# Liquefied Natural Gas Limited





Schematic Site Layouts for the proposed Magnolia LNG Project in the Port of Lake Charles, Louisiana, USA (left) and the Bear Head LNG Project, Nova Scotia, Canada (right)

**Investor Presentation: August 2014** 

ASX: LNG and OTC ADR: LNGLY



1.	Company Overview
2.	Magnolia LNG Project (Louisiana, USA)
3.	Bear Head LNG Project (Nova Scotia, Canada)
4.	Fisherman's Landing LNG Project (Queensland, Australia)
5.	OSMR <sup>®</sup> LNG Processing Technology
6.	Contacts
7.	Forward Looking Statement



### **Company Overview – Corporate Snapshot**

LNG Limited (LNGL) is a Liquefied Natural Gas (LNG) developer focused on developing projects using its' wholly-owned patented OSMR® LNG technology

Asset Portfolio				
Magnolia LNG (Louisiana, USA)	Under development			
Bear Head LNG (Nova Scotia, Canada)	Closing the acquisition from Anadarko Petroleum Corporation			
Fisherman's Landing LNG (Gladstone, Australia)	On hold pending gas supply			
OSMR <sup>®</sup> LNG liquefaction Process	Patent applications for OSMR and Boil-off gas handling already granted in many jurisdictions			
Corporate Snapshot (as at 8	3 August 2014)			
ASX / OTC Code	LNG / LNGLY			
Cash (as at 8 August 2014)	\$80m			
Market Cap (@A\$3.32/share	e) ~\$1,530m			
Shares on issue Unlisted Options on Issue	461.4m 4.26m			
Share Register (as at 8 Augu	st 2014)			
Directors & Employees	3.3%			
North America	41.5%			
Australia	24.4%			
Тор 20	72.7%			

#### LNGL Board of Directors



Richard Beresford Chairman Over 30 years experience in international energy industry, including British Gas plc, Woodside Petroleum Ltd and CLP Power Hong Kong.



Yao Guihua Non-Executive Director Madam Yao is employed by HQC as General Manager, HQSM Engineering.



Maurice Brand Managing Director / CEO Extensive experience in the global energy industry since 1985. Founder of LNG Limited.



Leeanne Bond Non-Executive Director Leeanne is a professional company director with board roles in the energy, water and engineering services sectors .



## LNG Limited's Mission is to create wealth for our shareholders by delivering competitive and innovative LNG projects in key markets throughout the world.

#### LNG Limited is emerging as a leader in the mid-scale LNG sector by:

- Identifying and securing strategically located project sites to build, own and operate LNG facilities;
- Using the Company's wholly owned OSMR<sup>®</sup> LNG process technology to deliver liquefied natural gas competitively and cost effectively; and
- **Offering** innovative and commercially sound solutions to LNG buyers and natural gas owners which enhances their business outcomes.

#### In pursuit of it Mission, LNG Limited will:

- Achieve market leadership in the mid-scale LNG sector;
- Satisfy the needs of customers competitively, reliably and with integrity;
- Contribute to growth and economic development in the countries in which we operate; and
- **Emphasise** creating safe working conditions and protecting the environments in which we operate.
- LNG Limited is selectively securing project sites that meet the Company's stringent criteria and help establish LNG Limited as a recognised leader in the North American LNG market.
- Given the company's unique OSMR<sup>®</sup> technology platform, LNG Limited has a competitive advantage developing, building and operating mid-scale LNG facilities cost effectively. This advantage will also enable the company to pursue LNG production opportunities in global markets where existing gas reserves may traditionally be considered uneconomic.
- With natural gas emerging as the energy choice of the future, LNG Limited is well placed to deliver attractive returns for its shareholders.

