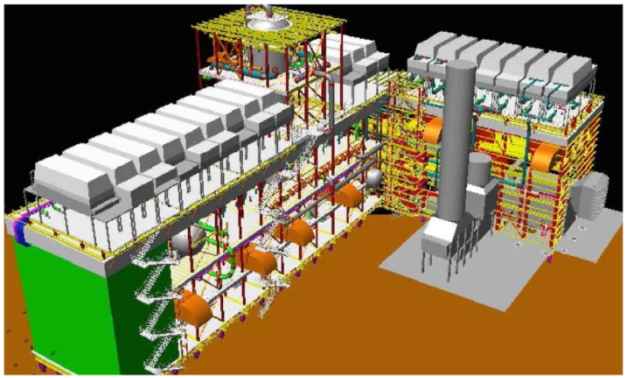
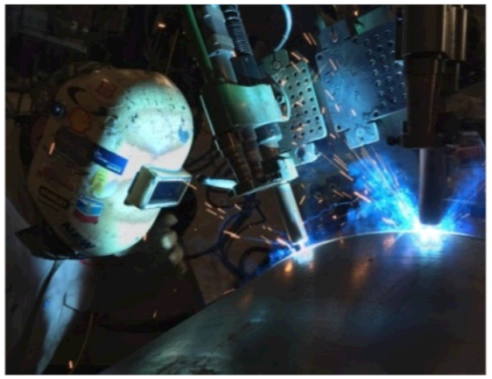
Alaska LNG™

Fueling Alaska's Future





NOVEMBER 2015

RDC – Project Update

Alaska LNG – Project Overview

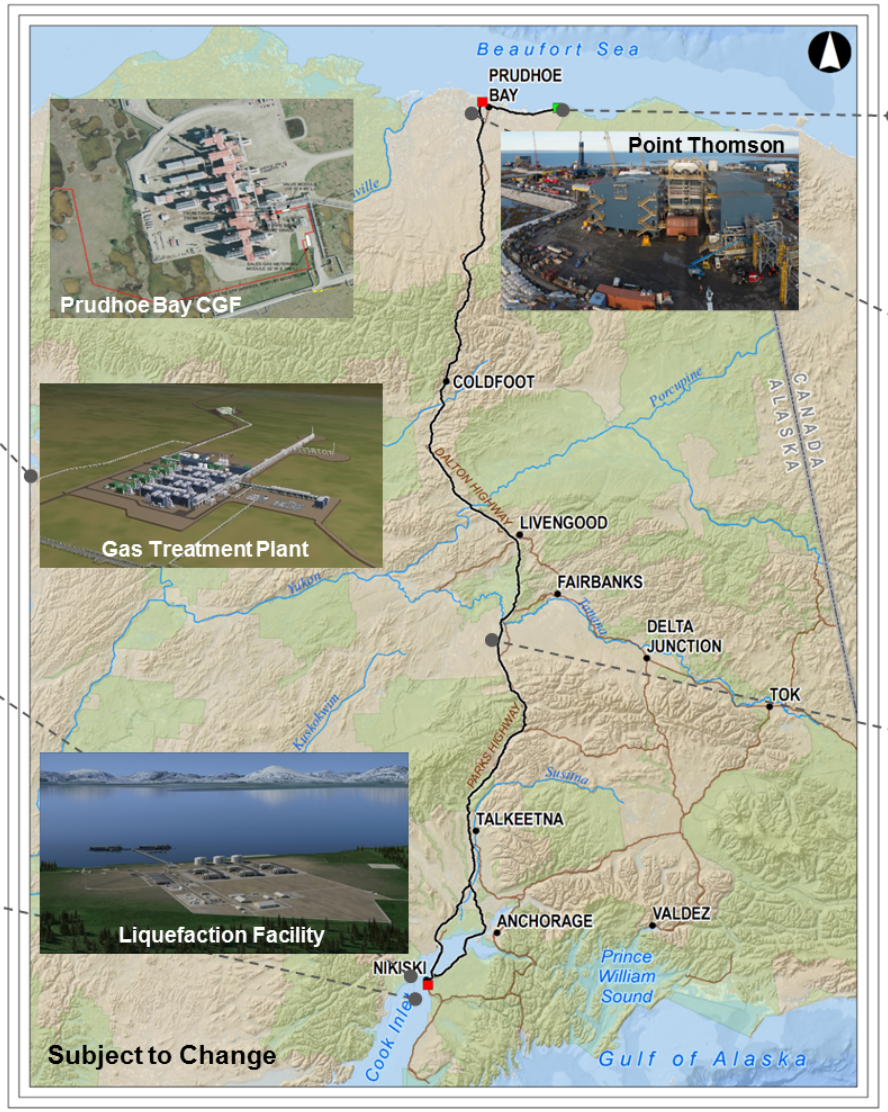
Alaska LNG™

An integrated liquefied natural gas export project providing access to gas for Alaskans

