

# THE ALASKA RAILROAD

## LNG BY RAIL: Concepts & Logistics

February 19, 2015



[AlaskaRailroad.com](http://AlaskaRailroad.com)



# Presentation Agenda

1. Alaska Railroad Corporation  
Overview/Capabilities
2. LNG Logistics: key location options
  - a. Port Mackenzie
  - b. Houston
  - c. Pittman
  - d. Anchorage
  - e. Crown Point
  - f. Fairbanks
3. Asset Requirements
4. ISO Container Data
5. Concept of Operations/Logistics



# Alaska Railroad Corporation Overview:

## Organization (following State purchase)

- Independent corporation owned by State
- Managed by a seven-member board of directors appointed by Governor
- Mandated to be self-sustaining, responsible for financial and legal obligations

## Operating Data

- 656 Total miles of track
- 1,381 Freight cars (owned & leased)
- 45 Passenger cars
- 51 Locomotives

## Operating Statistics (Jan - Dec 2014)

- 470,675 passengers
- 4.92 million tons of freight

## Employees (January 2014)

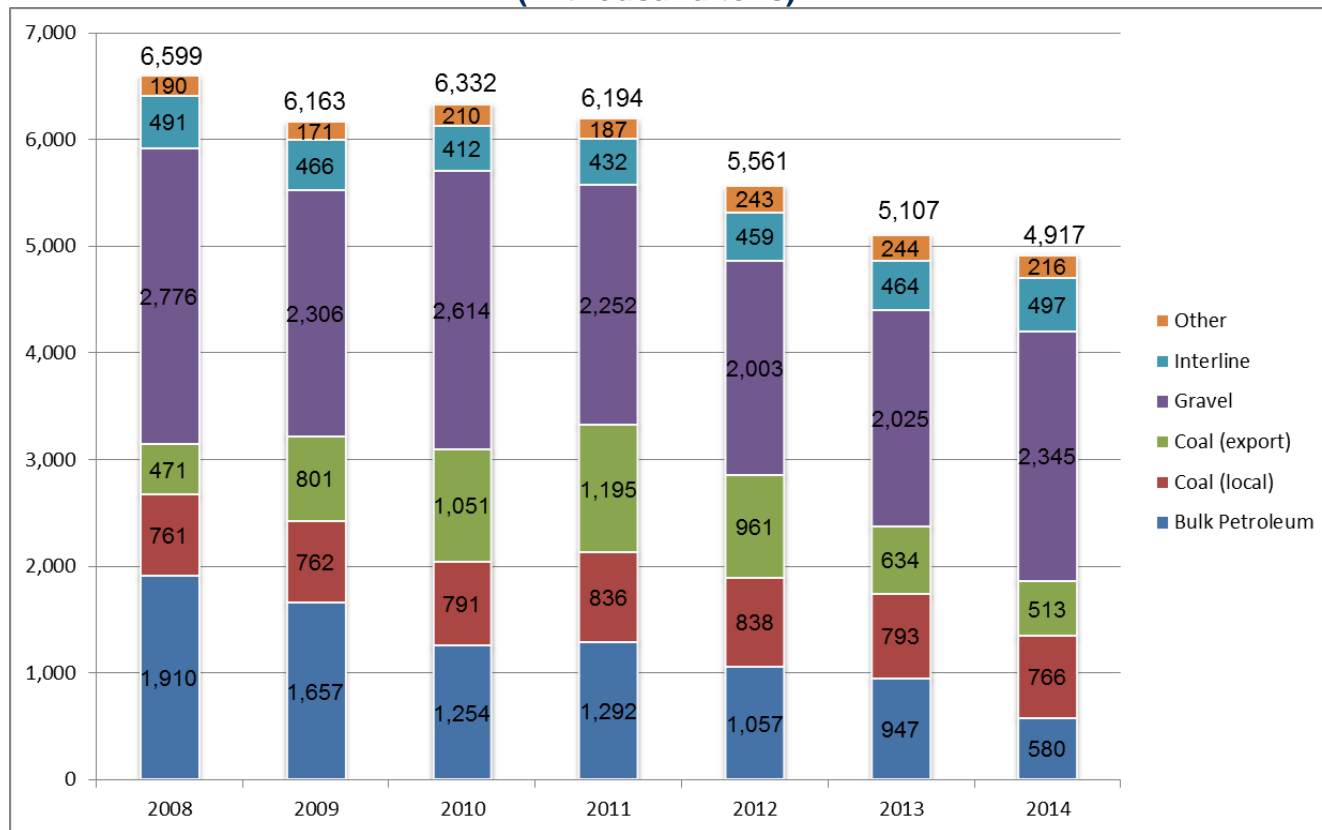
- 575 year-round employees
- 425 members of 5 unions



