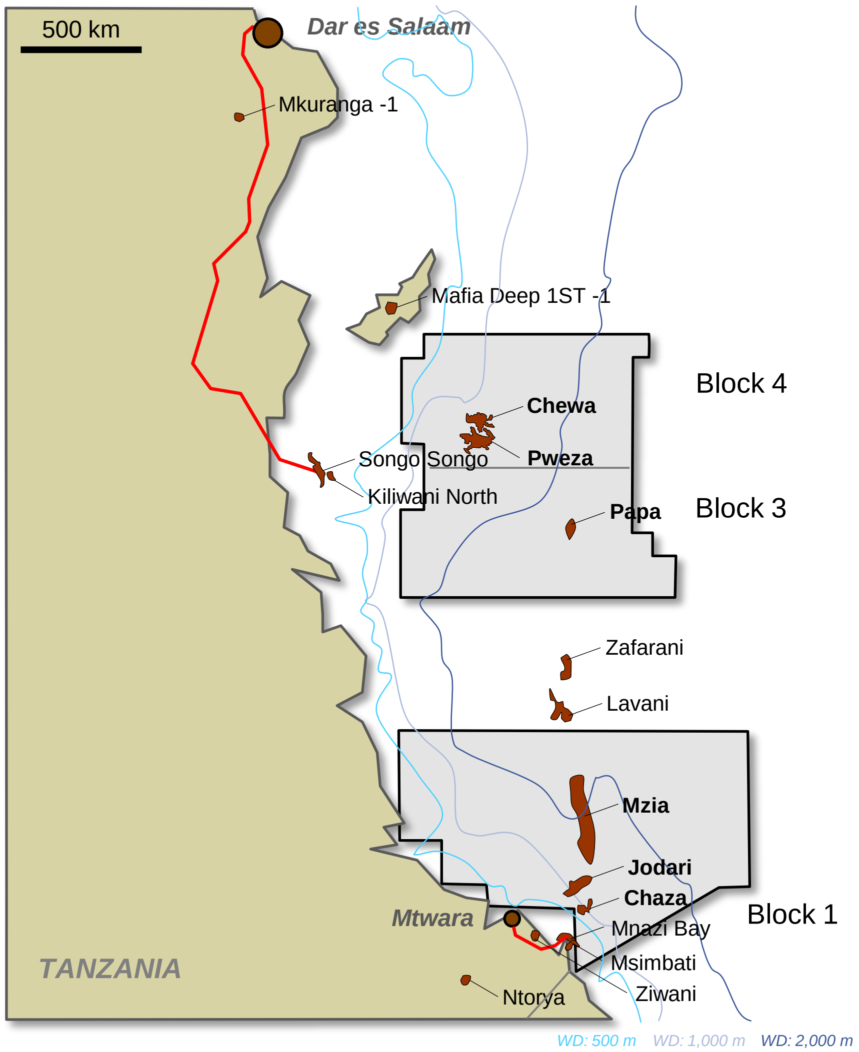
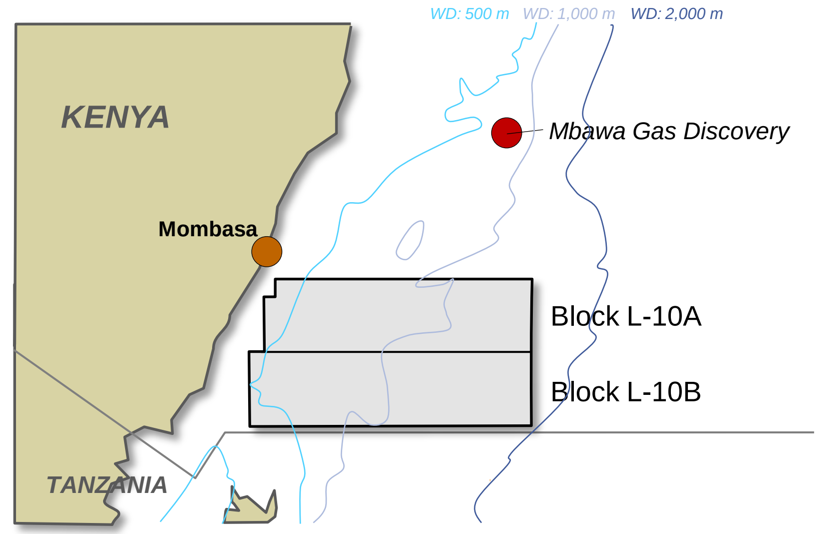
- Acquisition of 60% of Ophir's interests in Blocks 1, 3 & 4 in June 2010
- BG Group appointed operator in July 2011
- Nine consecutive successful gas wells
- 13,500 km^2 of seismic data acquired
- Circa US$1 billion spent on E&A to date
- First DST commenced offshore Tanzania in January 2013
- Further E&A in 2013/14 to enhance resource base in support of land-based LNG project