Gas Treatment Plant (GTP)
- 3.3 BCFD peak winter rate
- Three trains with compression, dehydration and chilling for gas conditioning (remove impurities)
- CO_2 removed and compressed for injection at PBU

LNG Storage & Marine Terminal
- LNG storage tanks
- Two jetties to accommodate 15-20 LNG carriers per month

Liquefaction Facility
- Natural gas is cooled to -260 degrees to condense the volume 600 times
- 3 trains dehydrate, chill and liquefy gas to produce up to 20 million tons of LNG each year



Point Thomson Gas Expansion*
- New wells
- New gas processing facilities

Prudhoe Bay Tie-In*
- Gas delivery to new gas treatment plant (GTP)
- Integration with existing CGF
- Injection of CO_2 from GTP

Gas Pipeline
- 800+ mile 42" diameter gas pipeline from gas treatment plant to liquefaction facility
- 3.3 BCFD capacity
- 8 compressor stations
- ~ 5 in-state off-take points

* Prudhoe Bay and Point Thomson Modifications/New Facilities are managed by Prudhoe Bay Unit and Point Thomson Unit Operators, respectively, and are closely coordinated with the Alaska LNG Project.

Artists renditions of LNG and GTP

Alaska Gasline Development Corp. bp ConocoPhillips ExxonMobil TransCanada

Status

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2015 Accomplishments

- Filed “resource reports” with FERC, key to EIS, permits
- Received DoE export authorization for non-FTA countries
- Progressed project design - ~$350M spent on pre-FEED
- Completed field data acquisition, geotechnical work scopes
- AOGCC ruling supports gas offtake and CO_2 reinjection

Improve Alignment

- First time NS gas resource “owners” have worked on an integrated LNG project together as one group
- Engaging local stakeholders, Native Corporations / Groups
- Building contacts with Alaskan businesses (700 registered)

Reduce Risk

- Confirming project’s technical / execution feasibility
- Experienced team working project – “Hundreds of Years”

Reduce Cost

- LNG projects must produce globally competitive product
- Construction and operating costs drive ‘cost of supply’
- Now is the time to optimize costs

Project Development Phases

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Alaska LNG – Phased/Gated Project Management Process (Oct 12)

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

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

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

PTU Settlement, Joint Work Agreements — GO — **Concept Selection** — **Decision** — GO — **Pre-FEED** — **Decision** — GO — **FEED** (Front-End Engineering & Design) — **Decision to Build the Project** — GO — **EPC** (Engineering, Procurement & Construction)

STOP (Decision) STOP (Decision) STOP (Decision to Build the Project)

(Today)

Peak Staffing:	~200	400 - 500	500 – 1,500	9,000 – 15,000
Cost ($):	Tens of Millions	Hundreds of Millions	Billions	Tens of Billions
Est. Engineering / Technical Duration*:		*12 - 18 Months*	*2 - 3 Years*	*5 - 6 Years*

Concept Select
- Identify and Rank project concept options with a reasonable likelihood of satisfying market needs
- Recommend a base concept for the project

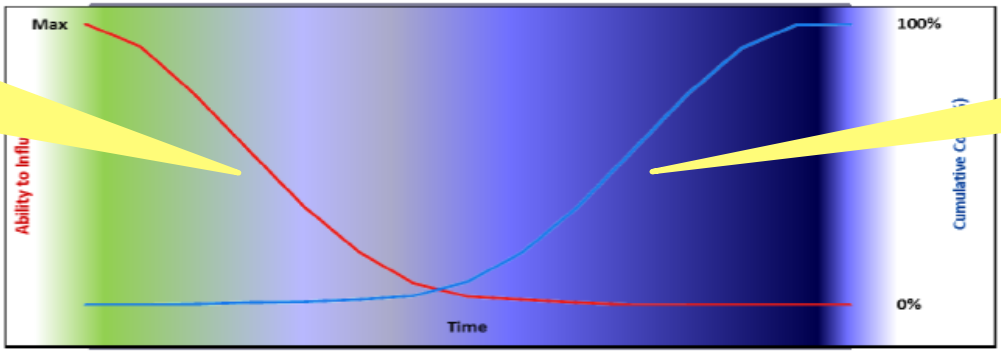
Optimize (Pre-FEED)
- Optimize and finalize selected concept option
- Define the project sufficiently to support major regulatory filings and start of FEED
- Prepare capital cost and schedule estimates

