Alaska South Central LNG (SCLNG) Project

Overview for Alaska Legislators

February, 2013
Alaska SCLNG Project - Overview

• BP, ConocoPhillips, ExxonMobil and TransCanada are working together to progress an Alaska LNG project:
  - 300+ people developed concept, $25M spent thru Jan13
  - Key third party contractors engaged (URS, Fugro, exp)
  - Leveraging Denali, APP, related material ($700M past work)

• Concept work has defined key issues:
  - Integrated Basis of Design heat/material balance complete
  - Potential integration into existing operations
  - Required gas treating plant design (North Slope location)
  - Pipeline size and routing options (800+ miles, 42” x80 pipe)
  - LNG plant design (15-18 million tons per annum – “MTA”)
  - Gas off-take capacity for secure Alaska fuel supply
  - Preliminary capital estimate - $45-65 Billion (2011 dollars)

• Key project issues to address:
  - “Mega-project” challenges (labor, resources, equipment, etc)
  - Commercial and fiscal issues
  - Uncertainty related to permitting timing

• Forward Plans:
  - Use “Phased/Gated” process to advance project
  - Continue working together to optimize design
Module Fabrication
Module Transport
Module Hook Up – Plug and Play
PTU (62 miles east of PBU/GTP area)
• Initial Production System (IPS) project in progress - 2016 SU
• Preliminary SCLNG design basis for PTU:
  – Leverage IPS facilities, add fourteen new wells
  – Add new gas facilities to existing central pad / facilities
  – New 30” gas line from PTU to GTP in Prudhoe Bay
  – Peak workforce – 500-1,500 people

PBU Tie-in (adjacent to proposed GTP location)
• Installation / tie-in managed by Prudhoe Bay Operator
  – Tie into existing CGF, deliver gas to new Gas Treatment Plant
  – Gas project / deliveries tied to future PBU operations

• Preliminary plan is to inject CO₂ using existing injection systems as appropriate
NS Gas Treatment Plant
- Designed to remove gas impurities
- Four amine trains with compression, dehydration and chilling
- Prime power generation (5 units, 54kHP)
- All required utilities, infrastructure and camps
- Facility will be modularized, sealifted to location
- Peak workforce – 500-2,000 people

Gas Pipeline and Compression Stations
- 800+ mile 42" x80 pipeline
- 3-3.5 billion cubic feet gas per day
- Eight compressor stations (30kHP each)
- Pipeline contents will be treated gas, impurities removed
- Designed to manage continuous and discontinuous permafrost regions
- Expansion potential with additional compression if appropriate
- Five off-take points for Alaska gas delivery
- Peak workforce – 3,500 - 5,000 people
SCLNG - Concept Summary – Downstream

LNG Plant and Storage

• Three 5.8 million tons per annum (MTA) LNG trains
  - Plant receives 2.2 - 2.5 billion cubic feet per day to liquefy
  - LNG production varies with ambient temp (4.9 - 6.3 MTA)
  - Small volume of stabilized condensate produced (~1,000 bbl/day)
• Integrated utility system with all utilities on site
• Two-three 160,000 cubic meter LNG storage tanks
• Peak workforce – 3,500 – 5,000 people

Marine Offloading Facility

• Conventional jetty and trestle design
• Two berths
• Design based on 15-20 LNG carriers
• Marine support system includes required tugs, security boats
• Peak workforce – 1,000 – 1,500 people
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Back-Up Material

Attachments to Oct-12 Letter to Governor Parnell

February, 2013
Southcentral Alaska LNG – Integrated Team

- **Management Committee**
  - ExxonMobil
  - ConocoPhillips

- **Commercial Team**
  - Lead: BP

- **Technical Committee**

- **Concept Team**
  - Lead: ExxonMobil

- **Producing Fields**
  - Lead: BP

- **Pipelines**
  - Lead: Alaska Pipeline Project

- **LNG Plant**
  - Lead: ConocoPhillips

- **Integration Team**
  - Lead: ExxonMobil

*Multimillion Dollar, Four-Company Effort – 125+ Employees, 100+ Contractors*

- Joint work commenced March 31, 2012 after completion of the Pt. Thomson Settlement / joint work agreements
- Cooperative effort among the leading North Slope producers and a leading North American pipeline company
- Identified potentially viable LNG project options to monetize ANS natural gas
- Used company strengths, shared information / expertise; built upon past efforts, sought out new ideas
Alaska Southcentral LNG – Project Concept Description

