



Fairbanks  
Town Hall Meeting  
Interior Energy Project

November 4<sup>th</sup>, 2015

# Agenda Items

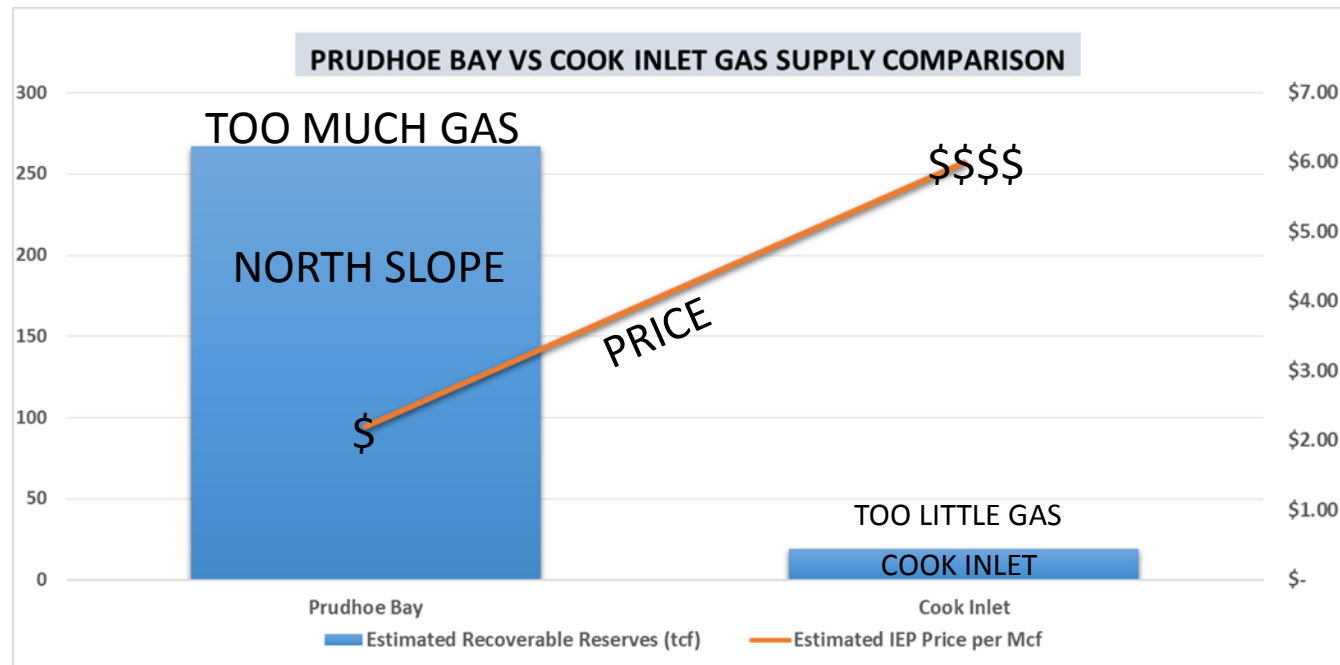
- Three E's: Experience, Expertise & Economics
- Where to build the plant?
- What's the plant look like?
- Will it make enough LNG?
- Who will pay for it; Capital Stack?-CAPEX
- Revenue Requirement Definition-OPEX
- Delivered Price
- Experience

# Three Es

- Experience
  - Same five people
  - We are the only finalist doing this now
  - We are the only finalist that has ever done this
  - We are the only finalist with over 100 years of North Slope Experience
- Expertise
  - Plant design benefits from cold ambient temps - production increases during winter when it is needed
  - Spectrum Plant is 30% larger than required
  - Reduces need for storage
  - Eliminates the need for a third train later in the project
- Economics
  - Meets the Governors goal of \$10/MMBtu gas delivered to Fairbanks
  - Cheaper than Cook Inlet supplied LNG
  - Lower prices with increased volumes

# Location, Location, Location

- Cook Inlet or Prudhoe Bay?
- A Basic Comparison



Where to shop for gas? Cook Inlet reached \$8 recently, Demand and Supply are very tightly balanced. Two Cook Inlet producers are pursuing the IEP market in order to sell more gas at this high price. They need a new market or else the price will fall in their current market.



