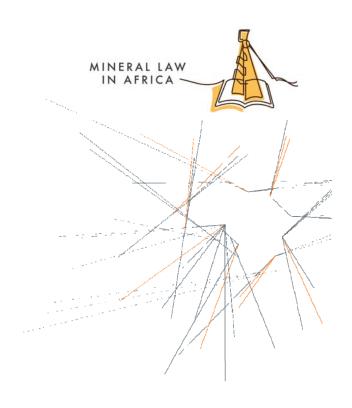
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GAS-TO-POWER IN AFRICA

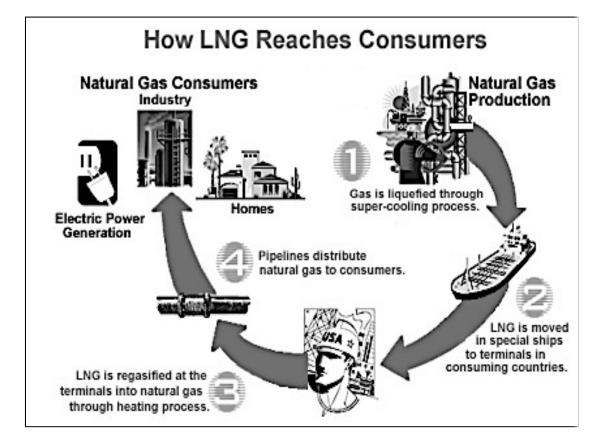
Dr Rainer Nowak, Webber Wentzel

Prof Hanri Mostert, DST/NRF SARChI: Mineral Law in Africa, UCT



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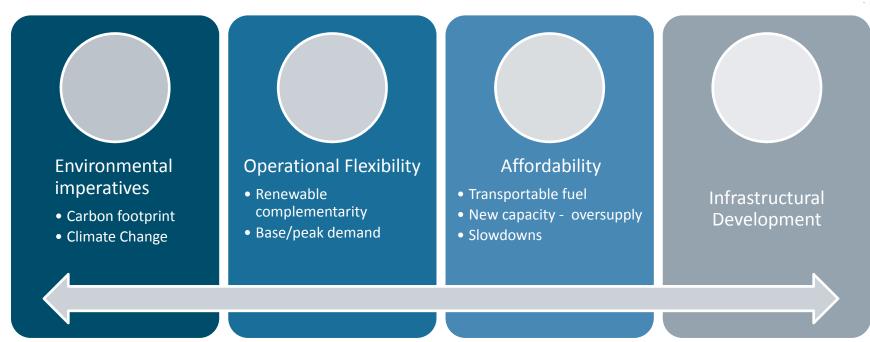
LIQUID NATURAL GAS (LNG)





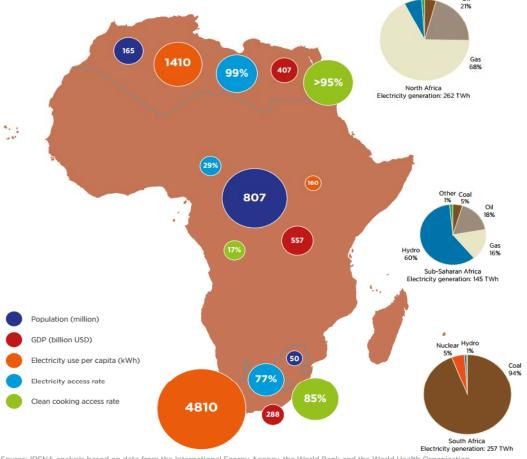


WHY LNG IN AFRICA?





CLIMATE CHANGE AND ENERGY PRODUCTION

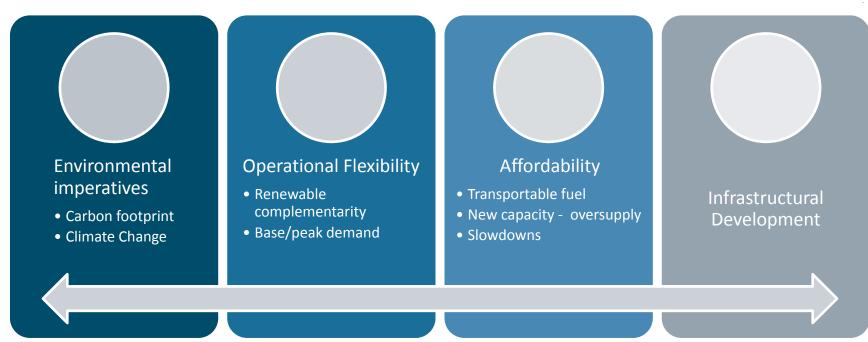






Source: IRENA analysis based on data from the International Energy Agency, the World Bank and the World Health Organization

WHY LNG IN AFRICA?





