



Cook Inlet Gas Supply and Demand Update Energy Watch Leadership Meeting

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Petrotechnical Resources of Alaska



Assessing South Central Gas Needs

- ▶ Southcentral Alaska Gas Supply/Demand 2012-2020
- ▶ Possibilities to Meet Southcentral Demand
- ▶ The impact of Cook Inlet Gas Storage project in mitigating winter peak demand

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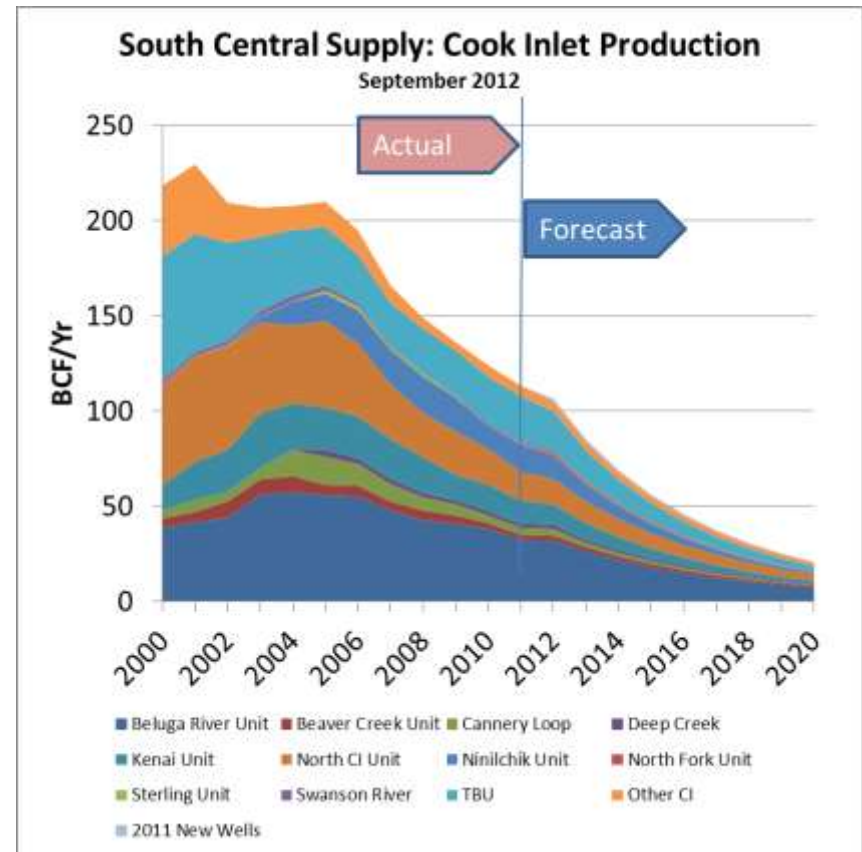
Cook Inlet Production Past and Future

2000-05: High production levels supported demand of Nikiski plants:

- ▶ Agrium Chemical Plant
 - Shut down in 2006
- ▶ LNG Exports Declined
 - License Extension ends March 2013

2014+: Production will support demand of:

- ▶ Utilities
- ▶ Refinery
- ▶ O&G / Mining Fuel



Why Do Utilities Care About Cook Inlet Gas?