Pump Station #1

Flow Station #3

LNG Plant Location

Colleen Lake

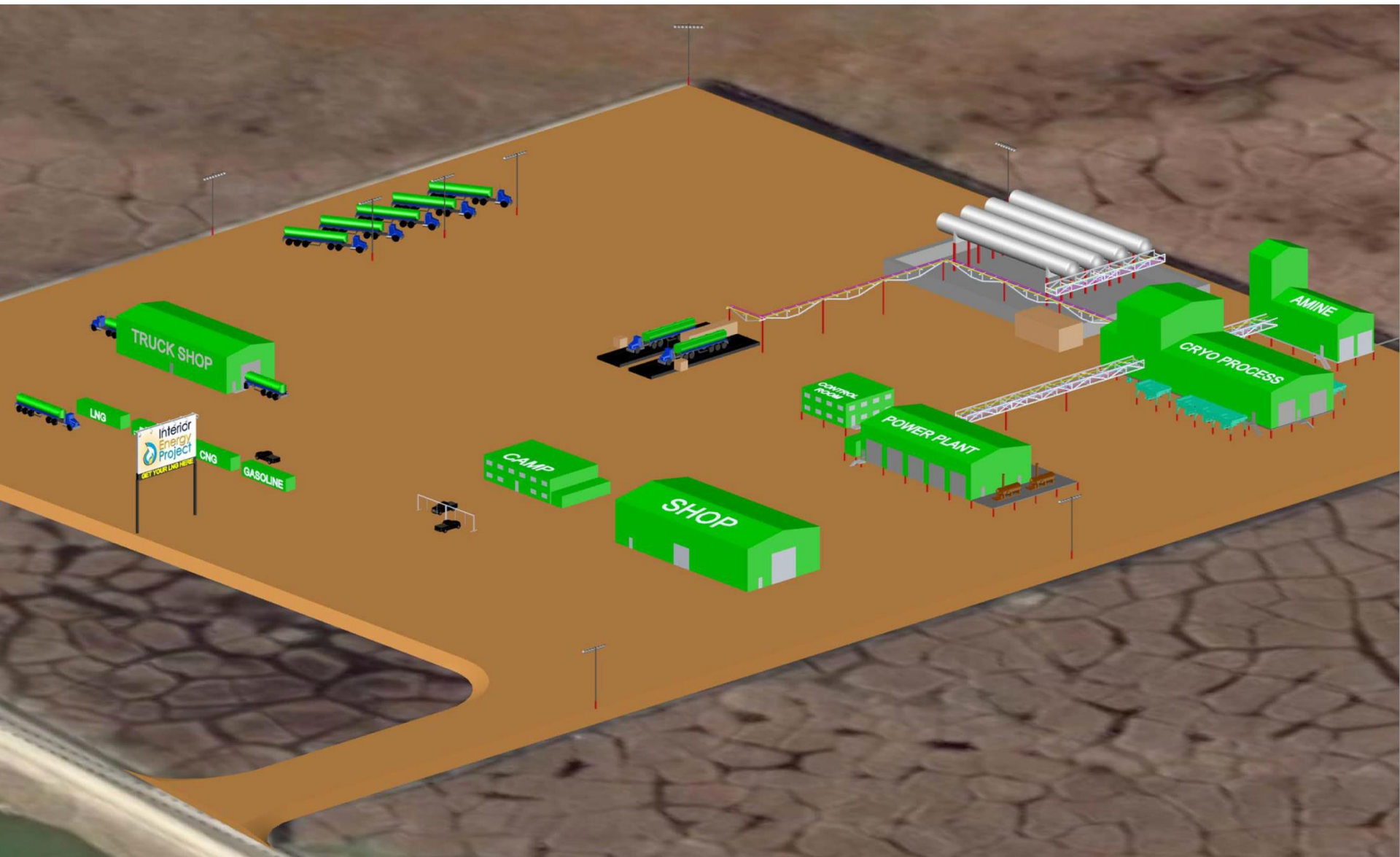
DEAD HORSE

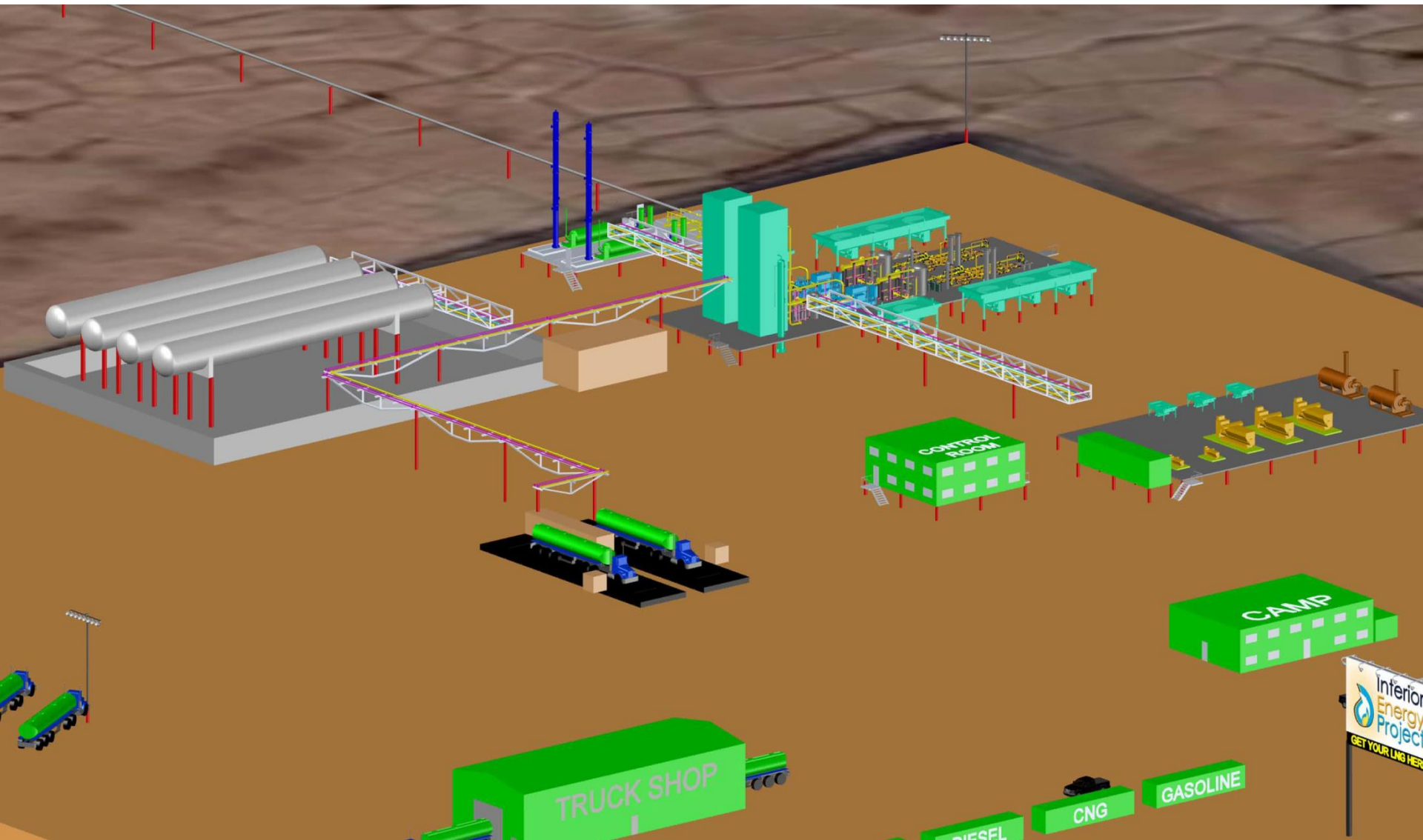
Deadhorse Airport