# Alaska Railroad Corporation Overview:

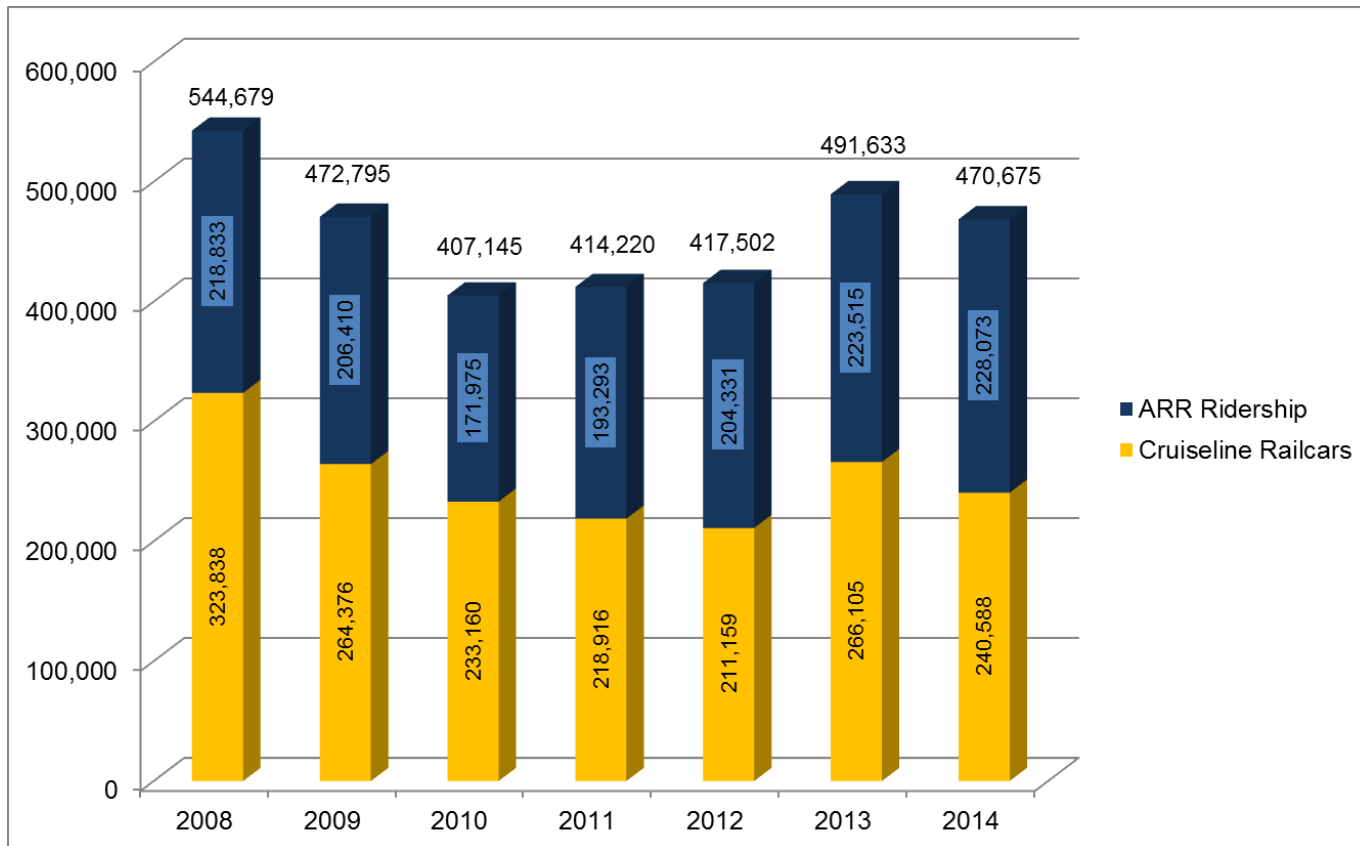
## ARRC Freight

(in thousand tons)