▶ ENSTAR

- Cook Inlet gas provides 100% of supply
- 2012 predicted consumption: 33.6 Bcf

▶ Chugach

- Cook Inlet gas used for 90% of generation
- 2012 predicted consumption: 25 Bcf

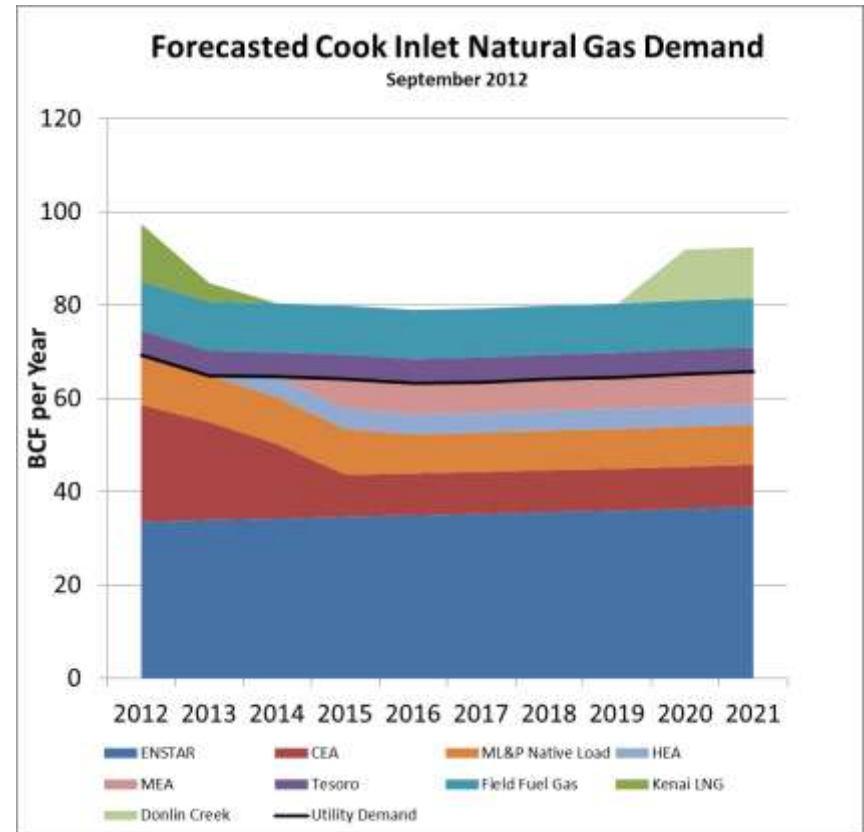
▶ ML&P

- Cook Inlet gas used for 88% of generation
- 2012 predicted consumption: 10.6 Bcf

