

# **15 Schemes**

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House District 12

Co-Chair, House Resources Committee

# Two Questions For Alaska

- 1) How best to provide secure, less expensive energy to Alaskans?
- 2) How to best monetize the natural gas resource of the North Slope to maximum benefit?



# Top Fifteen Scheme List

- 1) AGP- Valdez Option
- 2) AGP- Alberta Option
- 3) Alaska Stand Alone Pipeline (ASAP)
- 4) All Alaska Gas Line
- 5) Arctic Fox (FPC/Energia Cura)
- 6) LNG Trucking #2
- 7) LNG Trucking #1
- 8) Electrical Generation and  
Transmission via DC current line
- 9) GTL (North Slope or Southcentral)
- 10) North Slope Methanol
- 11) North Slope Methanol to Gasoline
- 12) LNG Tankers from Prudhoe Bay
- 13) North Slope to Fairbanks Pipeline Hub Project
- 14) Convert TAPS to Low Pressure Gasline
- 15) Reinject it all to get more oil

# Issues in Context

- Cook Inlet Decline or not?
- Interior/Bush dependence on diesel
- High cost of electrical power statewide
- Fairbanks air quality PM2.5
- Continued NS oil production
- Decoupling of oil and gas taxation
- Chemical composition of NS gas
- Resolution of Point Thomson unit leases
- Oil taxes
- Susitna Dam adding 300MW of generating capacity

# North Slope Natural Gas Composition

# Alaska Gasline Project–Valdez Option

Sponsor: TransCanada/Exxon under AGIA

Concept: A 4.5Bcf/day 48” steel pipeline from Prudhoe Bay to Valdez with a LNG plant in Valdez along TAPS route to supply LNG tankers for export

## Pros

- Large quantities for export
- Offtake points for instate use along pipe corridor with distance sensitive rates
- Spur line to Southcentral possible
- Ice free deepwater port

## Cons

- It's under AGIA
- LNG overcapacity worldwide
- Chinese shale gas potential unknown
- Less gas available for reinjection

# Alaska Gasline Project–Alberta Option

Sponsor: TransCanada/Exxon under AGIA

Concept: A 4.5Bcf/day 48” steel pipeline from Prudhoe Bay to Alberta to service North American market

## Pros

- Large quantities for export
- Offtake points for instate use along pipe corridor with distance sensitive rates
- Spur line to Southcentral possible
- Could be routed to Kitimat for export

## Cons

- Shale gas has usurped the market

# Alaska Stand Alone Pipeline (ASAP)

Sponsor: Alaska Gasline Development Corp (AGDC)

Concept: A gas conditioning facility in Prudhoe Bay feeding a .5Bcf/day, 737 mile mainline 24" steel pipeline from Prudhoe Bay to Point MacKenzie, aka "bullet line", with a 35 mile 12" steel Fairbanks lateral pipe

## Pros

- Long-term stable energy supply for Anchorage/Mat-Su/Kenai/Fairbanks
- Spare capacity for additional industrial users
- Market competition against bigger line

## Cons

- Volume constrained by AGIA
- Capacity exceeds demand by 100%
- Condensates add to CAPEX

# All Alaska Gas Line

Sponsor: Alaska Gasline Port Authority (AGPA, Bill Walker)

Concept: A 4.5Bcf/day 48" steel pipeline from Prudhoe Bay to Valdez with a LNG plant in Valdez along TAPS route

## Pros

- Large quantities for export
- Offtake points for instate use along pipe corridor with distance sensitive rates
- Spur line to Southcentral possible
- Ice free deepwater port

## Cons

- AGPA has no gas, customers or money to contribute
- AGPA wants SoAK to build it
- ~40 billion dollars cost

# Arctic Fox (FPC/Energia Cura)

Sponsor: Fairbanks Pipeline Company/Energia Cura [www.fairbankspipelinecompany.com](http://www.fairbankspipelinecompany.com)

Concept: A 19Bcf/year, 418 mile 12" steel pipeline from Prudhoe Bay to Fairbanks with an option for an 18" line to Livengood with flange for a 328 mile line to Southcentral to cover future shortage

## Pros

- Uses existing compression at Prudhoe Bay
- Open season raised 19Bcf/year
- Not asking for state financial assistance
- Good market growth potential

## Cons

- Lacking investors
- Competes with ASAP
- Overcapacity for existing market

# LNG Trucking #1

Sponsor: Pentex Alaska Natural Gas Co. [Polar LNG, LLC and Fairbanks Natural Gas]

Concept: 3.8 mile NS pipeline to an LNG liquefaction plant at Deadhorse, truck via Dalton Hwy with 35 total trucks to LNG vaporization plant in North Pole to serve existing customer base.