BG Group in Kenya / Madagascar

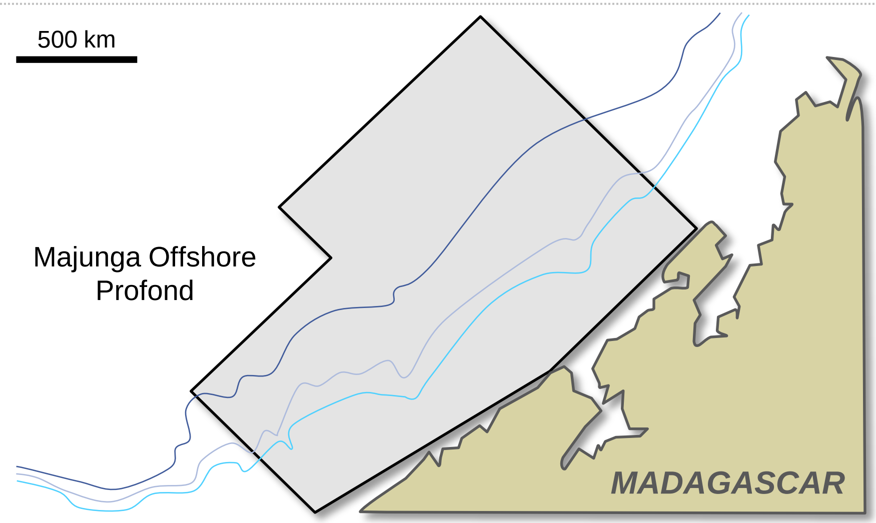
Kenya

- BG Group operator on L10A & L10B blocks
- 10,400 km^2 of acreage in water depths from 200 to 2,000 metres
- 2,630 km^2 of 3D seismic acquired over two blocks
- Drilling planned for late 2013 / early 2014



Madagascar

- Non-operated block in unexplored frontier basin
- North-west coast of Madagascar
- 15,840 km2 of acreage in water depths from 200 to 3,000 metres
- Believed to be oil-prone