Sag River

# Pad installed in 2014

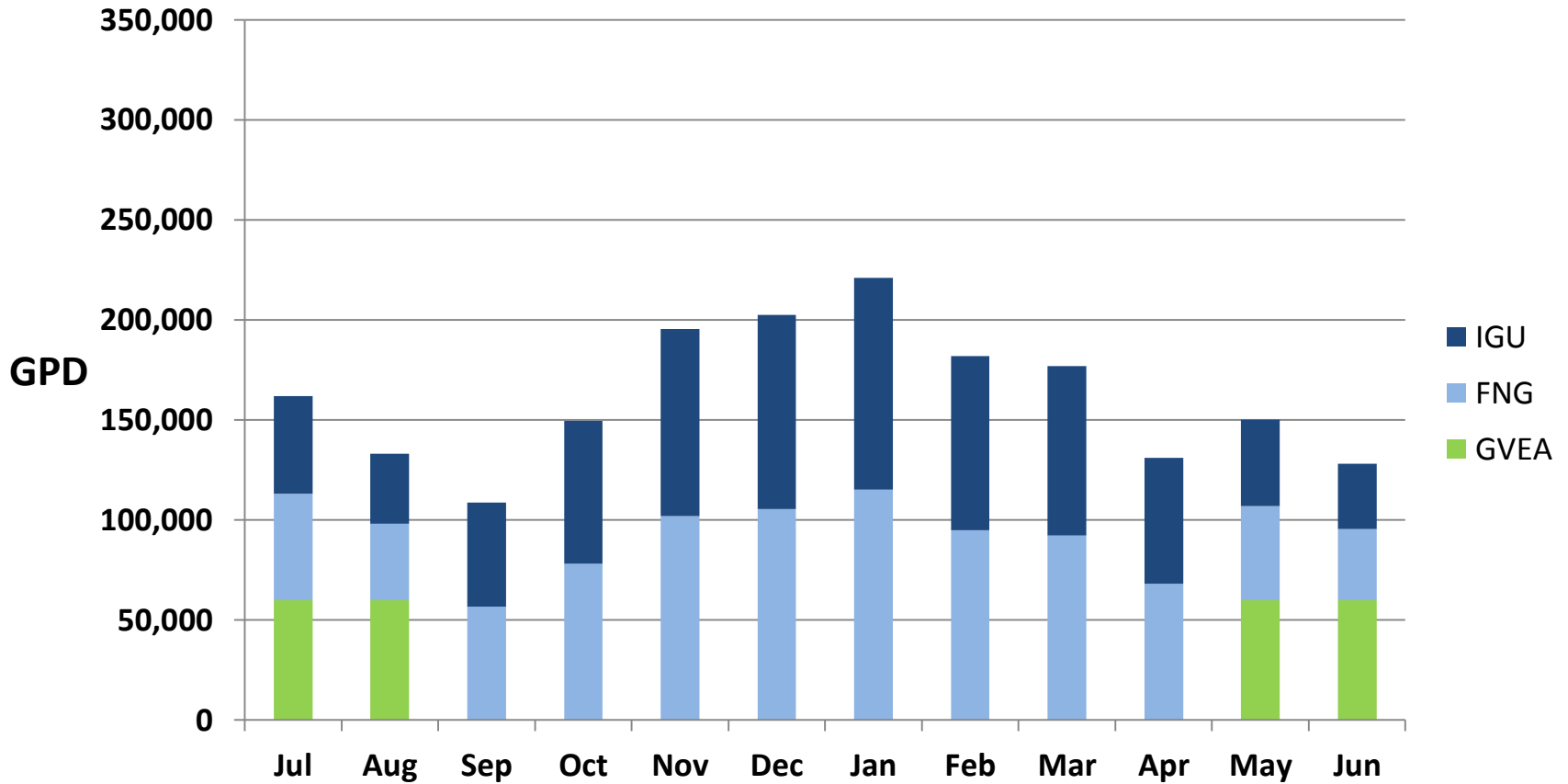




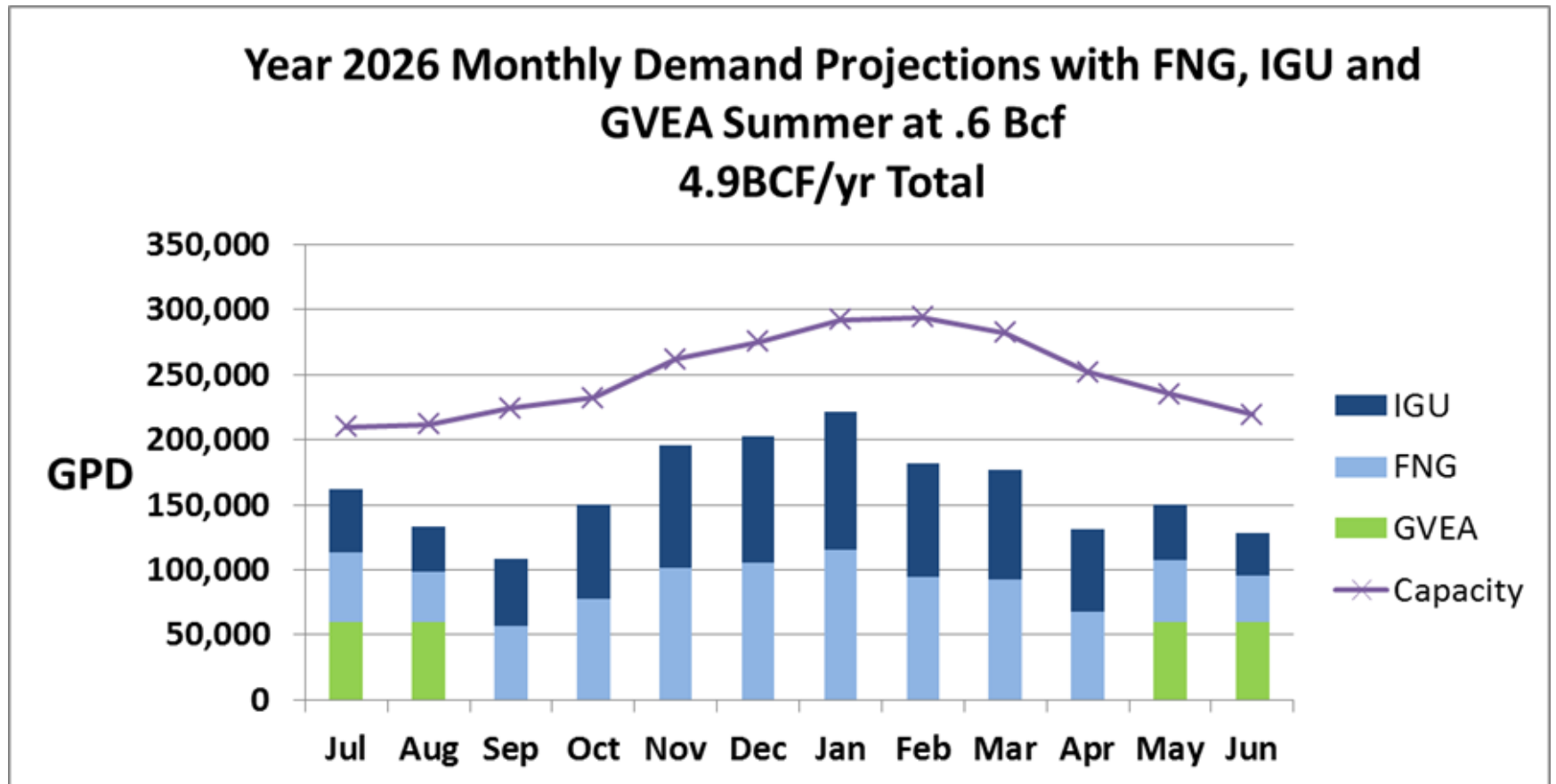




# Year 2026 Monthly Demand Projections with FNG, IGU