

**02/04/14
LUNCH &
LEARN:
UPDATE ON
ALASKA'S
LNG**

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UPDATE ON ALASKA'S
LNG</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
House Resources**

**Contact:
Linda Hay, Staff
465-3715**

Tuesday, Feb. 4, 2013

Program Title: **Update On Alaska's LNG**

Presenters: **Steve Butt, Alaska LNG
Project Manager**

Sponsor: Alaska Oil & Gas Association



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

Alaska LNG Project

Steve is currently working as the Senior Project Manager for the Alaska LNG project with representatives from BP, ConocoPhillips, and TransCanada to progress an LNG project that can help develop Alaska's natural gas resources.

Steve began his career with Mobil in 1985 and held various engineering and operations positions in the US before moving to Venezuela as Operations Manager to start-up the Cerro Negro project in 1997. Steve relocated to Africa in 1999, working in various project, operating and technical leadership roles in Equatorial Guinea and Angola as well as advisory roles in Nigeria, 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 and QatarGas joint ventures, which included start-up operations of the world's largest LNG facilities and as General Manager of the one of the world's largest gas treating complexes.

Steve holds a Bachelor of Science from Stanford University and a Masters in Business Administration from Southern Methodist University.

Alaska LNG



The Alaska LNG export project is about innovative people and technology combining to develop Alaska's vast North Slope natural gas resources. BP, ConocoPhillips, ExxonMobil and TransCanada are working with the state of Alaska on an LNG export project to fuel Alaska's future.

ACCOMPLISHMENTS

- February 2013 — Finalized integrated design concept
- Summer 2013 — Conducted field studies necessary for environmental impact assessments
- Continuing work with local and global experts to prepare for the next phase of design and permit applications

POTENTIAL BENEFITS

- Single largest investment in Alaska's history
- Creates 9,000–15,000 jobs for design and construction, including ~1,000 jobs for operations
- Generates billions of dollars of new tax revenue for Alaska
- Provides access to natural gas for Alaskans

CHALLENGES

- Megaproject requires labor, resources and equipment that can handle Alaska's extreme, remote environment
- Complex commercial arrangements with foreign markets require long-term commitments
- Minimizing environmental and socioeconomic impacts

SAFETY, HEALTH AND ENVIRONMENT (SHE)

- Committed to operating in a safe and environmentally responsible manner
- Protecting biodiversity and ecosystems
- Respect for local traditions and knowledge

NEXT STEPS

- Continue field studies and environmental baseline assessments
- Continue engineering and design work for integrated project
- Prepare state and federal permit and license applications
- Establish a durable gas fiscal regime



Producing Fields

The Alaska LNG Project is anchored by Prudhoe Bay and Point Thomson.

- Will provide ~3.5 billion cubic feet of gas per day



Gas Treatment Plant

The facility will require ~250,000 tons of steel and span ~200 acres.

- CO₂ removed, captured and compressed for reinjection

Pipeline

The 2–3 year construction of an ~800-mile pipeline will use advanced technology to enable safe operations in arctic conditions while minimizing our impact.

- Will require ~1.2 million tons of steel
-  Compressor stations maintain pressure and temperature along the pipeline route
-  At least 5 off-take points to serve Alaska markets