South Central Demand

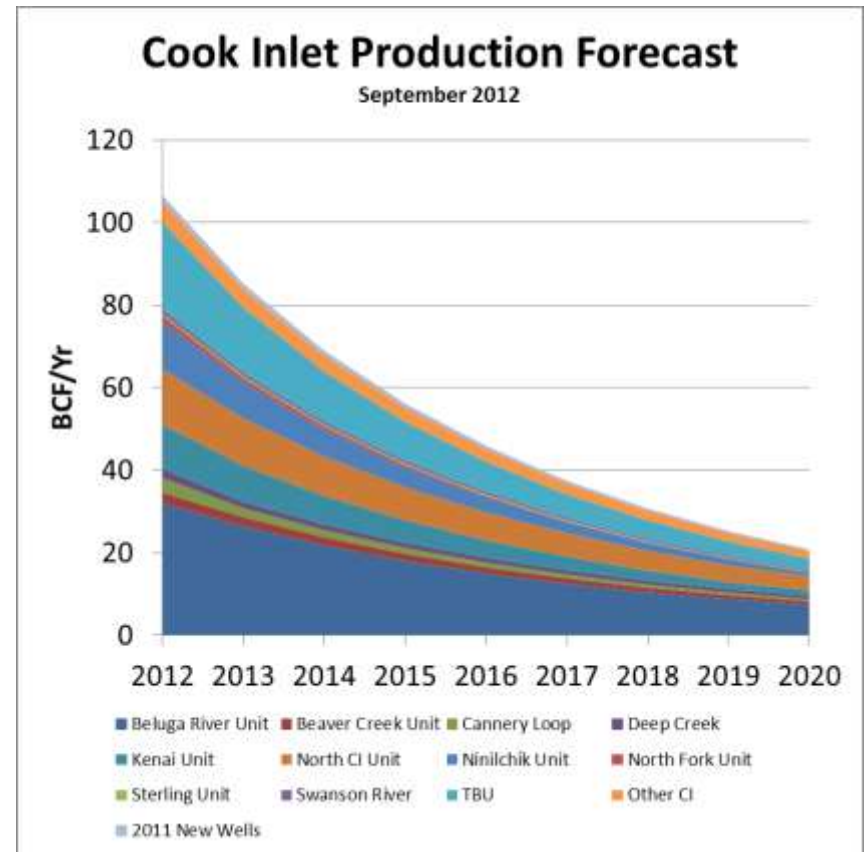
Projected User 2014-19

- ▶ ENSTAR 44%
- ▶ Chugach Electric 13%
- ▶ Fuel Gas 13%
- ▶ HEA/MEA 12%
- ▶ ML&P 11%
- ▶ Tesoro 7%



2012 Cook Inlet Supply Prediction

- ▶ PRA Decline Curve Analysis of existing fields and wells
- ▶ Is pessimistic - does not include future developments
 - Major change is Hilcorp taking over Marathon and announced major capital expenditures
 - Exploration can impact production in out years



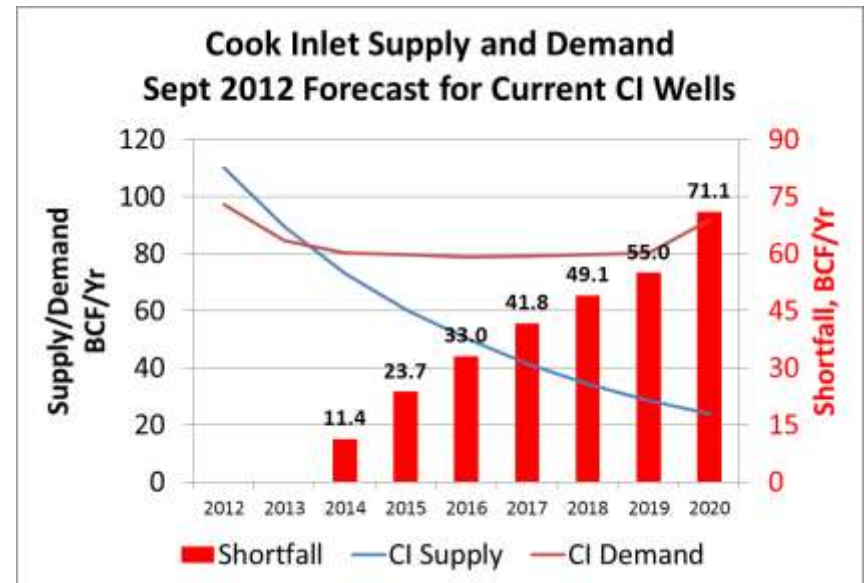
2012 Update

- ▶ PRA was asked by CI Utilities to Update the 2010 Study to make a current estimate of supply from existing Cook Inlet Fields to compare to the current CI Demand Forecast.
- ▶ Due to drilling and compression additions since 2010, the predicted shortfall from existing fields has pushed from 2013 to 2014.

2012 Supply vs. Demand

Current Wells

- ▶ Base of only current wells predicts a shortfall as early as 2014
- ▶ 2010 PRA Study forecasted need of 13-14 new gas completions per year to avoid shortfall
- ▶ Only 5-6 new wells per year were actually developed 2009-2012