### **Company Overview – LNG Limited Executive Management**





Maurice Brand Managing Director/CEO Extensive experience in the global energy industry since 1985. Founder of LNG Limited



Norman Marshall Chief Financial Officer Over 20 years in investment banking & project financing with the Commonwealth Bank and 4 years with iron ore project developer Portman Mining Limited



Lincoln Clark Group Engineering Manager Over 23 years of experience in the design, construction, commissioning and operation of gas plants, power generation and LNG facilities



Garry Triglavcanin Group Commercial Manager Over 20 years experience in the energy industry (including Woodside), with technical, commercial and legal capabilities



David Gardner Company Secretary Chartered Accountant and Chartered Secretary with over 19 years experience, including Ernst &Young



Paul Bridgwood Chief Technical Officer Over 34 years experience in the energy and resource industries. Originator of the OSMR® process



Emma Criddle Finance Manager Chartered Accountant with 13 years experience, including Ernst & Young



### LNG Limited's LNG Export Projects Under Development in North America



North American Map Source: Underlying shale plays from the US Energy Information Administration (EIA), May 9, 2011



### Magnolia LNG - Project Overview



### LNG Limited's flagship Magnolia LNG Project, Louisiana USA

• 8 million tonne per annum (mtpa) LNG facility in the Port of Lake Charles, Louisiana, USA using LNG Limited's patented OSMR<sup>®</sup> LNG Technology.



Proposed Site Layout for the Magnolia LNG Project

-	
	Robust Financial Returns
	Key financial model assumptions for base case:
	• 2 x 2.0 mtpa LNG Trains.
C. A. A.	• 4.0 mtpa nameplate LNG production capacity.
	• 3.4 mtpa guaranteed LNG sales capacity.
	<ul> <li>Total development costs of US\$30 million</li> <li>July 2012 – June 2015 (Financial Close).</li> </ul>
	Capital costs of \$US2.2 billion.
	<ul> <li>EBITDA: US\$380 million per annum for 20 years on 100% LNGL ownership.</li> </ul>



### **Magnolia LNG - Executive Management Team**





**Rick R. Cape** Chief Commercial Officer Over 30 years of leadership experience in the oil and gas industry, including BP Group and Atlantic LNG



John G. Baguley Chief Operating Officer Over 30 years of experience with the global engineering, procurement and construction (EPC) company, KBR, Inc.



Ernie Megginson VP – Development Over 35 years experience in project management and development of international and domestic USA energy projects, including ChevronTexaco



James "Jim" Schulz Engineering Manager Over 35 years of experience in the Oil & Gas Industry with EPC and Operating companies, 14 of which were on LNG Projects, including M.W. Kellogg Co./KBR, Cheniere Energy



Komi Hassan Environmental, Health and Safety Over 11 years experience leading the development Environmental Assessments and Environmental Impact Statements and the acquisition of air, water, and waste permits



### **Magnolia LNG - Project Site**



- 116 acre Magnolia LNG site is PLC Tract 475 Industrial Canal off Calcasieu Shipping Channel and opposite existing Trunkline LNG Import Terminal.
- Project site has minimal marine investment and well positioned to provide LNG ship access.
- Legally binding Option to Lease. Term of lease up to 70 years.
- Site located within 3 miles of three major underutilised pipelines.
- Underutilised Kinder Morgan Louisiana Gas Pipeline located on site.
- Project supported by local community, state and federal representatives.



Schematic Representation of the Proposed Magnolia LNG Project at the Port of Lake Charles, Louisiana, USA



### MAGNOLIA Magnolia LNG - Connecting Natural Gas Transmission Pipelines

- Magnolia LNG has entered into a 20 year legally binding pipeline capacity agreement with Kinder Morgan Louisiana Pipeline LLC (KMLP) to deliver gas to site for the full 8mtpa of the project.
- KMLP Pipeline underutilised and located on Magnolia LNG site. Available to supply gas to Magnolia LNG Project from Gas Suppliers.
- Magnolia's Tolling customers for LNG off-take will be responsible for securing gas supply and payment of pipeline tariff costs for delivery to plant using the KMLP capacity agreement.
- KMLP filed an application with FERC on 1 July 2014 for authorisation to install compression and other related facilities on the KMLP Pipeline.