# Alaska Railroad Corporation Overview:

## ARRC Passenger Service



# Alaska Railroad Corporation Overview:

## Alaska Railroad Real Estate

- Property Development
- Leases and Permits
- Dockage and Wharfage
- Facilities Maintenance and Management
- Revenue from Real Estate activities allow ARRC to weather financial cycles.



**Top: Ship Creek basin includes highly valuable leasable land.  
Bottom: Seward freight dock viewed from waterside catwalk.**

# *Alaska Railroad Commitment*

The Alaska Railroad is committed to supporting the economic development and continued growth of the State of Alaska. Providing affordable energy to Fairbanks and the Interior is of paramount importance. The Alaska Railroad stands ready to provide logistics solutions as part of the LNG supply chain.



Generic outline of LNG on rail operation

ARRC mainline

LNG operational siding

100 LF Min.

LNG loading track

ISO tank staging

90 LF Min.

LNG Liquefaction Facility





# Location Options

■ Fairbanks

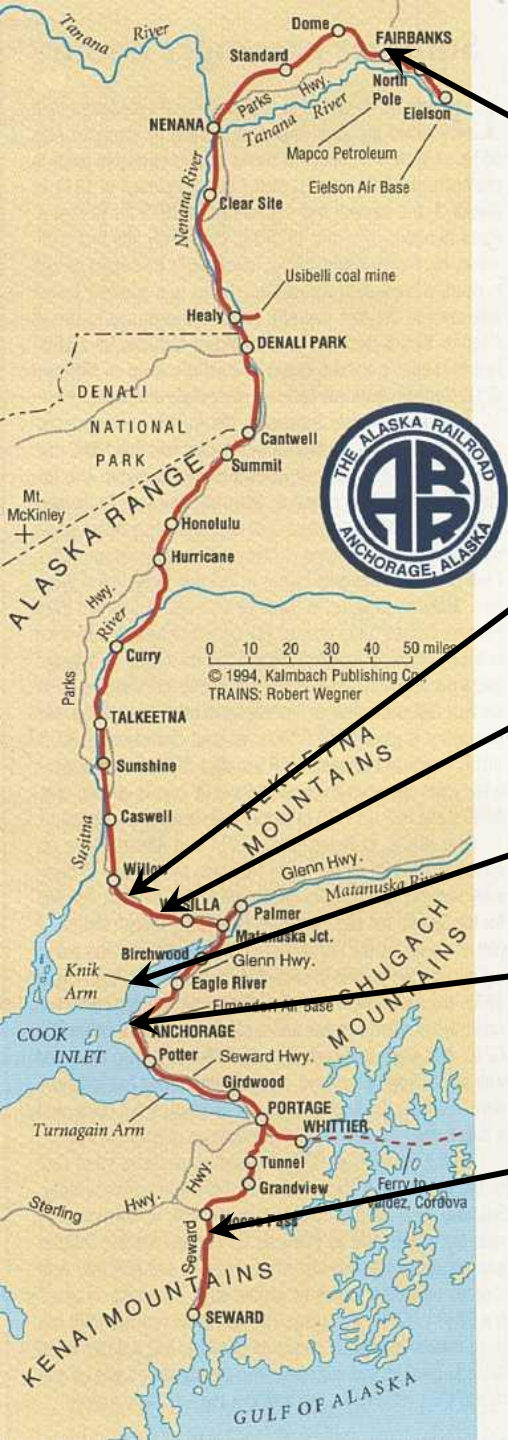
■ Houston

■ Pittman

■ Port Mackenzie

■ Anchorage

■ Crown Point

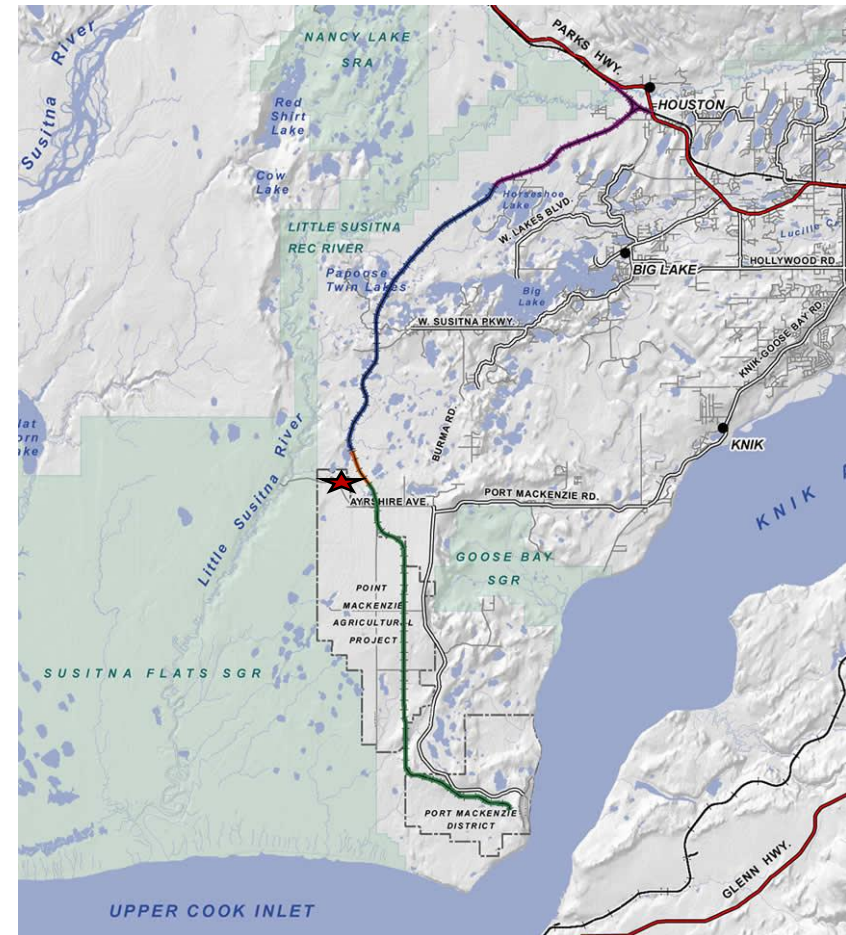


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# Locations Served within Alaska

- Port Mackenzie – rail line under construction
  - 32 miles from Houston to Port Mackenzie
  - Easy access to existing Fairbanks Natural Gas LNG facility ★
  - Potential new LNG facility at port
  - Project completion date is funding dependent



# Locations Served within Alaska

- Houston
  - 5 miles north of Wasilla at the junction of the mainline and Port Mac Rail Ext.
  - 10,000 feet of track space available
  - Will require relatively minor site improvements to support loading and unloading ISO tanks
  
- Pittman
  - 15 miles north of Wasilla on the mainline
  - 8,900 feet of track space available
  - Road accessible
  - Will require leasing land from Quality Asphalt Paving