Define (FEED)
- Prepare, submit and maintain regulatory filings to final decision
- Advance project definition and data collection to be ready for final investment decision and execution of major contracts
- Prepare a capital cost estimate to support project sanction

Execution-Startup
- Engineering, Procurement, and Construction
- Finalize detailed design, procurement and logistics for construction
- Complete construction, commissioning, start-up

On Schedule to complete Pre-FEED by MY16, FEED decision by MY17, consistent with HoA

Project Influence Curve



Key is to prepare for project success in FEED / EPC to minimize Cost of Supply

LNG Plant and Marine Terminal Update

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Actively acquiring land, purchased ~600 acres in Nikiski

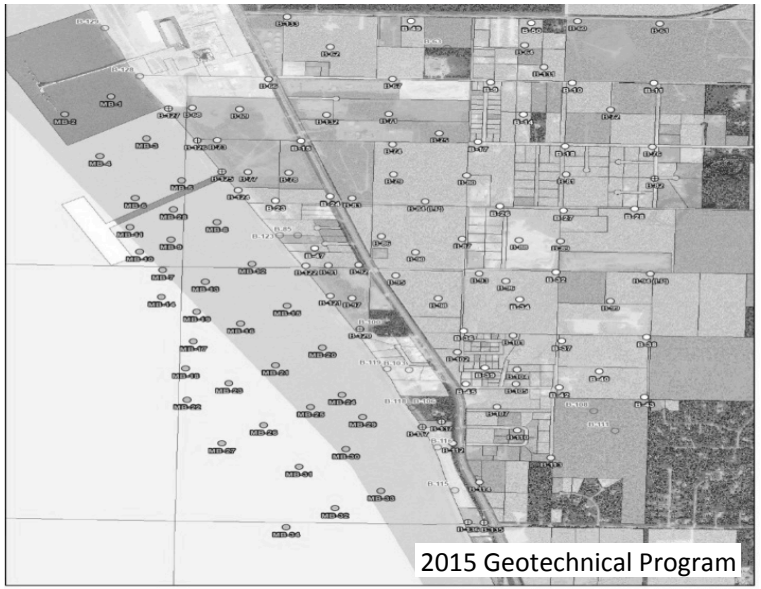
Evaluating alternative layouts, driver selection complete

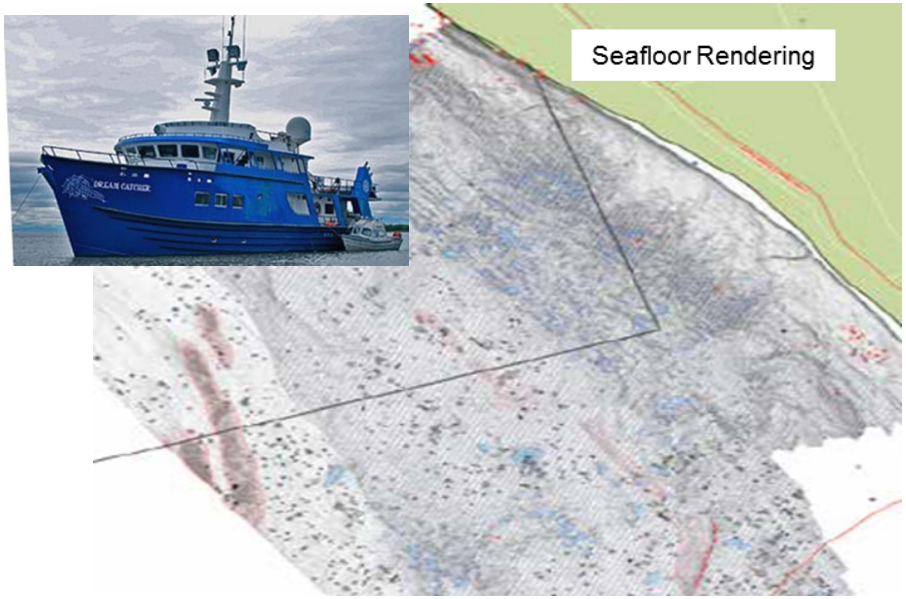
Continuing to improve marine facility design and operations