#### Magnolia LNG is involved with two main Federal Agencies that regulate LNG Projects in the United States

#### **US Department of Energy (DOE)**

- In Feb 2013, DOE authorises exports of up to 4 mtpa to Free Trade Agreement (FTA) countries. Term is 25 years from first LNG supply that must be within 10 years from Authorisation Date.
- In March 2014, the DOE authorised a further 4 mtpa of LNG export to FTA countries from Magnolia LNG with same terms as first 4 mtpa.
- Application for LNG exports to non-FTA countries lodged for up to 8 mtpa. However, Magnolia LNG achieving Financial Close is NOT dependent on this authorisation.
- Potential for DOE non-FTA approval 90 days after FERC issues Final Environmental Impact Statement (FEIS).

#### Federal Energy Regulatory Commission (FERC)

- FERC provides Authorisation for construction and operation of a LNG facility, and includes a comprehensive analysis of environmental, operational and safety implications of Project. FERC filing process expected to take 12-15 months from formal application to Notice to Proceed (NTP).
- FERC granted Magnolia LNG's pre-filing request on 20 March 2013.
- On 27 November 2013, Magnolia LNG submitted 13 draft resource reports to FERC that covered a wide range of environmental and engineering aspects.
- On 30 April 2014, Magnolia LNG filed a formal application with FERC seeking authorisation for the siting, construction, ownership and operation of proposed Project. FERC accepted Magnolia LNG's application on May 14, 2014 and assigned Docket No. CP14-347-000.
- In mid July 2014, FERC accepted Kinder Morgan's filing application for authorisation to install compression and other related facilities on the KMLP Pipeline. Following this acceptance, FERC staff are preparing a Draft EIS (DEIS) to satisfy the National Environmental Policy Act. DEIS is open for review and comment by public and other permitting agencies. Target Date for DEIS is November 2014. The Final Environmental Impact Statement (FEIS) likely to be issued approximately 4 months after DEIS; ie March 2015.
- Normally, FERC issues a conditional order authorising the project approximately 30-45 days after FEIS. After satisfaction of several conditions in the order, FERC staff issues an NTP that authorises commencement of construction. This is required before MLNG can achieve Financial Close and commence construction. Financial Close planned for mid 2015.





Project (Company)	Location	Sponsor	Capacity mtpa	Offtake mtpa	FTA Approval	Non-FTA Approval	Non-FTA Approval mtpa	First LNG Proposed	FERC Status	FERC 'filing' Date
Sabine Pass (T1-4)	Louisiana	Cheniere Energy	18	18	Y	Y	16.9	2015	Approved, Apr-12	Dec-11
Cameron LNG, LLC	Louisiana	Sempra Energy	12	12	Y	Y	13	2018/19	Approved, Jun-14	Dec-12
Freeport LNG	Texas	Freeport	13.2	13.2	Y	Y	13.2	2018	Approved, Jul-14	Aug-12
Corpus Christi	Texas	Cheniere Energy	13.5	3	Y	Ν	-	2018/19	Filing	Jun-13
Sabine Pass (T5-6)	Louisiana	Cheniere Energy	9		Υ	_N		2018/19	Filing	<u>Sep-13</u>
Magnolia LNG	Louisiana	Liquefied Natural Gas Ltd	8	-	Ŷ	N	-	2018	Filing	Apr-14
Lake Charles	Louisiana	Southern Union (BG)	15	15	Y	Y	15.3	2019	Filing	Mar-14
Cove Point	Maryland	Dominion Resources	5.3	4.6	Y	Y	5.9	2018/19	Filing	Apr-13
Jordan Cove	Oregon	Veresen	6	-	Y	Y	4	2019	Filing	May-13
Oregon LNG	Oregon	Leucadia National Corp	9	-	Y	Y	9	2019	Filing	Jun-13
Lavaca Bay FLNG	Texas	Excelerate Energy	4.4	-	Y	Ν	-	2019	Filing	Feb-14
Elba Island LNG	Georgia	Southern LNG/Kinder Morgan	2.5	2.5	Y	Ν	-	tbc	Filing	Mar-14
Golden Pass	Texas	Exxon Mobil / Qatar Petroleum	15.6	-	Y	Ν	-	tbc	Filing	Jul-14
Gulf LNG	Mississippi	GE Energy & Kinder Morgan	11.5	-	Ν	Ν	-	tbc	Pre-filing	Dec-12
CE FLNG	Louisiana	CE FLNG	8.2	-	Y	Ν	-	tbc	Pre-filing	Apr-13
Gulf Coast LNG	Texas	M S Smith	13.2	-	Y	Ν	-	tbc	n/a	-
Carib Energy	твс	Crowley Maritime	0.3	-	Y	Ν	-	tbc	n/a	-
Main Pass Energy Hub	Louisiana	Freeport-McMoran Energy	24	-	Y	Ν	-	tbc	n/a	-
Pangea LNG	Texas	Pangea LNG Holdings	8.4	-	Y	Ν	-	tbc	n/a	-
Waller LNG	Louisiana	Waller LNG Services	1.2	-	Y	Ν	-	tbc	n/a	-
Gasfin LNG	Louisiana	Gasfin Development	1.5	-	Y	Ν	-	tbc	n/a	-
Venture Global LNG	Texas	Venture Global	5.1	-	Y	Ν	-	tbc	n/a	-
Eos & Barca LNG	Texas	Eos & Barca	24.5	-	Υ	N	-	tbc	n/a	-
Total			229.4	68.3			77.3			

