## PNG, a new entrant to LNG supply

**LNG Supplies for Asian Markets Conference, Singapore March 2015** 







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### Introduction



- » PNG joined LNG exporting nations in May 2014
- » Successful delivery of PNG LNG is transformational for PNG and Oil Search
  - Demonstrates ability for PNG to successfully manage complex logistics, social and financial challenges
- Significant potential for further LNG developments
- Project fundamentals remain attractive in new oil and gas price paradigm



### Oil Search Profile

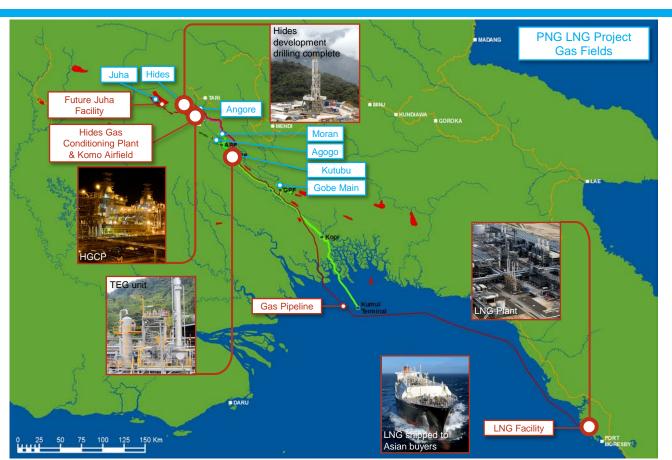




- Established in Papua New Guinea (PNG) in 1929
- Market capitalisation ~A\$12.5bn (US\$10bn)
- » Listed on ASX (Share Code OSH) and POMSOX, plus ADR programme (Share Code OISHY)
- » Operates all PNG's currently producing oil fields. PNG's largest investor
- 29% interest in 6.9Mtpa PNG LNG Project, world-scale LNG project operated by ExxonMobil. First LNG cargoes shipped in May 2014, has transformed OSH into a significant O&G producer
- Exploration interests in PNG, Middle East/North Africa

## **PNG LNG Project**









# Project delivered on time and within revised budget





#### COMMENCEMENT

- » Continued early works
- » Detailed design
- » Order long leads and place purchase orders
- » Open supply routes
- » Contractor mobilisation
- » Commence AG construction



#### INSTALLATION

- Continue onshore pipe lay
- Complete offshore pipe lay
- » Start Hides plant installation
- » Start Hides drilling
- » Complete key AG items



#### COMPLETION

- » Complete construction and commissioning of HGCP and LNG Plant
- » Complete Hides production wells
- » 2Q14: First LNG sales, ahead of schedule

2011



#### **MOBILISATION**

2012

- Ongoing procurement and mobilisation
- » Airfield construction
- Drilling mobilisation
- » Start onshore and offshore pipeline construction





#### CONSTRUCTION

- » Complete pipe lay
- » Ongoing drilling

2014

- » Construction of HGCP
- » Commission LNG plant with Kutubu gas

# PNG LNG Project – delivered on time and within revised budget



- » PNG LNG Project condensate production commenced late March, with LNG production from Train 1 in April and Train 2 in May
- Sales of new Kutubu Blend, comprising Hides liquids and oil field production, commenced in April
- First LNG shipment in May:
  - Cargos sold initially on spot market, all long-term contract sales (6.6 MTPA) had commenced by end 2014
- Both trains now operating at or above nameplate capacity of 6.9 MTPA
- Total development cost of US\$18.8 billion
- » Operational and financial completion achieved in February 2015



### **PNG LNG facilities**













Source: ExxonMobil

## First LNG cargo shipped in May





Source: ExxonMobil

### **Reasons for success**



- Availability of commissioning gas from OSH-operated Kutubu field in Aug-13, prior to first deliveries from the Hides field in Apr-14, enabling early start-up and rapid production ramp-up at LNG plant
- Stick built (vs modular built), enabling issues to be ironed out prior to production
- Conventional LNG project, located onshore, with existing infrastructure base from OSH's oil operations
- Productive wells with high flow rates only 12 wells required to sustain production for 30 years, resulting in low ongoing capex
- Substantial 1P certified reserves base with high heating value, attracting premium pricing and suitable for Asian reticulation network
- » High liquids, enhancing economics
- » Located close to growing Asian LNG markets
- Stable fiscal regime with strong Government support
- » Aligned Joint Venture. Exxon highly respected as able to deliver and operate major LNG projects, augmented by OSH's 86 years of in-country experience
- Provides attractive returns and is robust to product price movements



Image courtesy ExxonN

# Commercialising PNG's undeveloped gas remains key focus for OSH



- » PNG LNG Project has delivered strong platform for growth
- PNG can deliver at least two more LNG trains underpinned by existing undeveloped resources and third train with modest drilling success
- Two key resource hubs, in which OSH holds strong positions, will supply next phase of development:
  - North Western Hub (including the P'nyang field)
  - Gulf Hub (Elk/Antelope fields)
- » Based on OSH's revised oil price expectations and cost assumptions, expansion and standalone opportunities both remain economically attractive
- Multiple exploration opportunities remain, to potentially provide backfill gas or additional trains
- Delivery of near term additional trains is common objective for industry, communities and Government
- OSH well positioned to play key role to ensure optimum development outcome for all stakeholders