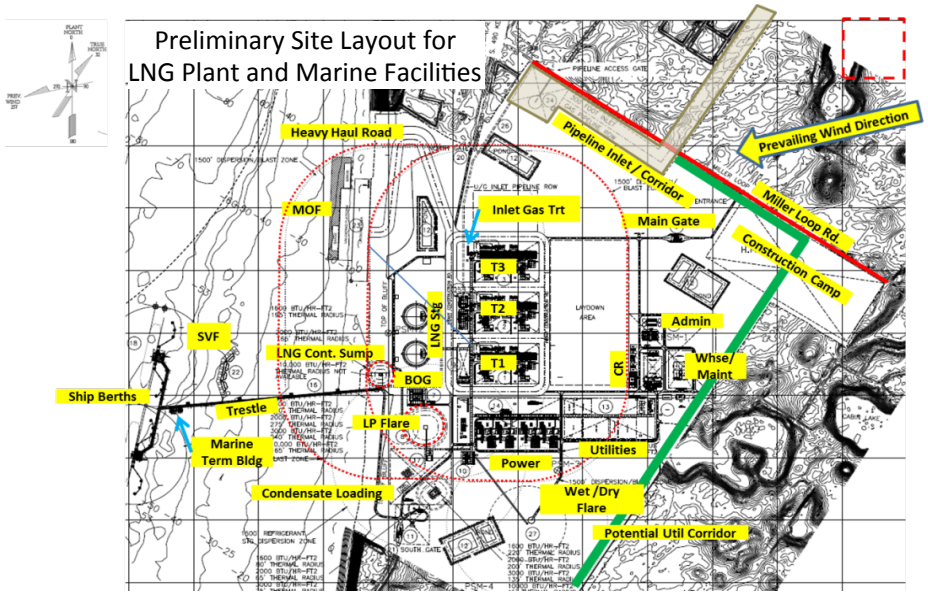
- Collecting sea floor and metocean data
- Incorporating findings from navigation simulation

Continuing geotechnical assessment onshore and offshore

Focusing on fabrication / modularization to reduce costs







Pipeline Update

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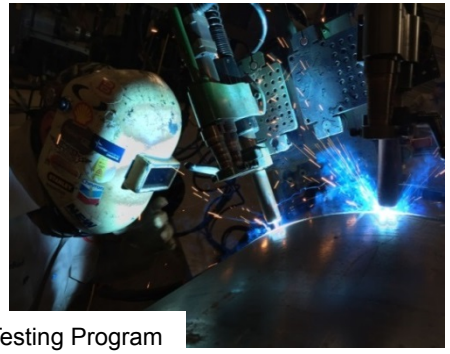
Pipeline materials design and testing in progress

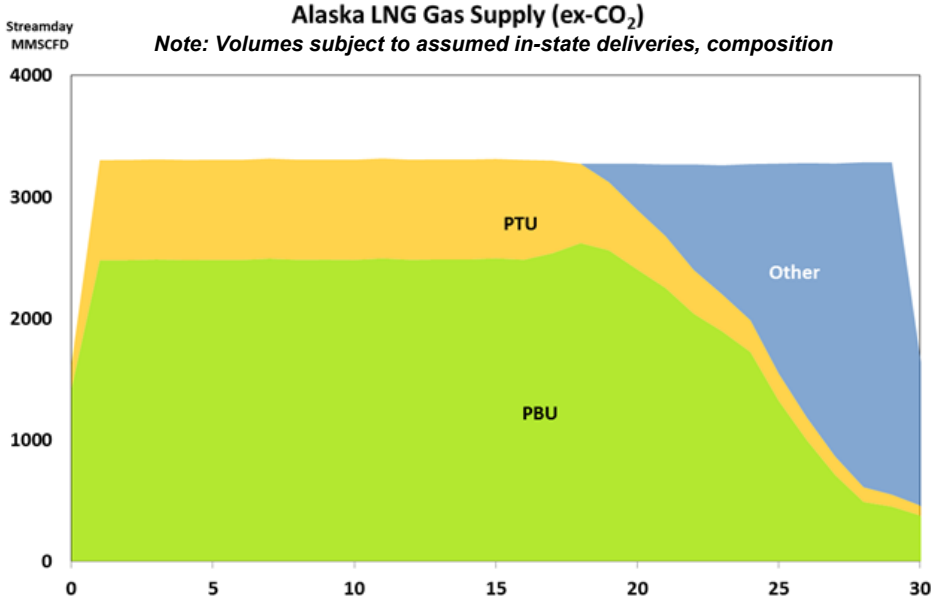
- Evaluating weld development / procedures
- Testing alternative coating designs / applications
- 42” pipeline material testing in progress
- 48” pipeline materials ordered for testing

Working with federal pipeline regulator (PHMSA) to confirm design basis and align on special permit conditions

Continued data exchange / collaboration with AGDC on route, design, execution planning and in-state offtakes