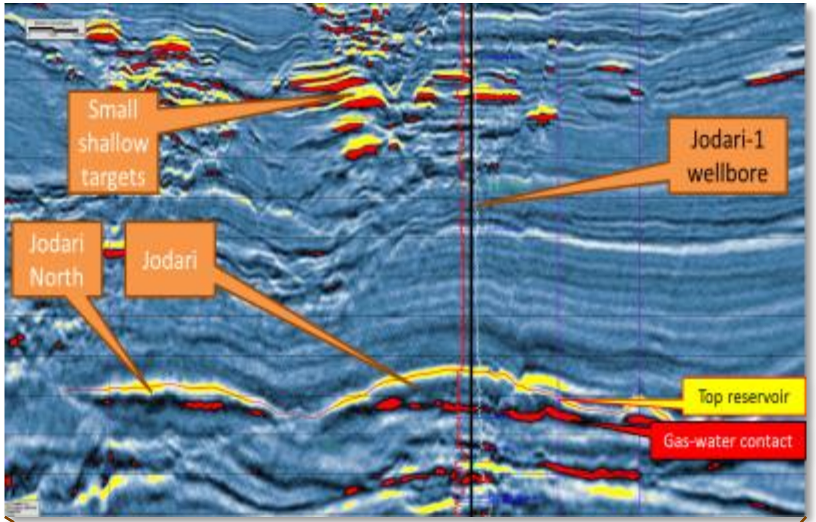


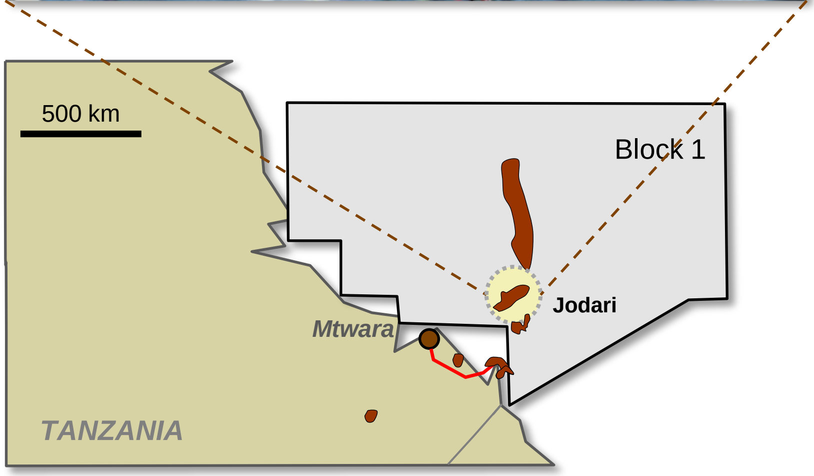
Source: Wood Mackenzie

Nature of discoveries

- Discovered reservoirs not particularly complex geologically
- Highly permeable sandstones deposited in deep marine channel systems
- Normally pressured, low temperature reservoirs
- Multi-TCF discoveries in gas column ranging from 40 to 50 metres
- Dry gas with little or no contaminants
- Challenging design of high deliverability well in extreme water depth

Seismic line across Jodari





Tanzania LNG development

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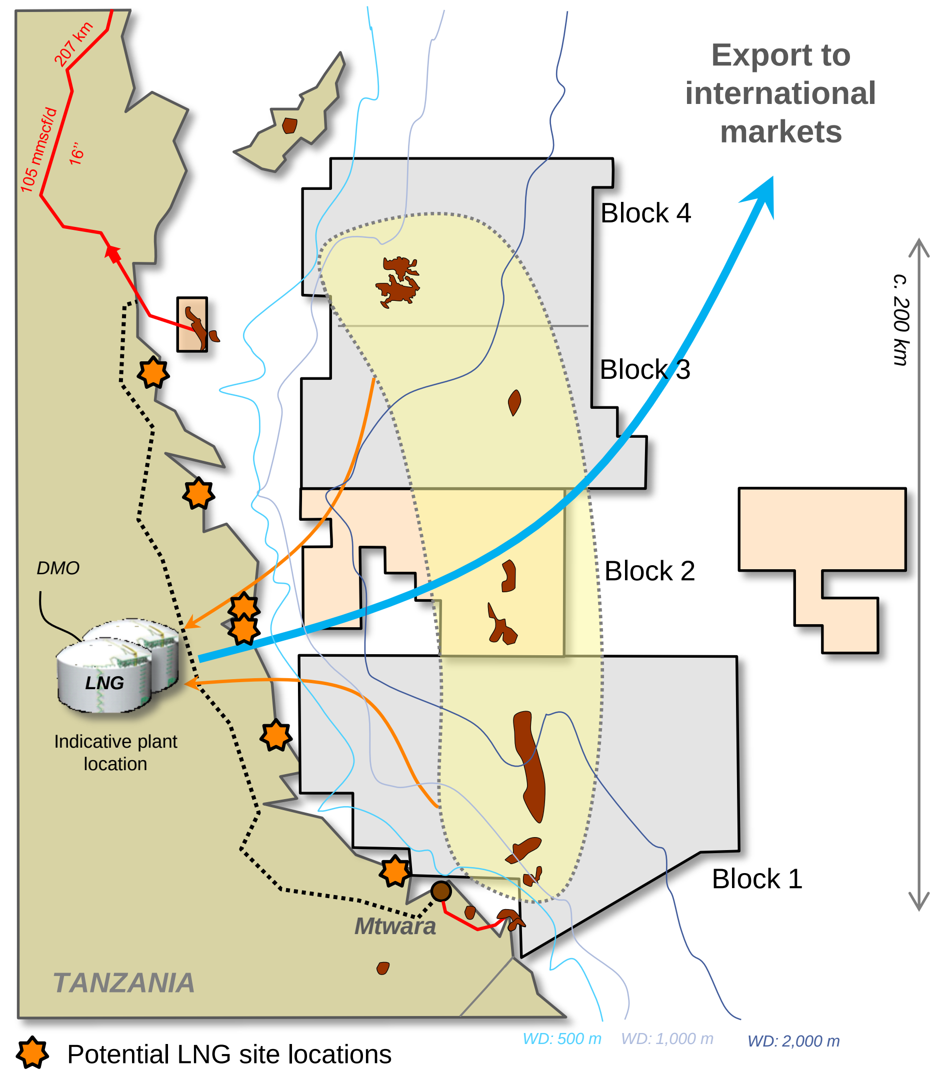
- Discoveries scattered across four large blocks, distant from the shore
- Water depths also limit offshore facility design
- Subsea only solutions controlled and monitored from the beach and floating production unit option considered
- FLNG option still considered while preferred option is land-based LNG plant