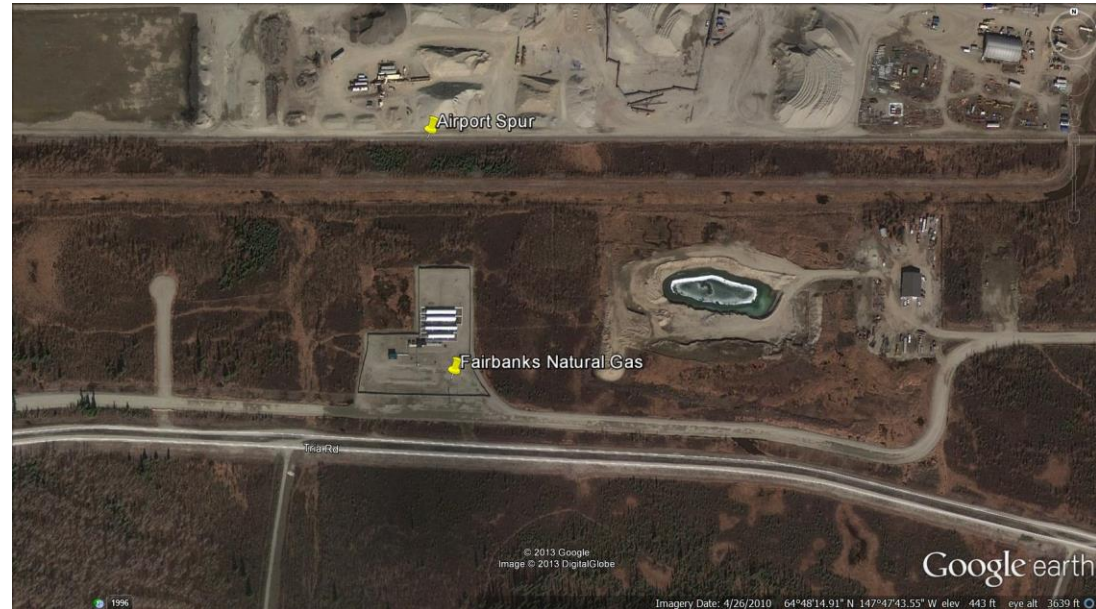
# Locations Served within Alaska

- Anchorage
  - Central point of railroad operations and headquarters
  - Full service maintenance facility
  - Potential location of an LNG liquefaction facility
- Crown Point
  - 25 miles north of Seward on the mainline
  - 3,700 feet of track space available
  - Road accessible



# Locations Served within Alaska

- Fairbanks
  - Northern operations center
  - Rail access adjacent to new planned FNG storage tank
  - Service industries in Fairbanks and North Pole



# Assets Required

## Alaska Railroad Requirements

- Service start up volumes with current equipment
- To meet 2017 full demand
  - Sixty-six 89' flatcars to carry ISO containers (purchase or lease)
  - Three additional locomotives

## Shipper Requirements

- Liquefaction plant
- ISO containers
- Material handling equipment (Forklift/Top Pick)



# ISO Container Data

Transport containers for moving LNG

## ISO container

- 39,958 lbs. payload
- 11,000 gallons
- Cost of ISO tank container is \$135,000 to \$145,000
- 18 months manufacturing time
- Can move 2 ISO containers on an 89' flatcar



## Assumptions:

- Fairbanks annual gas demand in 2016 of 2.10 BCF and 4.38 BCF in 2017 (excluding existing FNG)
- Fairbanks annual gas demand in 2016 of 2.85 BCF and 5.18 BCF in 2017 (Including existing FNG)

## Concept of Operations:

- Minimum of 60 ISO containers per train, from all locations except Anchorage
  - Operates every 4 days
- ISO containers from Anchorage moved in scheduled freight service to Fairbanks



## Concept of Operation (Cont.):

- LNG ISO containers trucked to Houston/Pittman from Port Mackenzie/FNG plant, if rail extension not complete, transload to rail
- LNG ISO containers trucked to Crown Point from Nikiski, transload to rail
- Shipper responsible for loading and unloading ISO containers

# Summary

- ✓ Alaska Railroad has significant existing infrastructure and capacity
- ✓ Extensive experience in moving bulk commodities
- ✓ Highly cost-effective option vs. truck shipments
- ✓ Safe, off highway transportation network
- ✓ ISO tanks offer effective asset utilization and resale option
- ✓ Available Alaska Railroad real estate
- ✓ Near-term logistics solution
- ✓ Optimistic that Alaska Railroad will gain approval in near-term from regulators to move LNG in ISO tanks by rail