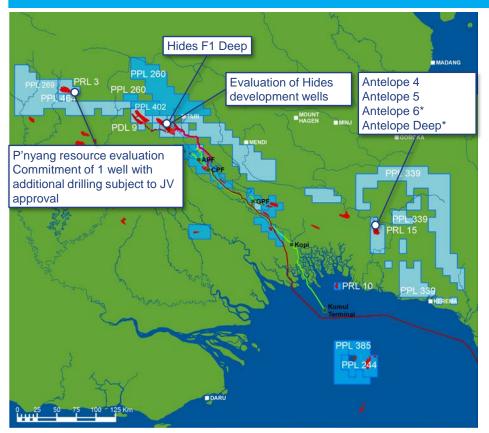




Images courtesy Exx

# Gas resource evaluation ongoing in NW Highlands and Gulf





- » Key resource evaluation activities currently underway:
  - Structural remapping and reservoir modelling based on information from Hides development wells commenced in 2014. Will help further constrain Hides resource
  - Hides F1 well material Koi lange exploration target underlying Hides field, currently drilling towards target
  - P'nyang: initial preparations for further drilling to assess resource potential
  - Antelope 4 and 5 appraisal wells: will likely establish whether resource can underpin one or two trains
  - Antelope 6 (to assess resource upside) and Antelope Deep (exploration well) to be drilled in 2015, both wells subject to JV approval
- » Resource clarity will determine progression through to Concept Select/pre-FEED/FEED

# **Oil Search**

## P'nyang licence agreement – a significant step



- ExxonMobil PNG Limited (as operator of PNG LNG and PRL 3) and PNG Government signed MoU in January 2015:
  - P'nyang to provide long-term gas resources to support domestic power and potential PNG LNG Project expansion
  - Commitment made for additional P'nyang appraisal drilling
  - Timetable set to reach FEED and FID milestones for expansion train
- PDL application on P'nyang field submitted in February, award expected in early 2015
- Preliminary interpretation of recently acquired seismic and core data has been positive. Subject to further appraisal drilling and technical studies, 2C contingent resource could increase.
- Near term appraisal drilling will help further constrain 1C and 2C resource in P'nyang

## PRL 15 appraisal and exploration





- Arbitration outcome:
  - Complex, non-unanimous decision
  - Finalising joint venture management issues
  - Total appointed project operator
- » Antelope 4 spudded in September:
  - Located 1 km south of Antelope 2
  - Testing southern part of structure
  - Drilling delayed due to rig issues
- » Antelope 5 spudded in December:
  - Located 1.8km west of Antelope 2
  - Testing western extent of structure
  - Provisional top reservoir ~50m high to OSH prognosis
- » Probable Antelope 6 well, located in eastern part of field, to be drilled following 4 and 5 (subject to JV approval)
- » Preparations underway for exploration well on Antelope Deep prospect (subject to JV approval)
- 2015 focus complete resource evaluation, select development concept and move into pre-FEED

## **OSH** role in future LNG developments



- » Unique opportunity over next 12 months to drive optimal development plan, through promoting cooperation agenda:
  - Extensive equity interests spanning sources of expansion gas
  - Alignment with PNG Government
- » Leverage OSH's local knowledge and PNG LNG experience through role in upstream development:
  - OSH operates Associated Gas Fields, which contribute ~20% of PNG LNG Project gas as well as liquids export system
  - Successfully delivered key components of PNG LNG infrastructure
  - Key role supporting PNG LNG operator in Government and landowner negotiations
- » Extensive exploration portfolio may supply additional trains or extend plateau



Image courtesy Ex

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### Contributing to long-term sustainability in PNG

- Sovernment cash flows impacted by oil price fall
- » However, landowners and community expectations have not changed
- Partnership between State and private sector vitally important, to ensure benefits are delivered
- » Focus areas:
  - Provision of competitively priced, reliable power through recent MoU
    - Port Moresby
    - Highlands
  - Potential further power involvement by OSH:
    - Ramu Grid
    - Small scale LNG for resource projects and remote communities
  - Partnerships on infrastructure development (eg tax credit scheme)
  - Partnerships on health programmes (Health Foundation)
  - Capacity development
- Operating and political stability essential for long-term sustainability





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### **Summary**

- » PNG well situated to significantly expand LNG industry over next 5-7 years
- » Successful delivery of PNG LNG demonstrates major capital projects can be completed in country
  - Excellent resource base
  - Well supported by customers and financiers
  - Strong Government and community support
- » Significant gas resource potential remains in PNG
  - Discovered resources likely sufficient for two further trains, three trains with appraisal success
  - Critical appraisal drilling underway
- » Potential to more than double production by 2021
- » Project coordination critical factor to enhance value delivery

