Steelhead LNG

The Case for Independent Canadian LNG

September 20, 2017

POLICYMAKERS PICK NATURAL GAS

G20 - LEADERS' COMMUNIQUE PLEDGES TO PROMOTE NATURAL GAS

In recognition that natural gas is a 'less emission-intensive fossil fuel', G20 leaders commit to enhance collaboration on solutions that promote natural gas extraction, transportation, and processing. Stressed importance of diversification of energy sources and routes.

International Maritime Organization - LNG WILL REDUCE MARITIME EMISSIONS

170+ members agreed sulphur limit in shipping fuel of 0.5% from 2020. LNG as a fuel contains virtually zero sulphur vs. 3.5% specification for global marine fuel today

Chinese Government - FIVE-YEAR PLAN TARGETS 45 BCM OF INCREMENTAL GAS CONSUMPTION BY 2020

China has suspended more than 100 coal-fired plants either approved or under construction.

Government of India - MOVING TO A GAS BASED ECONOMY

"We have given priority to move towards a gas based economy. Effort must be made to increase natural gas production while also creating import infrastructure to meet the growing domestic demand.'' - Prime Minister Modi

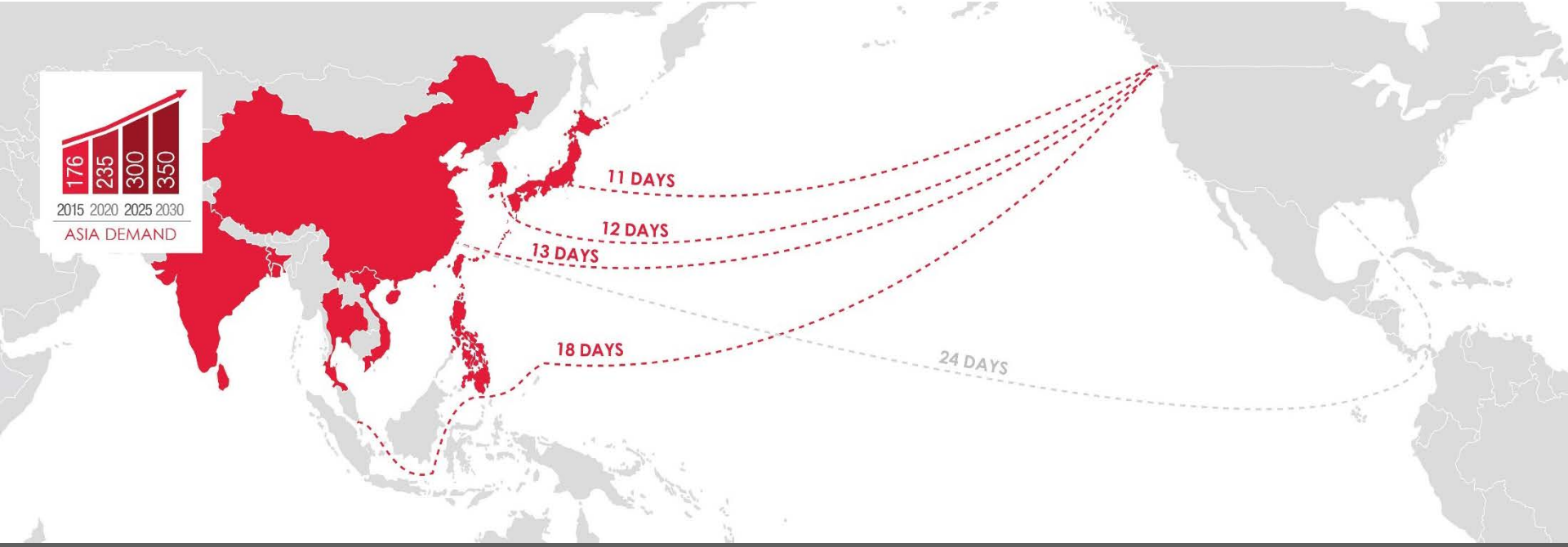
European Union - GAS PLAYS CRITICAL ROLE IN ENERGY SECURITY

EU LNG Strategy acknowledged critical role of gas in support of energy security, increasing competitiveness and greenhouse gas emissions targets

COP22 – COAL-FIRED GENERATION PHASE OUT

France and Canada joined Austria, Belgium, Britain, Denmark and Portugal in committing to close coal-fired generation by the end of the next decade

WHAT IT TAKES TO WIN MARKET



>160 MTPA of LNG demand growth in Asia by 2030

SHORTER SHIPPING DISTANCES

LOWER AMBIENT TEMPERATURES BOOSTS PROCESS EFFICIENCY

POLITICAL RISK DIVERSIFICATION

NO CANAL RISK

NO HURRICANE RISK

CRITICAL SUCCESS FACTORS FOR CANADA

INNOVATION

Delivers Low Cost

Competitive – e.g. Price Evolution

New Types of Financeable Contracts

e.g. Flexible Term

STRATEGIC PARTNERSHIPS ALONG THE SUPPLY CHAIN

First Nations

Government

Customers

BUILDING BLOCKS FOR LOW COST LNG

PIPELINE QUALITY GAS

MINIMAL gas pre-treatment PROCESS

LOW LEVEL OF CONTAMINANTS i.e. Inerts < 4%, Sulphur and water content low

NO NATURAL GAS LIQUID PRODUCTION AT FACILITY i.e. no fractionation systems, storage and offloading

BENIGN ENVIRONMENTAL CONDITIONS

TEMPERATE CLIMATE improving liquefaction efficiency

NO WINTERIZATION requirements

SHELTERED WATERS with small waves

WIND STRENGTH MODERATE

AT-SHORE JETTY MOORED

NO TURRET

NO ONBOARD accommodation or helipad

EASY ACCESS for operations and maintenance

Plant operations, maintenance and sparing philosophy similar to onshore facility

LNG CARRIER BASED BARGE DESIGN

Modified LNG Carrier DESIGN

SINGLE ROW of LNG tanks

Marine specifications, codes and standards

CONSTRUCTION IN ASIA

MINIMIZE onshore construction in BC

DEDICATED fabrication yards with high skilled low cost labour

Excellent INFRASTRUCTURE and Vendor support

COMPLETE system pre-commissioning and utility commissioning at yard

COST OF GAS PRODUCTION IN CANADA

ECONOMIES OF SCALE

LARGE CAPACITY At-Shore LNG Facilities ~5-6 MTPA

REPEATABLE DESIGN

with PROVEN TECHNOLOGY

Steelhead LNG *At-Shore LNG*™ facility

HUU-AY-AHT FIRST NATIONS & STEELHEAD LNG

PROGRESSIVE *CO-MANAGEMENT RELATIONSHIP*

SUMMARY

MARKET ACCESS VIA INNOVATIVE LONG TERM CONTRACTS

ENVIRONMENTAL AND COMMUNITY LEADERSHIP

PARTNERSHIPS

LOW-COST WINS