Sources: US Dept of Energy; Company Presentations; Fosters Stockbroking Research

### Magnolia LNG in the first 10 FERC LNG progressed Projects





#### LNG Tolling Model

- 20 year term, plus a 5 year extension option.
- Fixed Monthly Capacity payments to Magnolia LNG over the Agreement term.
- Fixed and Variable Monthly Operating and Maintenance payments to Magnolia – US inflation adjusted.
- Tolling parties responsible for gas supply, delivery of gas to Magnolia LNG site through KMLP gas pipeline and supply of gas for use in LNG Plant.
- Tolling parties responsible for marketing and shipping to LNG customers.
- MLNG takes NO COMMODITY RISK.

#### Four Non-Binding Tolling Agreement Term Sheets in place

 Brightshore Overseas Ltd Affiliate of the commodities trading house Gunvor Group (Gunvor).

#### 2. Gas Natural SDG, S.A.

Part of Spanish energy multinational, Gas Natural Fenosa Group (Madrid Stock Exchange: GAS).

#### 3. LNG Holdings

Wholly-owned subsidiary of the Canadian Investment Fund, West Face Capital Group.

4. AES Latin American Development Ltd Wholly-owned subsidiary of the global power company, The AES Corporation Group (NYSE: AES).

### LNG now focused on securing Binding Tolling Agreements

### Magnolia LNG - Fixed Priced Engineering, Procurement and Construction (EPC) Contract



• Selected SKEC Group (Korean) as preferred EPC Contractor.

MAGNOLIA

- SKEC Indicative EPC cost estimate of US \$1.57 billion, less than the budget of US\$1.8 billion, for all infrastructure for 8 mtpa and Financial Close for 4 mtpa of LNG. Phase 2 is the additional 4 mtpa to follow during Construction.
- EPC scope for Magnolia LNG is 8 mtpa includes completion of fully operational LNG Plant comprising: 4 LNG trains of 2mtpa design capacity each (1.7mtpa EPC guaranteed capacity), 2 LNG tanks of 160,000m<sup>3</sup> capacity each, LNG ship loading for vessels up to 180,000m<sup>3</sup> vessels and LNG truck loading facilities.
- Fixed price lump sum EPC contract shifts construction risk from company (and shareholders) to EPC Contractor.
- Magnolia LNG Construction schedule of 36 39 months .
- Final design to be progressed in 2014 with SKEC to enable open book EPC cost, scope and schedule to be agreed.
- Bankable EPC Contract ready for execution end Nov 2014.
- EPC Contract Term Sheet signed early July 2014 with SK E&C USA, Inc. in relation to the first phase of the Magnolia LNG Project involving two LNG Trains, each of 2 mtpa LNG design capacity.