## Pros

- Can start quickly
- Existing customer base
- Existing trucking operation from Point MacKenzie

## Cons

- No anchor tenant
- May require state funding



# LNG Trucking #2

Sponsor: GVEA/Flint Hills Resources Alaska

Concept: LNG plant on North Slope, truck LNG down Dalton Highway,  
Regasification plant in North Pole

## Pros

- Large anchor tenants
- Delivers gas at cost to lower cost of electricity
- Refining costs decrease
- Funded by private industry
- Develops future customer base

## Cons

- No existing local distribution

# HVDC Transmission Line From Slope

Sponsor: None presently

Concept: Build a 2000 MW gas-fired electrical power plant on the North Slope with a 500 mile HVDC power transmission line to connect to the Alaska electrical grid.

## Pros

- Cheaper than a gas pipeline, \$1.2 B just to Fairbanks

## Cons

- Gas conditioning plant required
- NGL's not used
- Requires upgrading of the grid beyond Fairbanks
- Delivers sizeable overcapacity to existing grid.

# Gas to Liquids (GTL) Plant

Sponsor: None presently

**Concept: Build a GTL plant and convert North Slope gas to diesel/JetA/other distillate fuels for distribution or export. The plant could be built either on the NS or near tidewater.**

## Pros

- Liquids could be injected into TAPS the saving the cost of a gas pipeline
- Highest GVPP for gas if built on the the Slope
- Increases crude value
- Diluent for heavy oil

## Cons

- Expensive to build
- Costly to operate
- Relies on relatively cheap gas compared to oil

# North Slope Methanol

Sponsor: None presently

Concept: Build a methanol plant at Prudhoe and transport via TAPS.

## Pros

- No gas pipeline
- Densifies the energy of the gas for transport

## Cons

- Corrosion issues in TAPS due to water retention
- Upsets existing refinery processes.



# North Slope Methanol to Gasoline

Sponsor: None presently

**Concept: Build a plant to convert natural gas to methanol then gasoline for shipment in TAPS.**

## Pros

- Utilizes existing TAPS for transport
- Raises crude quality

## Cons

- Requires inexpensive (compared to oil) gas.
- Plant cost at Prudhoe high
- Possible vapor pressure issues with TAPS

# LNG Tankers from Prudhoe Bay

Sponsor: None presently

**Concept: Use ice breaking class LNG tankers to transport LNG to markets from the North Slope year-round.**

## Pros

- Moves modest quantities of gas to an export market.

## Cons

- Harbor facility required.
- Major dredging required to construct channel.
- Ice breaking tankers discarded with the SS Manhattan.

# North Slope to Fairbanks Pipeline Hub Project

Sponsor: David Gottstein

Concept: SoAK partner with Transcanada, renegotiate AGIA, build 48" gas pipeline to Fairbanks. Allow local utilities and other pipeline companies to tie into hub with further projects

## Pros

- Owns rights to excess capacity over exports

## Cons

1. Depends on a lot of unknowns to happen

# Convert TAPS to Low Pressure Gasline

**Sponsor:** None presently though option was considered by BP in 2010 study

**Concept:** Convert the existing TAPS to a large volume but low pressure gas pipeline and construct a new smaller pipe for NS oil production.

## Pros

- Utilizes existing infrastructure

## Cons

- Limits future oil production upside on the North Slope

# Reinject it all to get more oil

**Sponsor:** All of the major producers reinject gas

**Concept:** Reinjection is currently used to keep reservoir pressures high and maintain oil production at levels higher than they would otherwise be.

## Pros

- Maintains higher levels of currently more profitable oil recovery
- Gas will be available for extraction at a future date.
- No new infrastructure required.

## Cons

- Royalties on gas will be deferred.
- Doesn't solve the "cheaper energy for Alaskans" dilemma



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