Liquefaction Plant

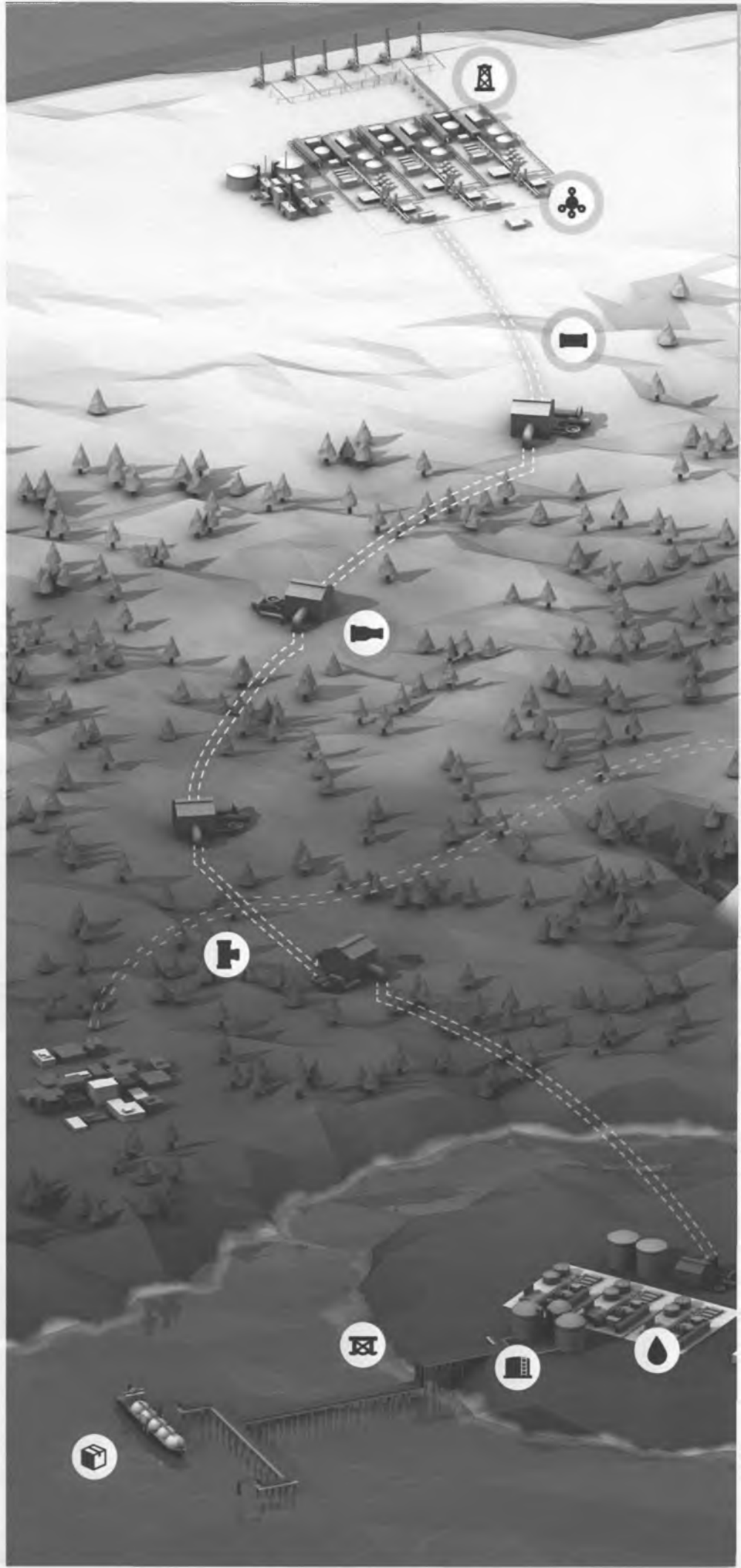
Gas is cooled to -260° F until it is condensed to 1/600th of its previous volume.

- 3 trains dehydrate, chill and liquefy 15 million–18 million tons of LNG each year
- Nikiski in the Cook Inlet selected as lead site
- Site engineering and environmental assessments underway

Storage and Loading

The average LNG tanker has a capacity of 3 billion cubic feet.

- 3 LNG storage tanks are included in the design to manage shipping logistics
-  2 jetties will accommodate 10–15 LNG tankers per month
-  Specially designed LNG tankers will transport chilled liquefied natural gas



Alaska LNG



The Alaska LNG Project

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ACCOMPLISHMENTS

POTENTIAL BENEFITS

SAFETY, HEALTH AND ENVIRONMENT

CHALLENGES

NEXT STEPS



Accomplishments

- Completed project design, announced concept Feb13
- Finalized lead LNG plant site decision, announced Oct13
- Safe and successful summer field season and data collection
- Confirmed ability to integrate into existing operations at producing fields
- Advanced GTP design work and LNG plant modeling
- Progressed pipeline routing, line hydraulics and materials design
- Evaluating sealift options and other logistics



Alaska LNG

Potential Benefits

- Single largest investment in Alaska's history
- Creates 9,000-15,000 jobs for design and construction plus ~1,000 jobs for operations
- Generates billions of dollars of new tax revenue for Alaska
- Provides access to natural gas for Alaskans



