

02/19/13

LUNCH &

LEARN:

ALASKA

SOUTH

CENTRAL LNG

UPDATE

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ALASKA SOUTH CENTRAL LNG
UPDATE</SUBJECT><COMM>HRES28</COMM></TARGET>

Lunch and Learn

Tuesday at Noon

Capitol Room 106

An In-depth Look at Alaska's Resources

Lunch provided by presenters

**HOSTED BY
REP. ERIC FEIGE &
REP. DAN SADDLER
CO-CHAIRS
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Tuesday, Feb. 19, 2013

**Program Title: AK South Central LNG Update -
"Progress ExxonMobil, ConocoPhillips, BP &
TransCanada have made to advance
North Slope natural gas development"**

**Presenters: Steve Butts, Senior Project Manager
Alaska LNG Concept Selection**

Sponsor: Alaska Oil & Gas Association



S. D. (Steve) Butt
Senior Project Mgr
ExxonMobil Development Company

Alaska LNG Project

Good afternoon everyone,

I'd like to take this opportunity to introduce our key speaker today – Mr. Steve Butt. Steve is here on behalf of BP, ConocoPhillips, ExxonMobil, and TransCanada – companies currently working to define and progress an LNG project here in Alaska.

Steve began his career with Mobil in 1985 and held various engineering and operations positions in California, Colorado, and Texas for US Producing Operations. Steve relocated to Africa in 1999, working in various operating and technical leadership roles in Equatorial Guinea and Angola as well as advisory roles in Nigeria and Chad and as General Manager for Cameroon.

In 2007, Steve was named Vice-President of Production for ExxonMobil Qatar Inc. While in Qatar, Steve worked with the RasGas LNG joint ventures, the Al-Khalej Gas project, and the QatarGas joint ventures, which included start-up operations of the world's largest LNG facility.

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

Alaska SCLNG Project
Concept Information



Work Product In Progress

Module Sealift

Alaska SCLNG Project
Concept Information



Module Transport

Alaska SCLNG Project
Concept Information



Work Product In Progress

Module Hook Up – Plug and Play

Alaska SCLNG Project
Concept Information



Work Product In Progress

SCLNG Concept Summary - Upstream

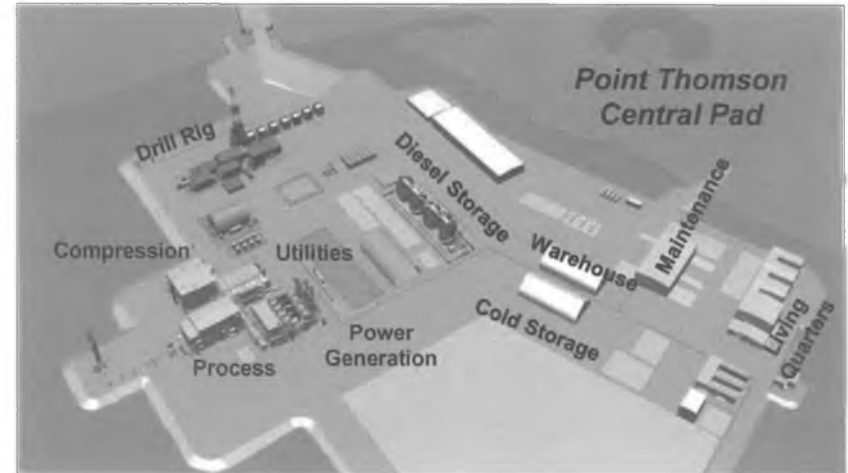
PTU (62 miles east of PBU/GTP area)

- 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

PTU Field Layout



PBU Central Gas Facility Tie-in



SCLNG - Concept Summary - Midstream

NS Gas Treatment Plant

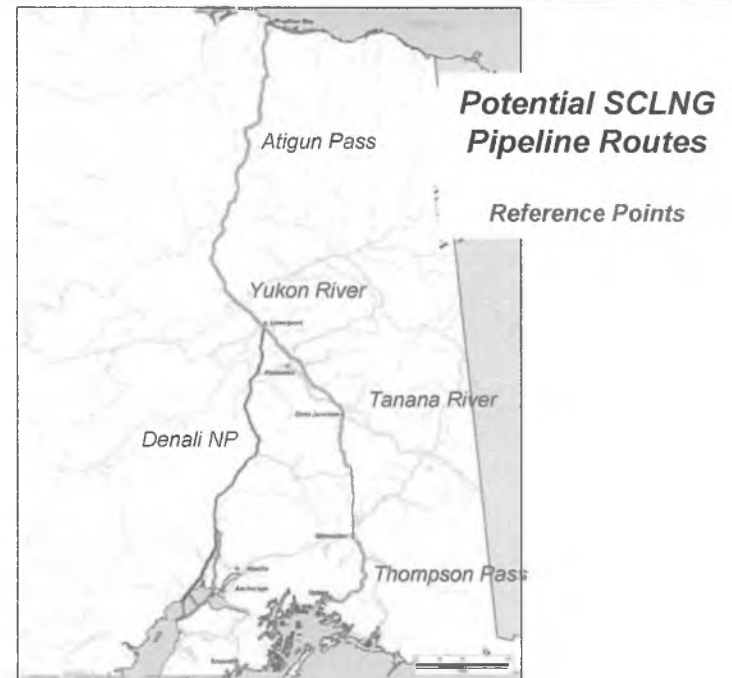
- Designed to remove gas impurities
- Four amine trains with compression, dehydration and chilling
- Prime power generation (5 units, 54kHP)
- All required utilities, infrastructure and camps
- Facility will be modularized, sealifted to location
- Peak workforce – 500-2,000 people

NS Gas Treatment Plant Design



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

SCLNG Plant and Storage



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

South Central Marine Map