and GVEA Summer at .6 Bcf 4.9BCF/yr. Total



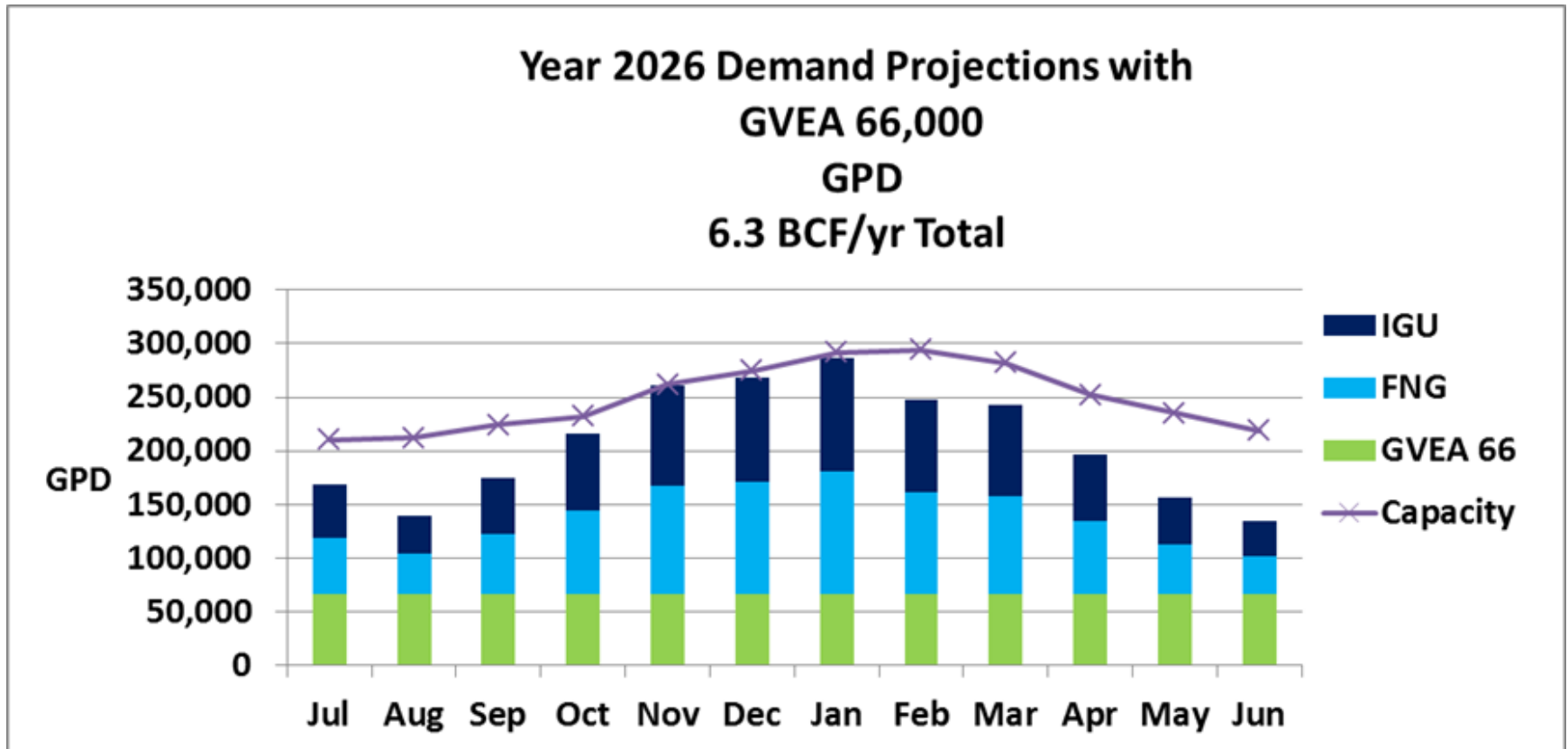
# LNG Demand versus Production Capacity



The 30% Bonus Capacity from Spectrum assures there is adequate capacity through 2026

# The GVEA Contingency

## Just In case.... = Lower Price



Two of Spectrum's trains are sufficient, the third train is never needed.