42” Pipeline Testing Program



	42” Pipeline	48” Pipeline
Design Peak Capacity from GTP	3.3 BCFD	3.3 BCFD
Peak to LNG (Annual Average)	2.8 BCFD (2.7 BCFD) *(Net of fuel and in-state gas)*	2.8 BCFD (2.7 BCFD) *(Net of fuel and in-state gas)*
Capex / Opex	Lowest capex	Higher capex, lower opex
Compression	Base: 8 stations - Operating redundancy	Base: 4 - 5 stations - Less fuel
Expansion	Single train expansion with 10 additional stations	Single train expansion with 5 additional stations
Construction Risk	More construction risk than typical pipelines in U.S. – pipe 22% heavier than other NA gas pipelines	More construction risk than 42”, 59% heavier than typical - more equipment, gravel, truckloads - CI crossing complexity
N American Content	Available for non-strain based design sections (~ 80 - 90%)	No relevant experience suitable for Alaska today

Gas Treatment Plant Update

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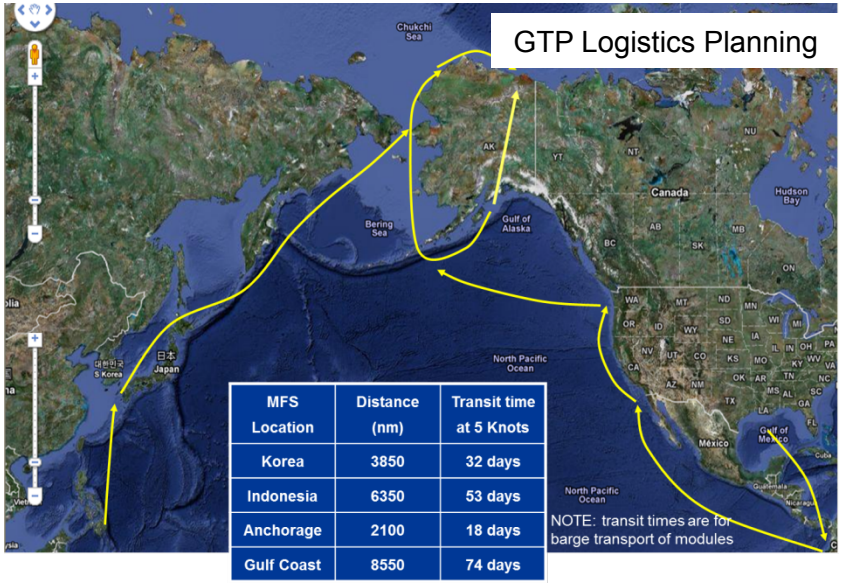
Completed geotechnical assessment, confirmed soils, access to gravel, water resources

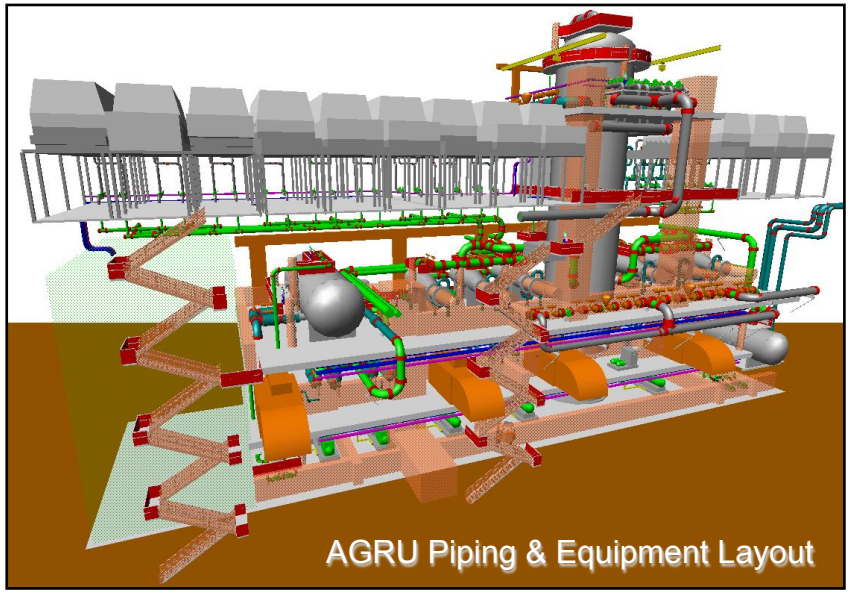
Using 3D modeling of Acid Gas Rejection Unit (AGRU), CO_2 compression piping and equipment layout for cost estimates and constructability.