Global LNG supply / demand

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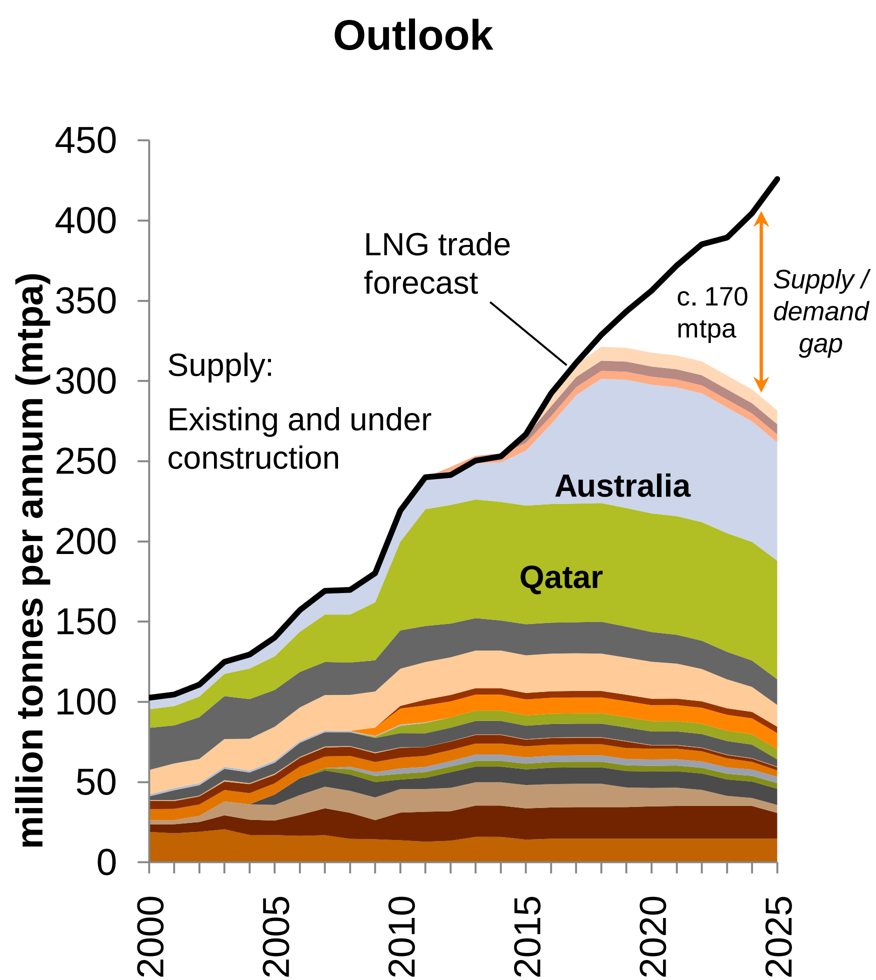
- LNG demand is expected to continue to grow, mostly in Pacific Basin
- LNG supply growth driven by Qatar and Australia
- However, supply / demand gap expected to increase over the next decade
- Where is the next Qatar or Australia?
- Mozambique and Tanzania? Recent discoveries have built up significant resource base in East Africa