INCREASED REVENUE



15,000 ADDED JOBS



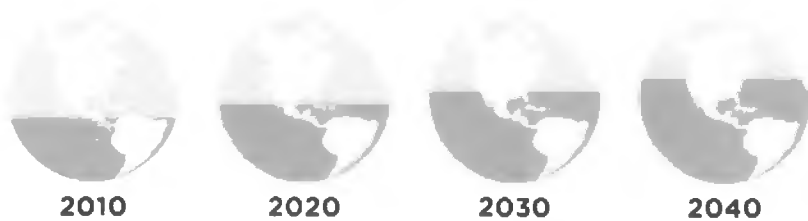
INVESTMENT IN LOCAL ECONOMY



Next Steps

- Continue field studies and environmental baseline assessments
- Continue engineering and design work for integrated project
- Prepare state and federal permit and license applications
- Establish a durable gas fiscal regime

**NATURAL GAS DEMAND
INCREASES 65% BY 2040**



Safety, Health and Environment (SHE)

- Committed to operating in a safe and environmentally responsible manner
- Protecting biodiversity and ecosystems
- Respect traditional knowledge



Challenges

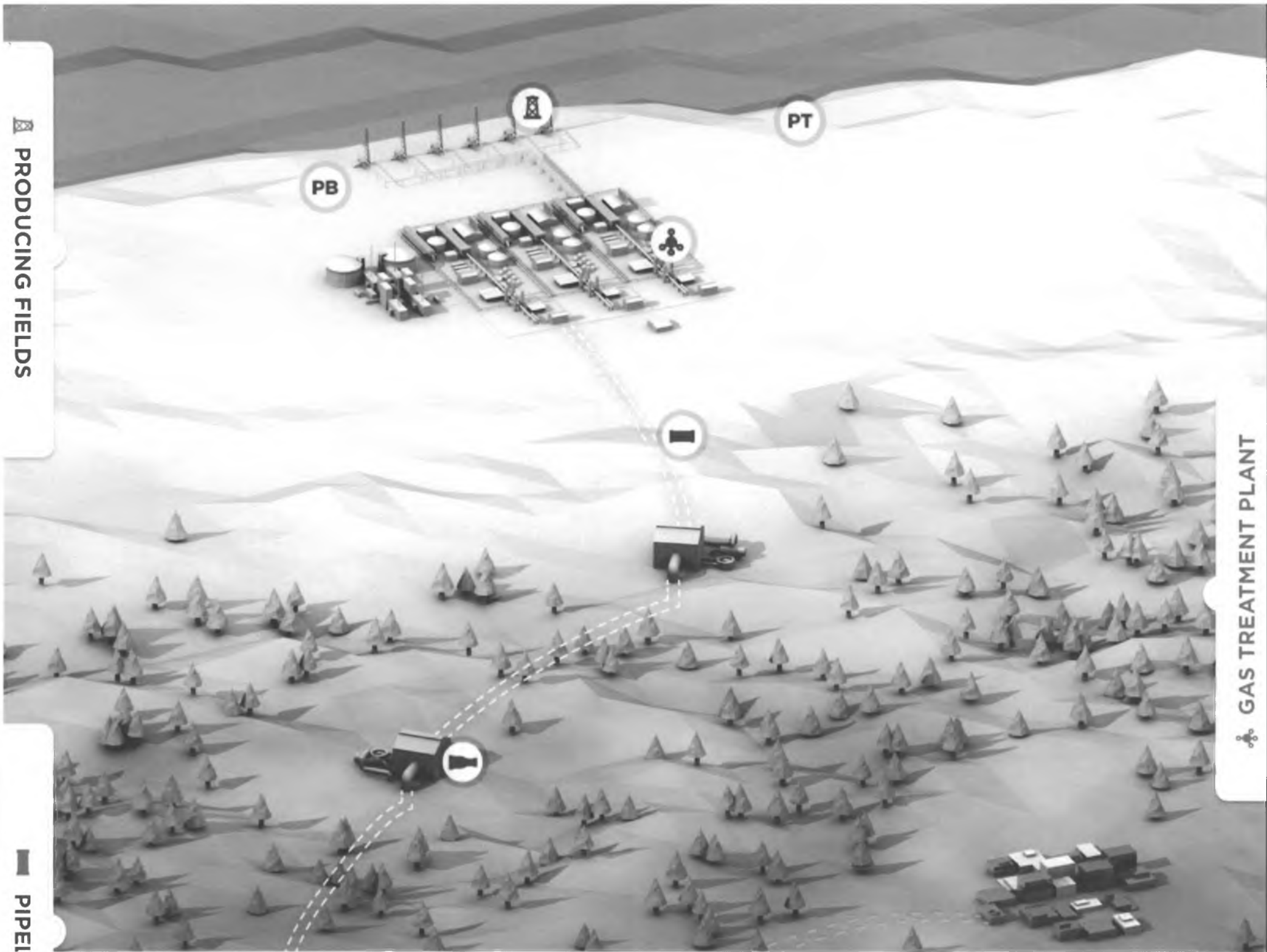
- Megaproject requiring labor, resources and equipment that can handle Alaska's extreme, remote environment
- Complex commercial arrangements with foreign markets require long-term commitments
- Reducing impacts and risks of environmental and socioeconomic aspects
- Uncertainty related to permit timing / scope
- Working commercial and fiscal issues with all parties, including the State of Alaska