Liquefaction Plant
- Capacity: 15 – 18 million tonnes per annum (MTA)
- 3 trains (5-6 MTA / train)
- Potential areas: 22 sites assessed in Cook Inlet, Prince William Sound and other Southcentral sites
- Footprint: 400 - 500 acres
- Peak Workforce: 3,500 - 5,000 people
- Required Steel: 100,000-150,000 tons

Storage / Loading
- LNG Storage Tanks, Terminal
- Dock; 1 - 2 Jetties
- Design based on 15– 20 tankers
- Peak Workforce: 1,000-1,500 people

Gas Treating
- Located at North Slope or Southcentral LNG site
- Remove CO₂ and other gases and dispose / use
- Footprint: 150 - 250 acres
- Peak Workforce: 500 - 2,000 people
- Required Steel: 250,000 - 300,000 tons
- Among largest in world

Producing Fields
- ~35 TCF discovered North Slope resource
- Additional exploration potential
- Anchored by Prudhoe Bay and Pt. Thomson with ~20 years supply available
- Use of existing and new North Slope facilities
- Confirmed range of gas blends from PBU/PTU can generate marketable LNG product
- Peak Workforce: 500 – 1,500 people

Pipeline
- Large diameter: 42”- 48” operating at >2,000 psi
- Capacity: 3 - 3.5 billion cubic feet per day
- Length: ~800 miles (similar to TAPS)
- Peak Workforce: 3,500 - 5,000 people
- Required Steel: 600,000 - 1,200,000 tons
- State off-take: ~5 points, 300-350 million cubic feet per day, based on demand

Estimated Total Cost: $45 – $65+ Billion  
Peak Construction Workforce: 9,000 – 15,000 jobs  
Operations Workforce: ~1000 jobs in Alaska

Descriptions and costs are preliminary in nature and subject to change. Cost range excludes inflation.
Requirements to Take Next Step:

- Viable Technical Option(s) Identified
- Government Support
- Permits / Land Use Achievable
- Potential Commercial Viability

- Viable technical option
- Government Support
- Permits / Land Use Underway
- Potential Commercial Viability

- Secure Permits / Land Use / Financing / Key Commercial Agreements
- Confirm Commercial Viability
- Execute EPC contracts

Activities

- Solicit Interest of Others
- Advance Government Support and Advance Regulatory Issues:
  - Competitive oil tax environment; predictable / durable LNG project fiscal terms; AGIA Issues
  - Assure ability to secure regulatory approvals / permits / land use
  - Environmental activities / Technical data collection
  - Stakeholder engagement
  - File DOE Export License

- Solicit Interest of Others
- Advance Gov’t / Reg. Issues:
  - Key permit / land use approvals
  - Stakeholder engagement
  - Secure DOE Export License

- Complete Gov’t / Reg. Issues:
  - Secure remaining construction / operating permits
  - Stakeholder engagement

- Execute:
  - Final engineering
  - Financing
  - Procurement
  - Fabricate / Logistics / Construct
  - Prepare for Operations

- Implement business structure & agreements

- Commission / start-up

- Screen commercial viability
- Assess commercial viability
- Confirm commercial viability

- Start individual gas / LNG sales / shipping efforts
- Execute individual gas / LNG sales / shipping agreements

- Note: Duration of various phases may be extended by protracted resolution of fiscal terms, permitting and regulatory delays, legal challenges, changes in commodity market outlook, time to secure long-term LNG contracts, labor shortages, material & equipment availability, weather, etc.