#### Modular LNG Plant: 2mtpa LNG train



- Based on detailed FEED completed for Fisherman's Landing LNG Project at the Port of Gladstone, Queensland.
- Has enabled fast-track of the FERC process with significant cost savings. Expenditure from 1 July 2012 to 30 June 2014 was US\$18 million.
- LNGL's OSMR<sup>®</sup> LNG technology and smaller train size allows easy modularisation and economic project development.





#### Magnolia LNG Project - Estimated capital cost of Phase 1 remains at US\$2.2 billion. Financing Plan: 70% project debt financing and 30% Project equity financing by Stonepeak

#### Equity Financing: Definitive US\$660 million equity Commitment Agreement with Stonepeak

#### The Financing Plan includes:

- Success fee of 3% (~US\$66 million) of total capital cost to LNGL at Financial Close.
- Trent Vichie, (Founding Partner of Stonepeak) appointed to Board of Magnolia LNG LLC – no voting rights prior to Financial Close and Stonepeak's project equity financing contribution.
- Magnolia LNG to pay US\$25 million in licence fees to LNGL for trains 1 and 2 and further US\$25 million for trains 3 and 4. Payment in two tranches of 50% at Financial Close and 50% at commercial operations date.

#### Debt Financing: BNP Paribas will progress the Magnolia LNG Project to Financial Close, targeted in mid-2015

#### BNP Paribas' role will include:

- Detailed project risk and bankability review to enable potential project debt financing issues to be identified early and addressed.
- Detailed review of all material project agreements to ensure compatibility with project lenders' requirements.
- Project debt financing structure option analysis, including bridging finance, long term bank financing, Export Credit Agency financing, bond markets, supplier finance, etc.
- Completion of detailed Project Information Memorandum for presentation to potential project lenders.
- Communication with potential project lenders and delivery of the total project debt financing package at Financial Close.



### Magnolia LNG – Targeting Financial Close in mid 2015







Binding agreements in progress

\* Subject to certain Conditions Precedent and Investment Committee Approval





	<ul> <li>Magnolia LNG strategically located in Louisiana USA for exposure to export LNG sector supported by abundant US gas reserves.</li> </ul>
Early mover advantage for	<ul> <li>US Government support for export LNG demonstrated with FTA and non-FTA approvals being granted.</li> </ul>
US Export LNG	• US is set to become dominant LNG export country due to its significant uncommitted gas resources and extensive integrated gas pipeline network (recent Ukraine crisis supports this view).
	• Magnolia LNG has targeted to be in the top 5 LNG export projects (in production) based on an FTA only strategy.
	Direct access to Kinder Morgan pipeline onsite and 11 major gas transport corridors to facilitate supply.
Low risk nath to	<ul> <li>DOE approval received for FTA export up to 8mtpa (economics not reliant on a non-FTA strategy).</li> </ul>
development	Transfer of engineering IP from Fisherman's Landing creates credibility, reduced time and significant cost savings.
·	• Significant progress made on bankable agreements to secure debt funding and environmental studies with FERC for regulatory approval.
	<ul> <li>Project site secured for 70 years suitable for 8mtpa (vs base case of 4mtpa).</li> </ul>
	• Filing Application accepted by FERC on 14 May 2014 supports timetable for Financial Close in mid 2015.
Magnalia LNC fast	• Tolling agreements underway for 7 mtpa to underwrite base case of 4 mpta (Gunvor; Gas Natural; LNG Holdings and AES)
tracked for a robust FID	<ul> <li>Definitive equity commitment agreement (subject to certain Conditions Precedent) with Stonepeak Partners LP for 100% of project construction equity (US\$660 million) and BNP Paribas appointed as debt advisors.</li> </ul>
	SKE&C appointed as preferred EPC contractor with initial capex estimates under budget. EPC Contract Term Sheet signed.
	<ul> <li>4mtpa name plate capacity generates EBITDA of circa US\$380 million p/a for 20 years (100%).</li> </ul>
	Low cost and highly efficient LNG process technology in its Magnolia LNG Project and Fisherman's Landing LNG Project
OSMR <sup>®</sup> LNG Process	<ul> <li>Magnolia LNG to pay LNGL up to US\$50 in licence fees.</li> </ul>
Technology (100% LNG)	<ul> <li>Success of Magnolia will secure OSMR technology as preferred choice for mid-scale LNG projects globally.</li> </ul>