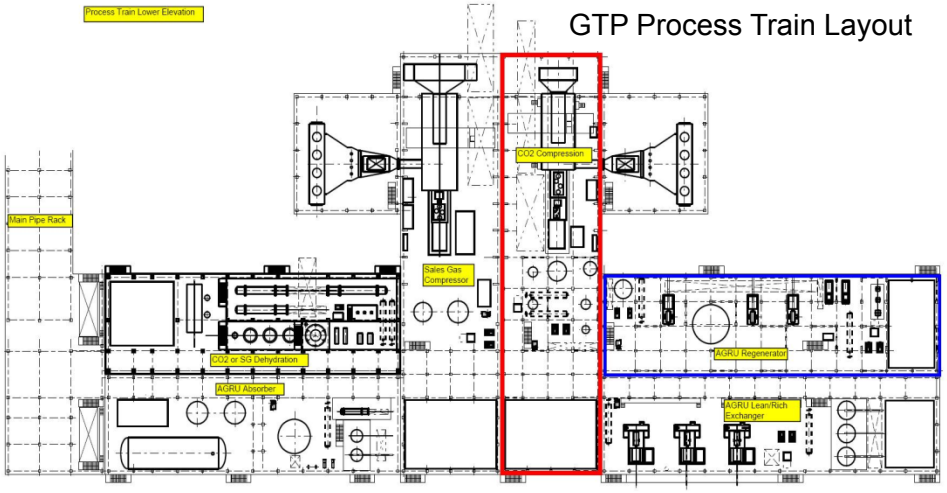
Working integrated design issues with PBU

Working with FERC to define engineering information required to complete NEPA process



MFS Location	Distance (nm)	Transit time at 5 Knots
Korea	3850	32 days
Indonesia	6350	53 days
Anchorage	2100	18 days
Gulf Coast	8550	74 days





Integrated Logistics Update

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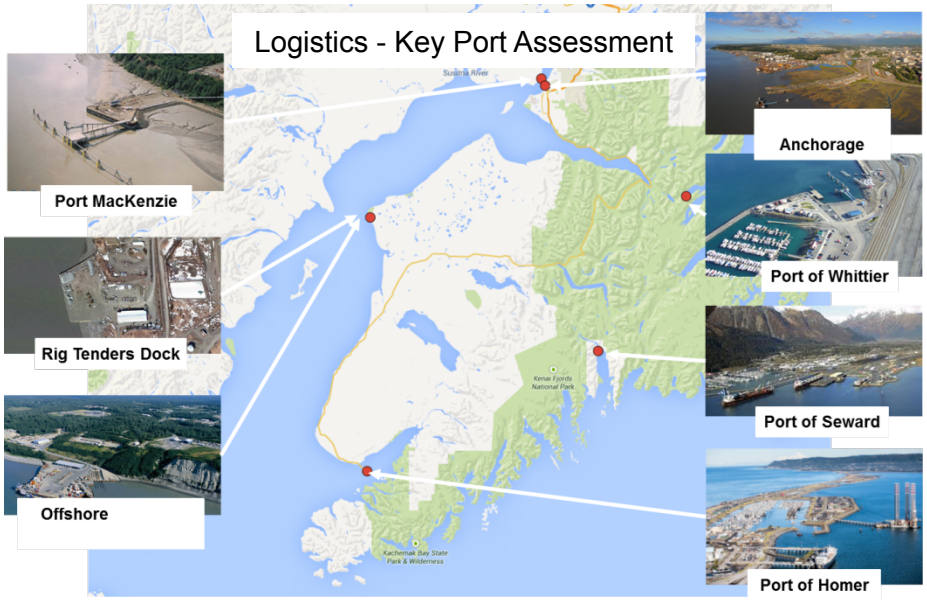
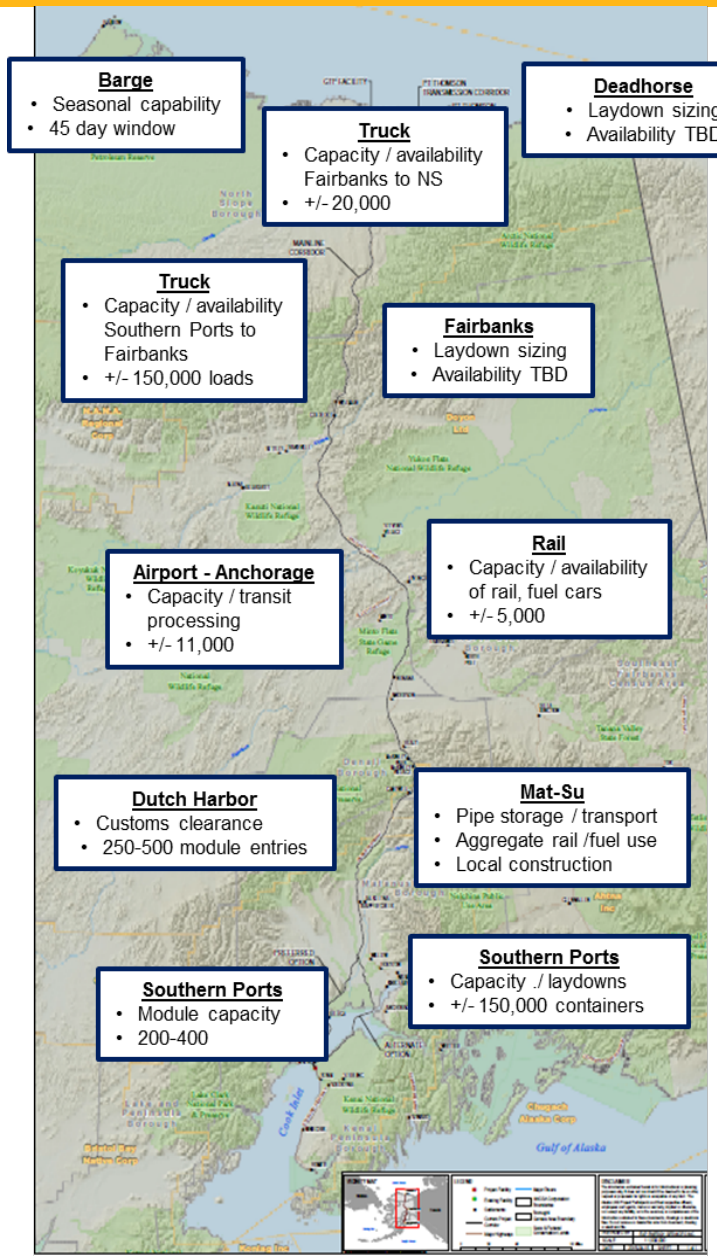
Initial logistics and infrastructure analysis complete (roads, trucks, ports, marine vessels, airports, rails, fuel, etc.)