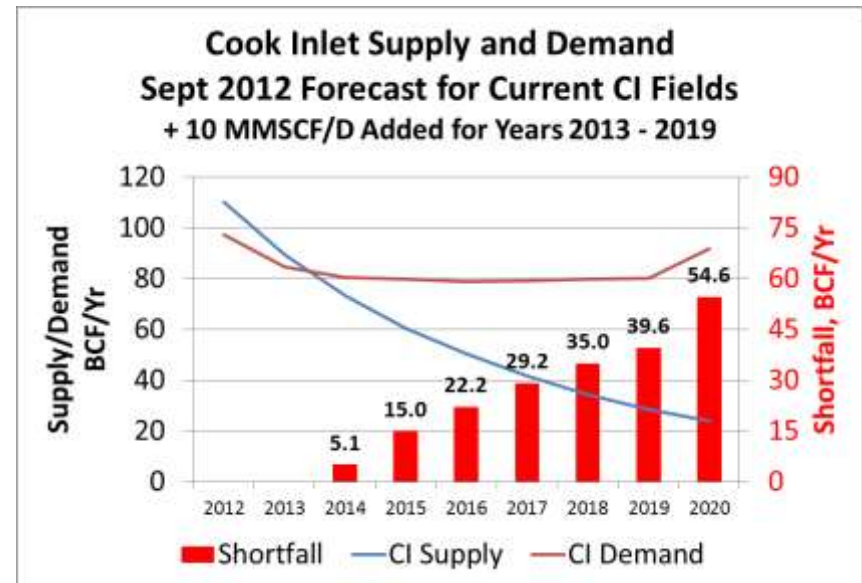
Cook Inlet Drilling Results

Period	Gas Wells Completed	Average Wells per Year	Initial Production (MMCF/day)
2001–2009	105	12.3	3.6 per well
2007–2009	34	13.6	3.1 per well
Nov–09 to Oct–10	5	5	3.7 per well
Nov–10 to Oct–11	6	6	1.7 per well
Nov–11 to Jun–12	4	6	5.1 per well

Supply vs. Demand:

Current Wells + Yearly Add of 10 MMSCF/D

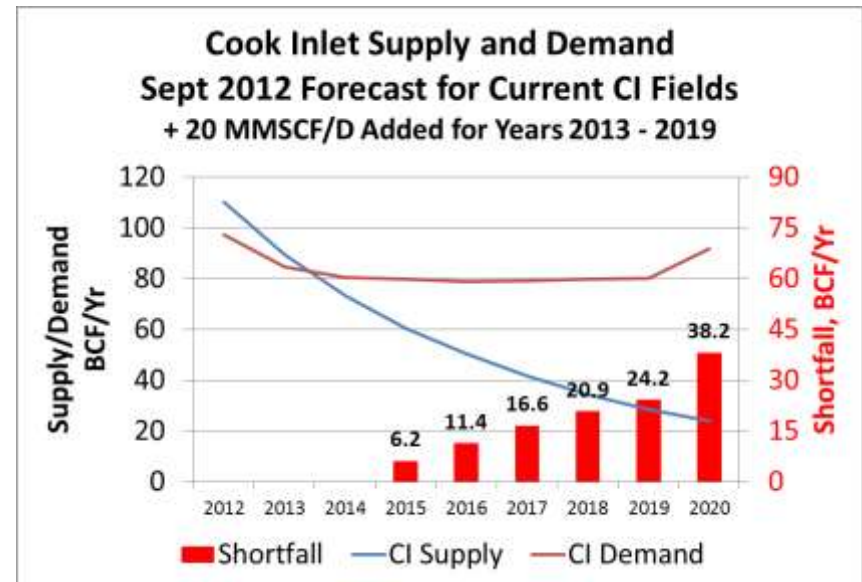
- ▶ This sensitivity assumes 3-4 new gas completions added per year 2013-19.
- ▶ Shortfall still predicted in 2014



Supply vs. Demand:

Current Wells + Yearly Add of 20 MMSCF/D

- ▶ This assumes 6-8 new gas completions added per year 2013-19.
- ▶ Shortfall predicted in 2015
- ▶ Could be changed by additional near term infield developments
 - Hilcorp
 - CPAI
 - Buccaneer
 - Armstrong
 - Others