Source: BG Group interpretation of Wood Mackenzie (Nov 2012)
Note: Supply adjusted by BG Group to account for chain losses

From East Africa to markets

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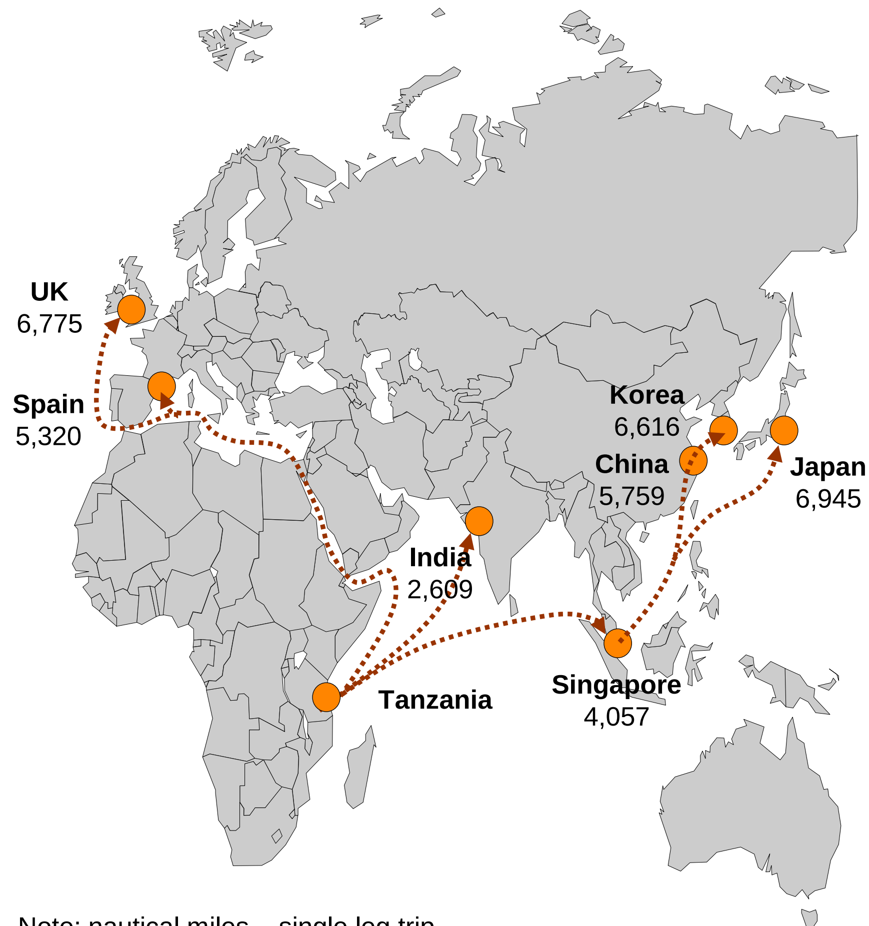
- Well located to supply multiple markets on long-term basis or in response to short-term market fluctuation
- Equidistant from North East Asia and North East Europe
- Extremely well located in respect to West Coast Indian markets
- Similar distance from market compared with Middle East exporters
- But East Africa LNG projects emerging at the same time as new potential exporters: US and Canada