- On 28 July 2014, LNG Limited announced that it had agreed to acquire 100% of the issued and outstanding capital of Bear Head LNG Corporation (*BHLC*) from a subsidiary of Anadarko Petroleum Corporation (*Anadarko*), and 100% of the Project Rights associated with a Project Site located in Richmond County, Nova Scotia, Canada (the *Transaction*) for US\$11.0 million.
- The Key Assets of BHLC include:
  - The **Project Site** in Northern Novia Scotia, comprising (i) Land Lot: 180 acres of industrial-zoned land (~800m length x 890m wide) and (ii) Water Lot: 75 acres of land and water covered land (~330m length x 890m wide); and
  - The **Project Rights** in relation to the previously proposed LNG import terminal at the Project Site, including all assets, rights and obligations associated with the Bear Head project.
- Plans to transform the Bear Head LNG Project (Bear Head) into a 4 mtpa LNG export facility with potential for future expansion.
- LNGL has already developed a gas supply plan and a transportation plan, and has interest from several parties to enter into Tolling Agreements, adopting the same business model as the Magnolia LNG Project in Louisiana, USA.
- Closing Date of Transaction on or before 31 August 2014 and subject to standard closing conditions and consents.
- Bear Head acquisition consistent with LNG Limited's strategy of acquiring sites in North America where the Company can replicate its Magnolia LNG Project and fast-track development by using existing LNG Limited development team and OSMR<sup>®</sup> LNG technology.



### **Bear Head LNG - Strategic Rationale for the Acquisition**

	• The Bear Head LNG Project delivers diversification of LNG Limited's portfolio in North America.					
Diversification in the	<ul> <li>Diversification into Eastern Canadian LNG export market opens up supply opportunities closer to Europe and only about 5% longer trip to Asia when compared to the LNG export from the Gulf of Mexico, USA.</li> </ul>					
ING Export Market	Number of potential gas supply opportunities available.					
	<ul> <li>Bear Head LNG Project plans to be viable at relatively low gas supply volumes, ~300 mmcf/d (2 mtpa) which allows the project to start and then grow with further gas supply.</li> </ul>					
	Significant benefits and cost savings by utilising work already performed on the Magnolia LNG project, including:					
	- Engineering & Technical (such as EPC work).					
Ability to Leverage	- Commercial Agreements (such as Tolling Agreements).					
Other Project Work	- Equity and Debt Structuring and Agreements.					
	Utilise LNGL Development Team's expertise.					
	Detailed construction & engineering package already developed for Bear Head.					
	Two LNG tank foundations in place with major civil works including roads and drainage.					
Existing Civil Works and	Site levelled for final construction and area zoned for industrial development.					
Infrastructure	Established ice free, sheltered harbor which is deep and requires no dredging.					
	<ul> <li>Existing pipeline infrastructure owned by M&amp;NP from Dracut (Massachusetts) to Goldboro (Nova Scotia), 36 miles from Bear Head.</li> </ul>					
	All major environmental permits require amendments and are expected to be approved.					
Existing Permits and	Required additional permitting is likely without major issues and in a timely manner.					
Additional Approvals	Site allows project to be scalable to meet market needs.					
Required within 12mms	Proposed development and expansion can occur within the boundaries of the existing cleared site.					
	• Supportive local community in Point Tupper, the Richmond County Municipal Council and the Government of Nova Scotia.					
OSMR <sup>®</sup> LNG Process	<ul> <li>Opportunity to utilise OSMR<sup>®</sup> Low cost and highly efficient LNG process technology.</li> </ul>					
Technology (100% LNG)	Bear Head LNG to pay LNG Limited licence fees.					
	19					