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Infield Development

- ▶ Hilcorp has stated that they will spend \$203 million in capital in 2012 to develop oil and gas
 - Will likely spend \$150 million per year over next 2 years
 - This is a marked increase over the activity level of Chevron and Marathon
- ▶ ConocoPhillips drilling 2 wells at Beluga River
- ▶ Buccaneer plans additional drilling at Kenai Loop
- ▶ Armstrong has permitted 2 wells at North Fork
- ▶ Other infield development include Aurora and CI Energy

Unless more or high rate gas wells are developed, shortfall likely occurs in 2015+ timeframe

Exploration – Onshore

- ▶ NordAq: Delineating Shadura and Exploring
 - Shadura not to be developed until 2013
 - Exploring at Tiger Eye Prospect in 2012-13
- ▶ Buccaneer exploring near Anchor Point
- ▶ CIE exploring west Cook Inlet
- ▶ Apache shooting large 3D Seismic Program, plans to drill 4th Quarter 2012

If successful exploration wells are found near infrastructure and be quickly developed, there will be an impact on timing of shortfall

Exploration – Offshore

- ▶ Furie is drilling exploration wells with Spartan 151 jack up rig
 - Announced discovery at Kitchen Lights #1; did not complete
 - Currently drilling at Kitchen Lights #2
- ▶ Buccaneer has mobilized Endeavour jack up rig to CI to drill Cook Inlet prospects
- ▶ Apache shooting offshore 3-D Seismic

Timing for first gas production likely to be 3-5 years after discovery due to offshore permitting and construction lead times.

Alaska Stand Alone Gas Pipeline

From 7/1/2011 ASAP Project Plan

- ▶ Estimated to Cost \$7.5 billion (2011\$) +/- 30%
- ▶ Gas to South Central by 2019-20 at earliest.

From 7/30/12 Instate Gas Caucus

- ▶ Projected Anchorage cost of gas \$9.63 / MMBTU

ASAP will not solve 2015-2019 shortfalls in Cook Inlet gas supply.



Imported Gas: LNG or CNG

- ▶ LNG is a commodity that can be contracted for import into Cook Inlet
 - Use of Nikiski Plant or other for regassifying
 - Recent Spot Prices \$12-\$15/mcf
- ▶ Compressed Natural Gas (CNG) tankers is another option for importing gas
 - Could be a cheaper option than LNG

With timely engineering and permitting, LNG or CNG could be imported to fulfill short-term needs

Summary: Possibilities to Meet 2012–2020 Demand

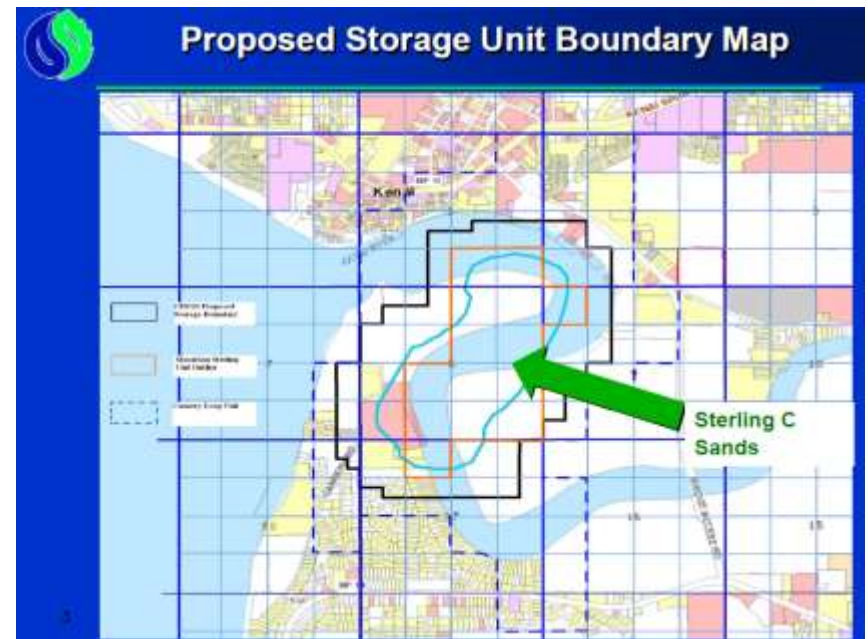
- ▶ Infield drilling: Recent history of activity level does not predict that this will meet demands past 2015
- ▶ Onshore Exploration: Not proven and if successful would need time for development; could impact timing of shortfall
- ▶ Offshore Exploration: Not proven and 3-5 years from discovery to production
- ▶ Instate Gas Line: Will not be operational until 2020
- ▶ LNG/CNG: Could bridge demand shortfall until exploration and/or instate gas line provide for sufficient supply