Distance from Tanzania to markets



Note: nautical miles – single leg trip

Sources of state income

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- Significant economic progress in East African countries in recent years
- Fairly modest level of human development:

– Kenya	143	Out of 187 countries in the United Nations Human Development Index
– Tanzania	152	
– Madagascar	151	
– Mozambique	184	

- Development of LNG projects has potential to transform economy
- Various direct and indirect benefits of deepwater LNG projects

Source: UNDP 2011

- Direct benefits:
  - Foreign direct investment
  - Employment
  - Government take from the project
  - Contribution to gross domestic product and gross national income
  - Retained national income and national expenditure
- Indirect benefits:
  - Induced impacts
  - Multiplier effects from industry

Employment: Multiplier effect

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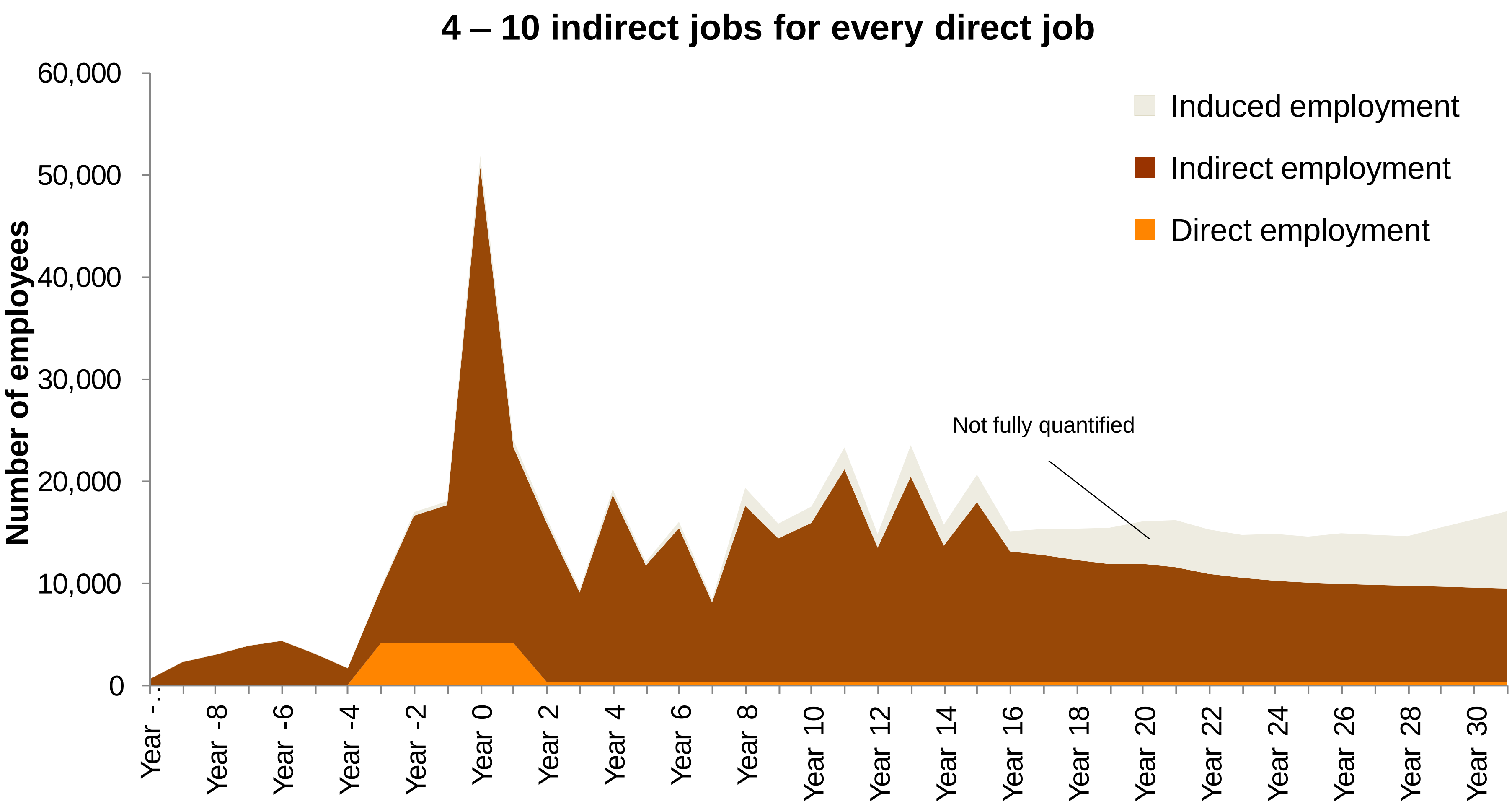