LNG TO POWER: SOUTH AFRICA

Coega



Richards Bay



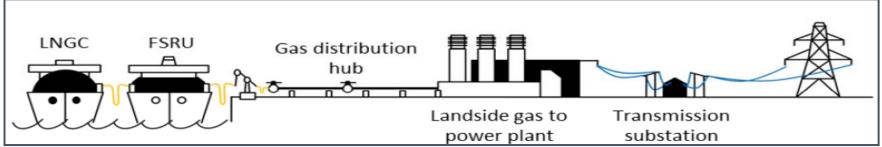
Sources: naturalgasworld.com; zululandobserver.co.za





LNG TO POWER: PROJECT SCOPE

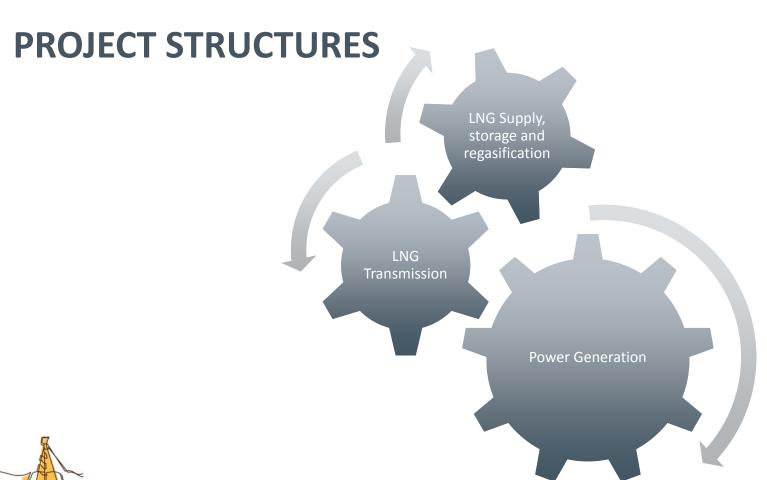




- LNG procurement and delivery
- LNG storage and regasification (FSRU v land-based terminal)
- Gas transmission distributing gas to power plant (third party access)
- Power plant, including the high voltage connection to the electrical grid







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LNG TO POWER: PROJECT STRUCTURES



Integrated

Non-integrated

Gas Transportation

LNG Storage and Regasification

Gas Aggregation Gas Trade

Power Generation



Single Financial Model





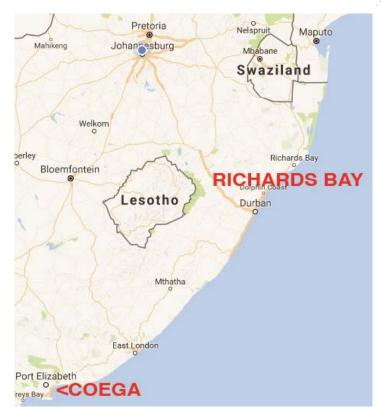
LNG TO POWER (SOUTH AFRICA'S IPP PROGRAMME)

Overview

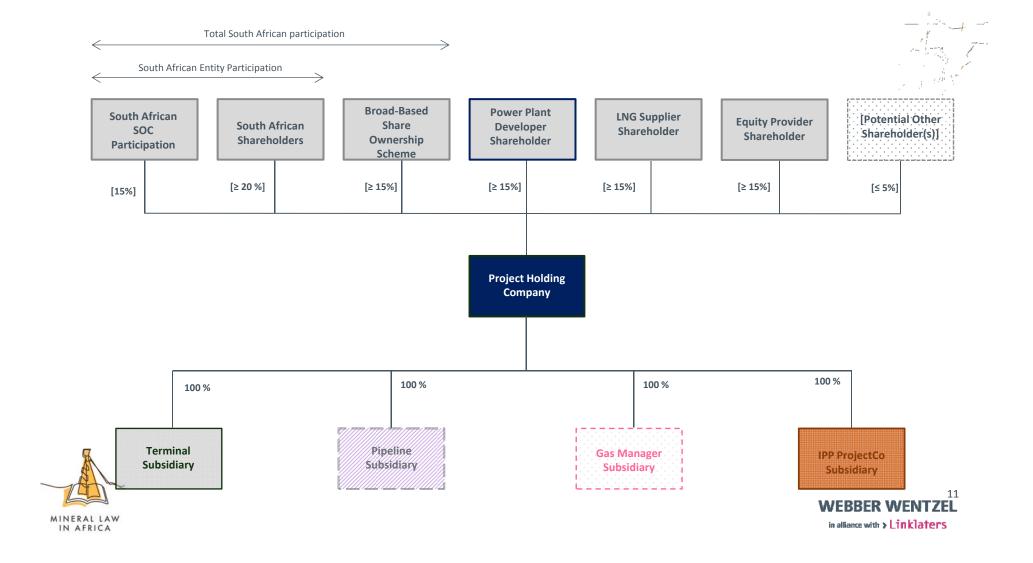
- Objective: 3 000 MW in two ports
- Aim: anchor gas demand for LNG
- **Third Party Access**