Preliminary findings include:

- Sufficient capacity in key ports with some modernization already planned
- Potential pinch points identified with Alaska based trucking, railroad pipe cars, air transport capacity for personnel, camp infrastructure and the Alaska Marine Highway – developing plans to resolve
- Jones Act compliant vessels for pipe, break-bulk cargo are limited

Modeling costs / schedule implications of existing infrastructure





Integrated Labor Update

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Progressing labor analysis with key stakeholders:

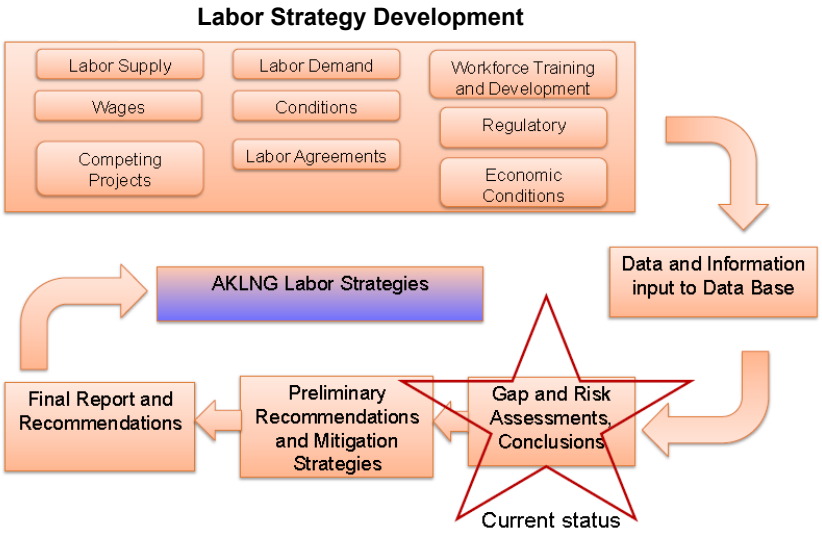
- Labor unions and merit based associations,
- Alaska Department of Labor, State representatives
- Alaska Native regional and village corporations
- Federal officials, national databases