### **Bear Head LNG – LNG Limited Project Development Team**



- The Bear Head LNG Project Executive Management has significant experience:
  - Following close of the transaction, John Godbold will be appointed Chief Operating Officer and Project Director of Bear Head LNG Corporation. John will have overall responsibility for the project and will report to Mr Maurice Brand (Managing Director of LNG Limited and President of Bear Head LNG Corporation).
  - John has lead energy projects for Pangea LNG, Gulf Coast LNG and El Paso Energy, and is a former NASA engineer.
  - Ian Salmon will also be appointed Chief Financial Officer and Chief Commercial Officer of Bear Head LNG Corporation following close of the Transaction. Ian will be responsible for integrating financial and commercial matters to ensure financeability of the Bear Head LNG Project. Ian previously worked for Morgan Stanley and El Paso Energy.
  - John and Ian bring extensive development experience, LNG knowledge and significant relationships to support a project at the Bear Head project site.
  - This team has developed a well defined development path forward for Bear Head.
  - John and Ian were engaged as consultants by LNG Limited and started preliminary work in October 2013 on the potential acquisition of Bear Head LNG Corporation.



Maurice Brand Managing Director and CEO, LNGL President, BHLC



John Godbold Chief Operating Officer & Project Director, BHLC



Ian Salmon Chief Financial Officer & Chief Commercial Officer, BHLC

### **Bear Head LNG - Project Site**





- Advantages of New Bear Head LNG Project
  - The shale gas revolution has changed the world energy marketplace.
  - This site provides the shortest shipping distance to Europe versus other North America sites.
  - OSMR<sup>®</sup> technology design and engineering available.
  - LNGL plan takes advantage of smaller liquefaction train sizing to allow production to ramp up incrementally with market demand and natural gas production.
  - Begin with 4 mtpa of LNG production; and expand as gas becomes available at Bear Head.
    - Substantial site improvements made in 2005-2006 by the previous owner, a subsidiary of Anadarko.
  - New LNG project for export will require modification of previous engineering work and regulatory clearance.

### Bear Head LNG - Project Site (cont'd)



### Aerial Photos of the Bear Head LNG Project Site











### **Bear Head LNG - Potential Natural Gas Supply Alternatives**



A number of alternative potential natural gas supply opportunities for Bear Head LNG Export Project



### **Bear Head LNG – Connecting Natural Gas Transmission Pipelines**



Gas Supply to the Bear Head LNG Project requires construction of a gas transmission pipeline off the M&NP pipeline to deliver gas from Goldboro to the Bear Head LNG terminal site



### Bear Head LNG - An Opportunity for Nova Scotia

- Major Economic Impact for Nova Scotia (Population: approx. 940,000):
  - 45 to 70 permanent direct jobs.
  - 175 permanent indirect jobs.
  - 600 to 700 construction jobs.
  - A major new addition to the property tax base.
  - Company participation in the community as a committed corporate citizen.



### **Bear Head LNG - Indicative Bear Head LNG Project Timing**





### Fisherman's Landing LNG Project at Gladstone, Queensland, Australia – Project Update



#### **Gas Supply**

- LNG Limited's major focus remains to secure adequate gas supply for the first LNG Train either through the PetroChina Australia Letter of Intent and/or directly under Gas Sale Agreements/Tolling Agreements with third parties.
- LNG Limited is continuing to directly pursue other potential gas supply sources.