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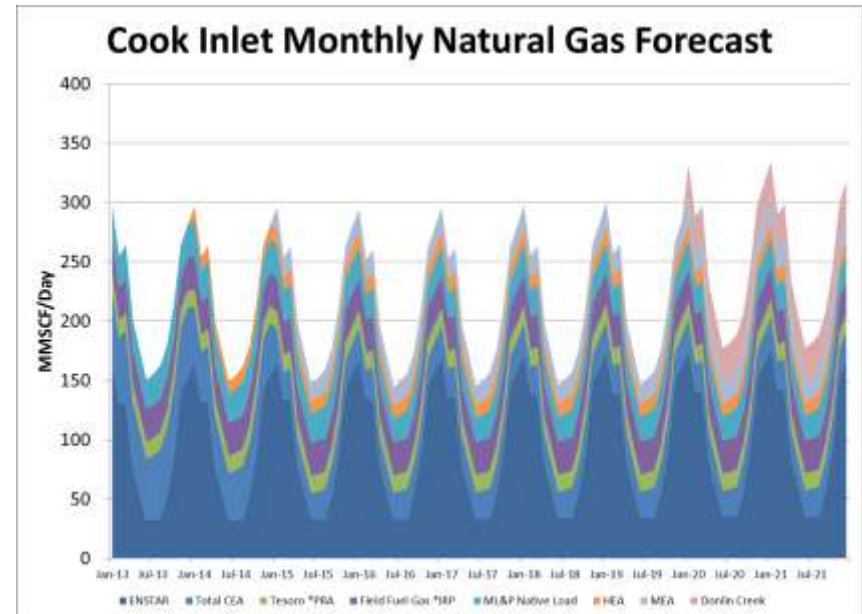
CINGSA Project

- ▶ 5 Horizontal wells and compression installed
- ▶ CINGSA Storage Project allows for 11 BCF of active storage
- ▶ Winter peak capacity of 150 MMSCF available from CINGSA storage



CI Peak Gas Demands

- ▶ Large swing between Summer and Winter gas demands
 - Summer: 150 MMSCF/D
 - Winter : 300 MMSCF/D
- ▶ CINGSA gas storage allows for production and injection of CI gas during summer to help meet winter peak demands



Impact of CINGSA

- ▶ Currently allows for storage of 11 BCF/Year
- ▶ Will allow for meeting 50% of monthly average peak demand in the winter
- ▶ Allows for purchase and storage of gas during summer season for use during winter peak demands.
- ▶ Available for storage of possible future imported LNG or CNG
- ▶ Will help alleviate need for winter peak well capacity to meet peak daily utility demand



Source: Alaska Business Monthly
Photo by Robin Barry, ENSTAR

Assessing Southcentral Gas Needs – Conclusions

- ▶ Absent major new large discoveries that can be brought online in 1-2 years, the current pace of development could mean a shortfall in Cook Inlet supply to meet demand in 2014 or 2015.
- ▶ LNG or CNG import is only “certain” method to ensure no shortfall.
- ▶ CINGSA storage is capable of storing CI produced gas or imported gas for winter peak demand.

Questions?