# Who Pays? Capital Stack?

- Spectrum LNG invests \$5MM in equity
  - Has to earn a return
- AIDEA invests \$30MM in equity from SB23
  - No return required (**Thanks to the State of Alaska**)
- AIDEA lends \$50MM in SETS loan funds from SB23
  - No payments for first 5 years, then 25 year amortization at 1% (again, **thank the Legislature**)

# Revenue Requirement Model

- Sum of:
  - Contracted OPEX with customary index escalators
    - O&M expenses, labor, ownership risks, management fee
  - Cost of debt service
    - To be determined by AIDEA and is a pass through
    - Doesn't start until year 6
  - Cost of fuel gas
    - To be determined by the cost of gas and plant efficiency

# Price Delivered to Fairbanks

## Current Estimate

- **Cost of Gas \$2.10/MMBtu**
  - Two producers are currently offering gas for this project at this price
  - There are two others yet to weigh in
- **Liquefaction Fee = Revenue Requirement divided by volume sold \$2.73/MMBtu**
- **Fuel Gas \$.23/MMBtu**
  - Gas cost and plant efficiency
- **Trucking Trailers \$.69 + Towing \$4.25/MMBtu**
  - Trailers should be owned, trucks should be hired
- **Total Price of LNG Delivered \$10.00/MMBtu**

# Go to the Experts

- SME/Sancus/SST are vendors to GE and Shell
- GE looks a lot like MWH, large and expensive
- Improved MR technology
- Higher Thermodynamic Efficiency
- Process warranty
- Salof Genesis
- Other benefits to SST
  - Complete prior assembly at fab shop
  - Reduces field work
  - Latest technology



## 66,000 GPD LNG PLANT MIXED REFRIGERANT CYCLE



### Our Success

The plant was installed and placed in commercial operation in approximately 13 months from project kick-off.

Performance test was successfully passed during the initial 24 hours of operation with production of over 75,000 GPD of LNG and power consumption of less than .75 KW/gal.

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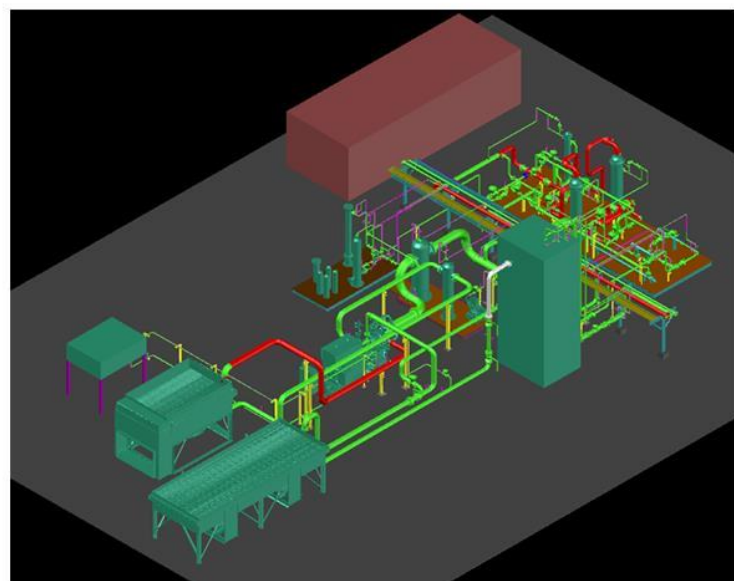


# SST Process Solutions, LLC

## Mixed Refrigerant LNG Cycle

The MCR cycle is designed to minimize compression power, and is optimized by using a specific refrigerant mixture for each standardized plant for customized performance.

SST has developed a proprietary MCR process which is contained in a per-lite filled cold box, simplifying installation and optimizing thermal performance.