#### Lease Agreement

• Secured until 30 September 2014 with Gladstone Ports Corporation.

#### **EPC Contract with HQC**

 Draft fixed price Engineering, Procurement and Construction (EPC) contract on hold pending gas supply.





### LNG Limited - Developing a Technological Advantage

#### Proposed Technology: OSMR<sup>®</sup> LNG Technology

LNG Limited's Optimised Single Mixed Refrigerant (OSMR<sup>®</sup>) process has the following main features, which contribute to its higher efficiency:

- Aero Derivative Gas Turbines and Efficient Compressors.
- Combined Heat and Power (CHP) plant which minimises plant fuel gas use.
- Steam driven Ammonia refrigeration system.
- Efficient re-liquefaction of Boil-Off Gas.

~ 25% Shorter development and

• ~ 30% Lower carbon emissions.

• Patent applications for OSMR<sup>®</sup> and Boiloff gas handling already granted in many

jurisdictions, including: Australia, Brunei, China, Eurasia, Hong Kong, Israel and

construction schedule.

New Zealand.

#### Market the OSMR<sup>®</sup> LNG liquefaction Process **Recognised Independent Engineer's Technology Reviews/Reports include:** • ~ 50% Lower capital cost. • CH-IV - Evaluation of OSMR<sup>®</sup> LNG Process in October 2008. ~30% Improved energy efficiency.

- Foster Wheeler Gladstone LNG OSMR<sup>®</sup> Study Report in June 2009. •
- SKEC Evaluation of the OSMR<sup>®</sup> Process for Gladstone in June 2009.
- Arrow-WP Interim Review of Fisherman's Landing LNG Plant in Dec 2009. ٠
- Evaluation Report of LNGL's OSMR<sup>®</sup> by I. Aoki in January 2010. ٠
- LNG Industry Article in March 2010.
- HQC and Consultants OSMR<sup>®</sup> Technical review in November 2010. •
- SKEC OSMR<sup>®</sup> Technical review August 2013.

#### 28

### Features of OSMR<sup>®</sup> LNG Technology





• Auxiliary boiler for startup uses N2 rich end flash gas as fuel.



### **OSMR® vs Conventional Liquefaction LNG Plants**

- LNG Limited's OSMR<sup>®</sup> process provides an alternative which is simple, efficient, low cost and uses proven conventional technologies.
- Smaller Train sizes allows easy modularization and economic project development.

	APCI – C3/MR	CoP- Cascade	OSMR <sup>®</sup>	
Train Size (mtpa)	4.1	3.9	1.9	
<ul> <li>Refrigeration Power</li> <li>Gas Turbine (x Nos)</li> <li>Steam Turbine (x Nos)</li> </ul>	85 MW Frame 7 (x2) n/a	32 MW LM2500 (x6) n/a	32 MW LM2500 (x2) 8 MW (x2)	
<ul><li>Plant Power Generators</li><li>Installed</li><li>Running</li></ul>	Gas Turbine Driven 70 MW 30 MW	Gas Turbine Driven 30 MW 25 MW	Steam Turbine Driven 8 MW 6 MW	
Plant Fuel Usage (% of Feed Gas)	9-11 %	8-9 %	6%	
<ul><li>Heat Exchanger Types</li><li>Pre-cooling (x Nos)</li><li>Main Cooling (x Nos)</li></ul>	C3 Tube in Kettle (x3) MR Spiral Wound (x1)	Brazed Aluminum C3 Core-in-Kettle (x2) C2, C1 Cold Box (2+2)	Brazed Aluminum NH3 Core-in- Kettle (x2) MR Cold Box (x2)	
CAPEX (\$/tpa)	1,000-1,200	1,000-1,200	500-600	



Mr Maurice Brand Managing Director & Chief Executive Officer

> Mr David Gardner Company Secretary

Andrew Gould General Manager, Corporate Development

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ASX: LNG; OTC ADR: LNGLY



#### Australia and All Jurisdictions

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