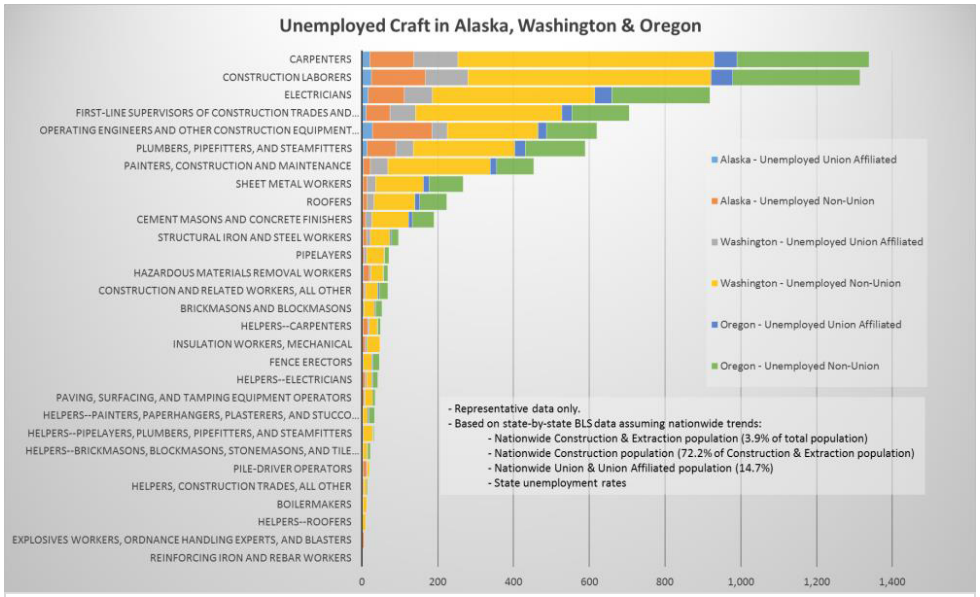
Initial Focus on 9 Key Craft Types: Boilermakers, Carpenters, Electricians, Insulators, Iron Workers, Laborers, Operating Engineers, Pipefitters, Teamsters

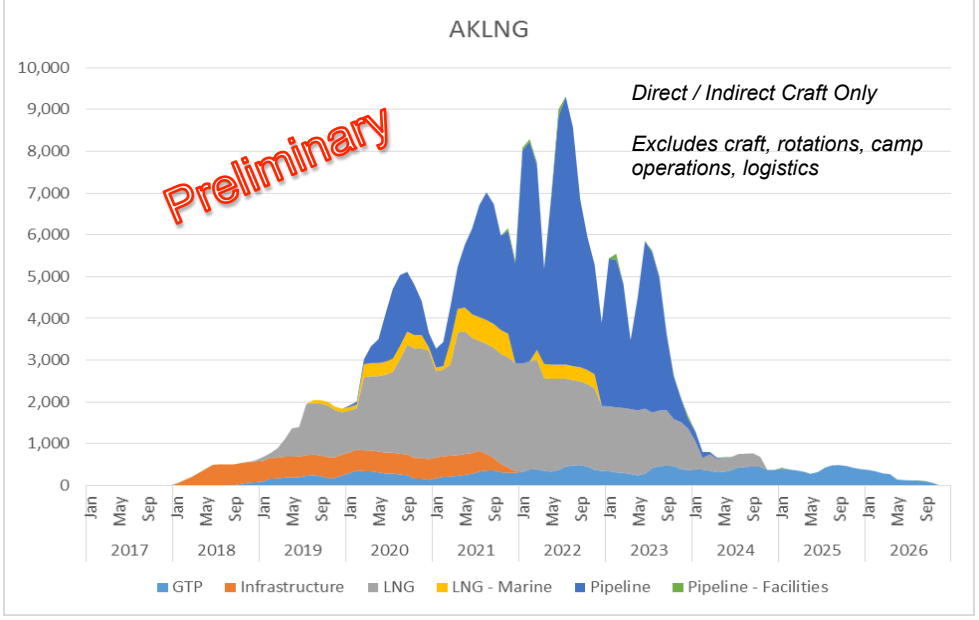
Maximize use of qualified Alaska Hires

Work in progress (complete by YE15), early findings:

- Construction demand significantly greater than currently available Alaskan workforce
- Access to all sources of Alaskan labor required
- Risk from competing industrial demand to be mitigated







Alaska LNG by-the-numbers

Alaska LNG™

Technical and field progress

- $350M spent on pre-FEED
- ~600 acres purchased in Nikiski, Alaska
- 135 full-time personnel on Alaska LNG Project
- 200+ people in the field (80 scientists, 300k hrs)
- 40,500+ acres of cultural surveys
- 148,000+ feet of shallow seismic completed
- 580+ stream / wetlands targets studied
- 250 boreholes drilled
- 150+ environmental site assessments completed
- 2,000+ helicopter flying hours, 87,000+ miles driven
- 1,100+ field check points set/confirmed

Regulatory

- 2 DoE conditional export licenses (FTA / non-FTA)
- 10,000+ pages of regulatory filings

Engagement

- 90+ community outreach events
- 100s of Alaska entities involved in logistics and labor studies
- ~700 Alaska businesses – information sessions
- 40+ meetings with Alaska Native regional and village corporations and tribal entities

Our Team at Work

Alaska LNG™