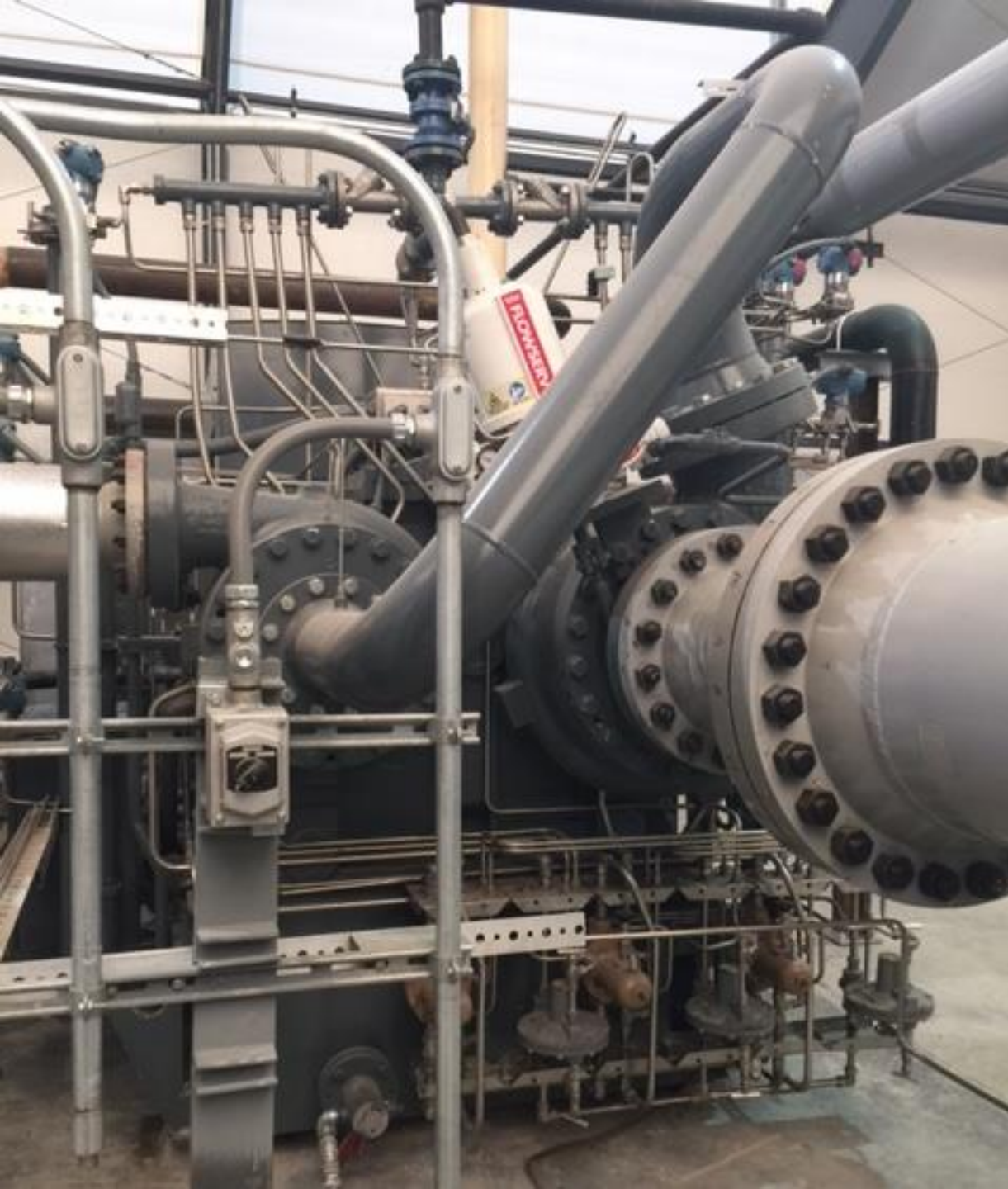


## Design Flexibility

The SST designs is very flexible allowing easy integration of heavy component removal or recovery as a saleable product; while also easily meeting any desired LNG specification. We can also integrate Nitrogen rejection and product fractionation if desired.

An Ortloff process performance guarantee can be offered if desired

*"From Concept to Reality" in 13 months!*





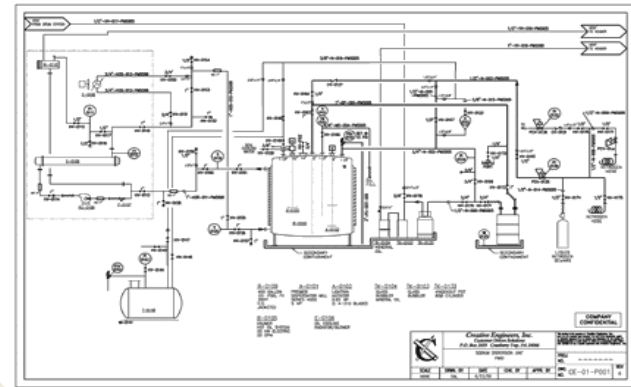








SME/SST  
Process Design  
and  
Optimization



Desert Gas Field  
Support, Plant  
Operations  
Support

**Spectrum LNG**  
Developer/Owner/Operator

Conam –  
Project  
Management,  
Field  
Construction  
Crews, Logistics

SANCUS/SST -  
Turnkey Plant  
Construction  
and Onsite  
Assembly and  
Start up