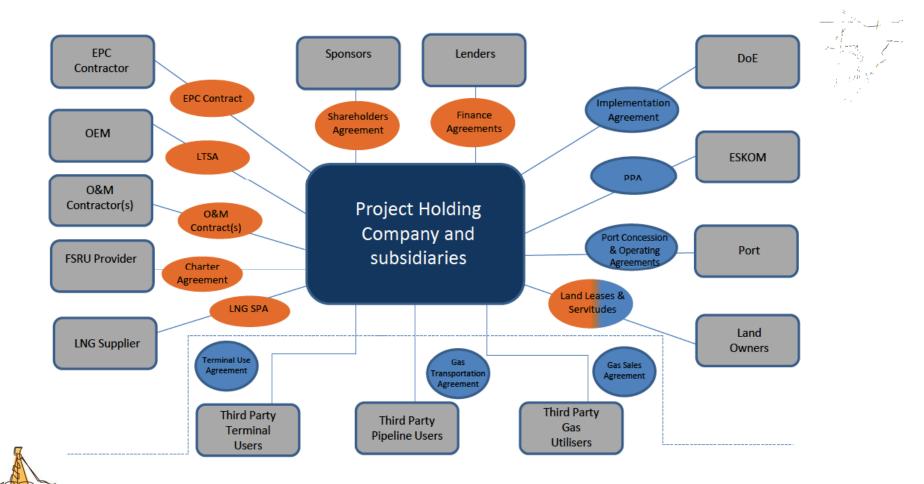
Process: Successful Bidder

- Develop, finance, construct and operate power plant & LNG supply infrastructure
- Each project: separate RFQ → specific RFP









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STATUS OF GAS IPP PROCUREMENT PROGRAMME

Carrier (Capacity Determined)	RFP/RFQ	Bid Submission	Bid Announcement	Financial Close	COD
LNG-to-Power Imported Gas (3 000MW)	RFQ- Q2/2017 RFP- Q1/2018	RFQ –Q4/2017 RFP-Q4/2018	RFQ - Q1/2018 RFP- Q2 /2019	2020	First Power 2023





LNG TO POWER: NAMIBIA (XARIS, WALVIS BAY)

- 250 MW
- FSRU (stores & regasifies) →
 Pipeline (transports) → Power
 Plant

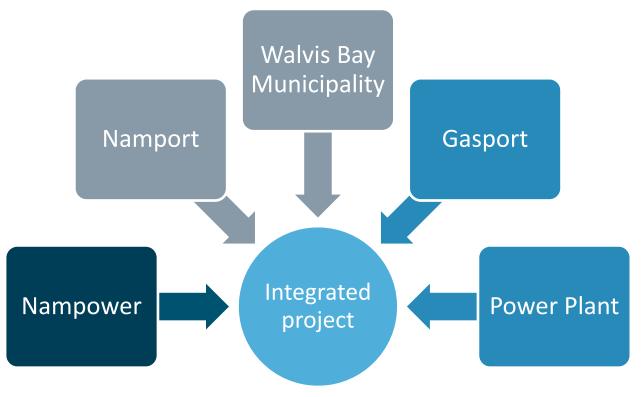








LNG TO POWER: NAMIBIA (XARIS, WALVIS BAY)





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INTEGRATED PROJECT: RISK MANAGEMENT

Project-on-Project Risks Construction delays Operational issues affecting infrastructure

Third Party
Access

Preferent
security to
lenders

Priority of
supply to
Power Plant

Ringfenced
from 3P offtaker claims

Supply Risk (Security of Supply)

Timing, scheduling and quantities of supply aligned

Price Increase
Risks

LNG procured on indexed price

Limited take-or-pay

Price increase pass-through to PPA

PPA Risk Appropriate Pass-through to project parties

IN AFRICA

THANK YOU



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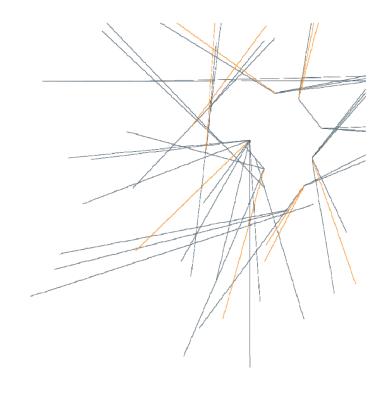
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HOW IT WORKS





Source: GasEntec on slidesharecdn.com



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Source: worldmaritimenews.com