A stylized map of Alaska is shown in the background. A dashed line connects several icons: a building, a drop, a horizontal bar, and a tower. A small 'x' icon is located at the top right corner of the text box.

Alaska LNG

PRODUCING FIELDS

PIPELINE

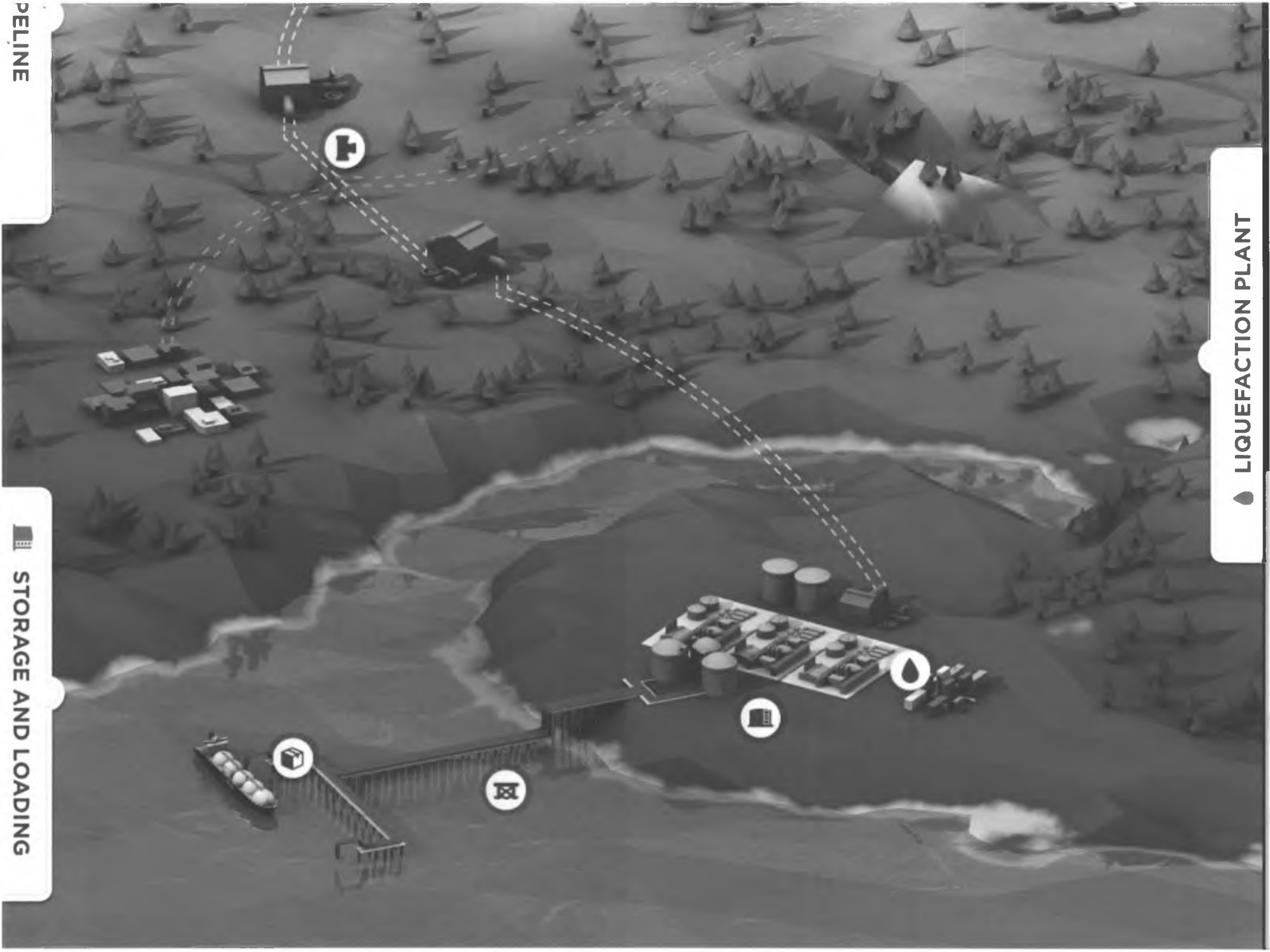


GAS TREATMENT PLANT

PELINE

STORAGE AND LOADING

LIQUEFACTION PLANT



Modular Construction



Progress

Further development in the Alaska LNG Project



2014 FIELD SEASON

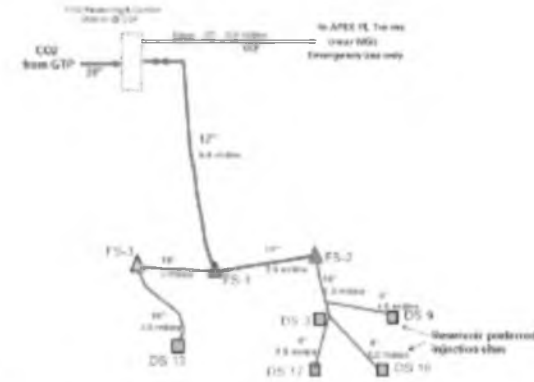


Alaska LNG

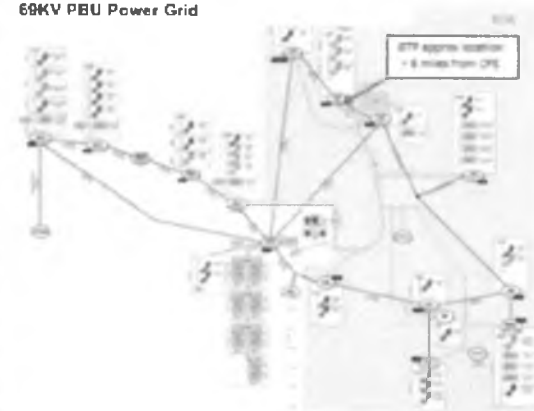


Prudhoe Bay

- Continued data capture/analysis of PBU gas composition
- Evaluated field dehydration performance
- Continuing depletion planning
- Developing integrated injection system
- Evaluating integrated power grid



69KV PBU Power Grid





Point Thomson

- Comparing plot plan options for safety and operability
- Evaluated process design requirements
- Developing design basis for future engineering work





Pipeline

- Refined route from PBU to Livengood, finalizing preliminary route from Livengood to Cook Inlet
- Working 'special design areas'
 - Atigun Pass
 - Denali National Park Area
 - Yukon River
 - Cook Inlet
- Progressing fundamental technical work on geohazard analysis, waterway crossings, hydraulics and design

DENALI NATIONAL PARK



COOK INLET





Environmental, Regulatory and Land

- **Safe summer field season 2013**
 - No incidents for >40,000 man-hours, 90,000 miles
 - No reportable spills or public complaints
- **Peak workforce of over 130 contractor staff completed survey work from PBU to Livengood**
 - Over 6,500 acres surveyed for cultural resources
 - Over 75 hydrology, lakes and fisheries surveyed
 - Traditional knowledge and ethnographic surveys



Plans for a safe 2014 field season

- Civil and scientific surveys from Livengood to Nikiski
- Subsistence and health impact surveys
- Marine current and ice profiling
- Geotechnical and geophysical surveys
- Collaboration with state and federal agencies for permitting and approvals
- Local community engagement for field study scopes



Alaska LNG