# Ehrenberg Plant

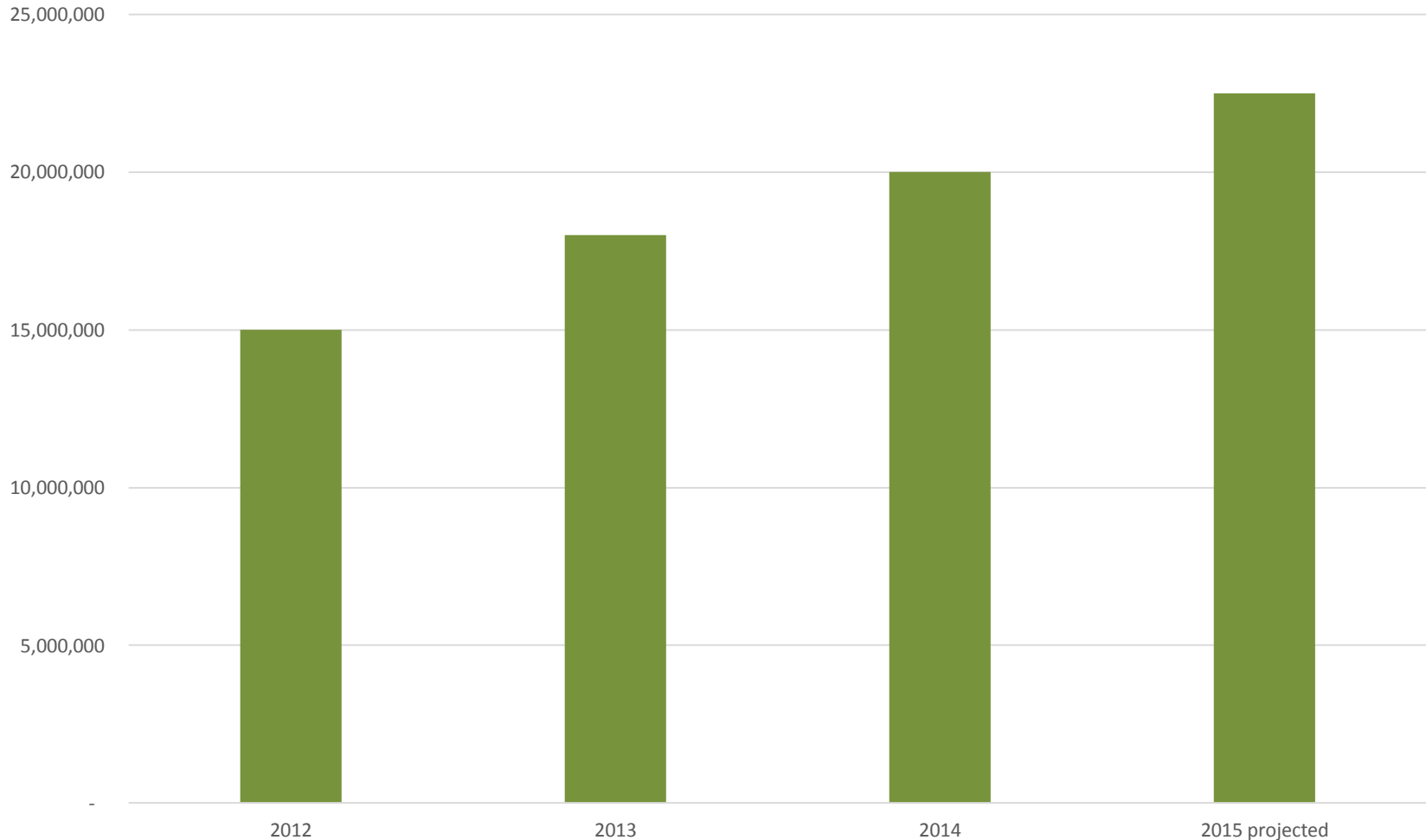
## Spectrum Self Constructed





# Spectrum History – Ehrenberg Plant LNG Production

## Annual LNG gallons produced



# Off Pipeline Distribution Project



The Ciri Talkeetna Lodge is a 212 room Lodge operating during the tourist season. Pt. McKenzie LNG Plant provides fuel year round for heating, hot water and cooking. There are 10,000 gallons of LNG storage on-site for uninterrupted supply of natural gas. The lodge receives a delivery of LNG approximately every two weeks.

# No Substitute for Experience

- Spectrum understands and has experience in all aspects of the IEP, not just the LNG production.
- We produce more LNG than all other proposers combined.
- According to the published information, we have the lowest CAPEX.
- Spectrum has chosen to focus its business on the production of LNG but can provide valuable assistance in other areas of the IEP.
- Most Experienced Management Team. Our management team has over 100 years of North Slope experience and has developed successful companies that continue today to deliver Billions of BTUs of energy daily.
- Five of our senior management team have CDLs and three have Dalton Highway experience.
- We understand and have overcome the challenges.



## Questions?