Source: Oxford Management Policy

Note: Based on a two-train LNG project in Tanzania, LNG train size yet to be decided

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Gas market development

- Governments have a key role in delivering investment enabling policy and regulation
- Mutually beneficial outcome to both in-country societies and multinational investors
- Possible step-change in economic development thanks to deep water LNG projects
- Can also facilitate development of fertiliser plants and power generation that have high multiplier impacts to economy
- Enough gas for all sustainable requirements

Closing thoughts

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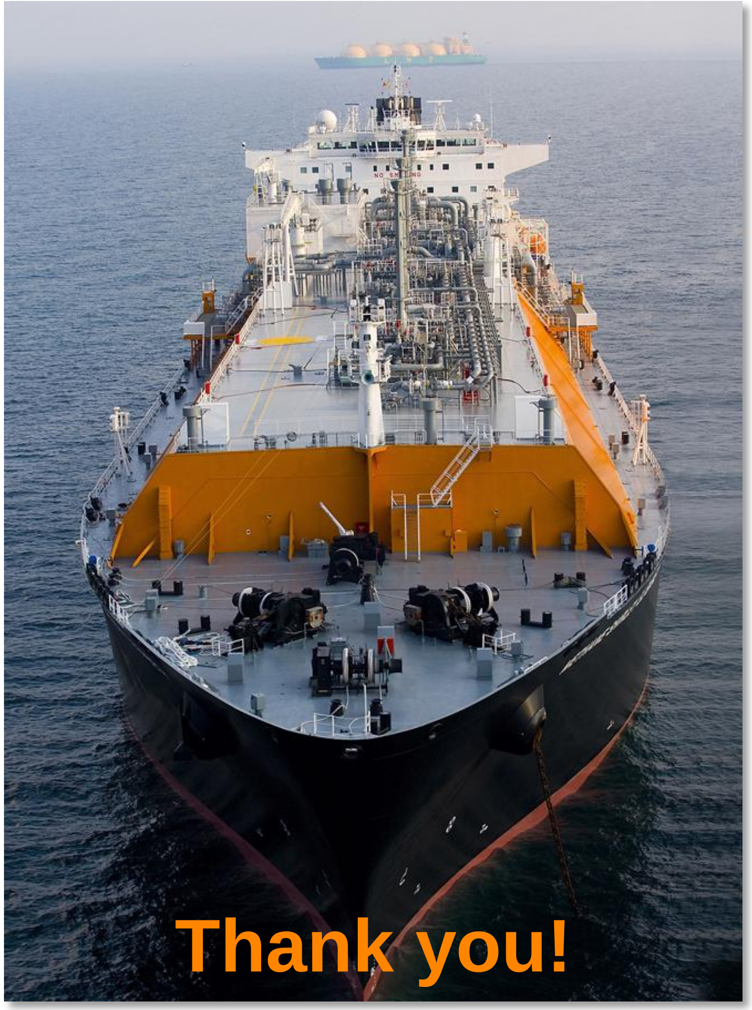
- Further exploration, appraisal and testing needed to bring LNG projects in East Africa to FID
- Further exploration and well testing planned by BG Group in Tanzania
- Global gas demand believed to outstrip gas supply
- Market opportunity for well located East African gas discoveries
- Potential significant economic contribution of LNG projects to East African countries
- Upcoming drilling in offshore Kenya to further build East Africa's importance as an emerging hydrocarbon province



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