Cook Inlet Energy Overview

Arctic Symposium, Jan. 15, 2025

Kenai Peninsula Borough Mayor Peter A. Micciche
Chair of the Southcentral Mayors' Energy Coalition

CEA Southcentral Power Project, Electron Drive

AGENDA

- **Overview of the Committee Charge**
- **Projected Southcentral Energy Shortfall – Background**
- **Summary of Cook Inlet Energy Projects**
- **Possible Energy Outlook with New Projects**
- **North Slope Gas and Imported LNG**
- **Takeaways**

Committee Charge

Goals

- Understand the nature and potential solutions to the projected Cook Inlet natural gas/energy shortfall
- Advocate for affordable solutions that will keep the lights and heat on

Methodology - Invite sponsors of existing and proposed energy and infrastructure projects to present to the Mayors and Technical Committee. Discuss with Sponsors:

- Timeframe for project to come online
- Financial backing
- Projected cost of power or natural gas
- Energy output
- Roadblocks
- Areas where advocacy by the Mayors could help facilitate the project

Why is There a Natural Gas Shortfall?

- The major Cook Inlet gas discoveries were discovered in the late 1950's and 1960's while looking for oil.
- Large field sizes with small local market supported industrial users (fertilizer and LNG plants).
  - For decades, the market was oversupplied – new discoveries would not have a customer
  - No significant discoveries/new developments in recent years – fields are depleting
  - Over 12 trillion cubic feet produced**
- USGS estimates 19 trillion cubic feet (TCF) of "technical recoverable" natural gas remains.* However:
  - Technically recoverable does not mean economic
  - ~ 5 TCF from unconventional reservoirs which have never been commercially produced in Cook Inlet region
  - Challenging permitting, regulatory environment
  - Small local market.
  - Geology difficult
  - Risk reward profile not competitive in the portfolios of the large oil and gas companies
- Exploration and development of known resources still ongoing by a few smaller companies.
  - Has potential to defer projected natural gas shortfall
  - Timing is key

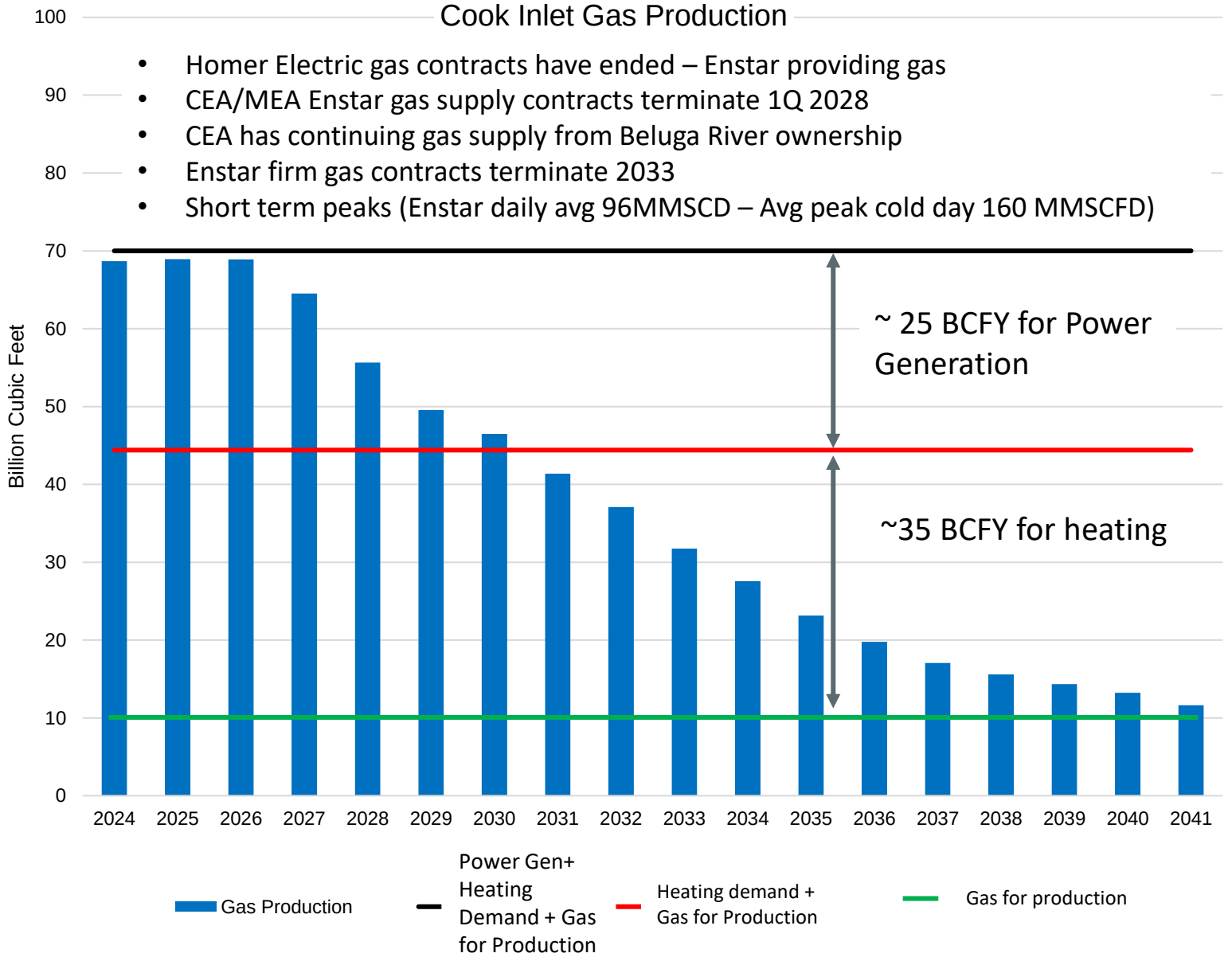
*Assessment of undiscovered oil and gas resources of the Cook Inlet region, south-central Alaska, 2011: U.S. Geological Survey Fact Sheet 2011-3068

** Source: Presentation by Derek Nottingham and Weston Nash to the Alaska Legislature on Jan 17, 2024.

Cook Inlet Gas – ADNR[1] Current Forecast

DOG[2] Cook Inlet gas forecast as presented to the Alaska Legislature, Spring 2024[3]

- Assumes continued drilling by Hilcorp
- Does not include known but undeveloped projects
- Truncated to reflect field economics but does not assume market response or price changes



[1] Alaska Dept. of Natural Resources
[2] Division of Oil and Gas
[3] Any future use of this information should consult prior DNR presentations to understand inputs and assumptions.

Power Projects Reviewed

Project	P50 Output/Gas Demand Reduction	Earliest Start-up Date*	Cost	Comments
Solstice Energy Puppy Dog Lake Solar – Kenai Peninsula	30 MW/ 0.4 BCFY	2027 - 2028	Not available	On track
Bradley Lake Dixon Diversion– Kenai Peninsula	60 MW/ 1.5 BCFY	2030	$342 MM	In study phase (AEA with Railbelt utilities). Includes provisions to upgrade east side Kenai Peninsula transmission lines
GeoAlaska Mt. Augustine Geothermal	P50 200 MW/ 5 BCFY	~ 3 years from Final Investment Decision (FID). Est. 2030	Not available	Need baseload contract. Further resource assessment required. Need greater access to capital
Alaska Renewables Shovel Creek Wind, Fairbanks	150MW / 3 BCF. Approx. 50% (75MW, 1.5 BCFY) to Southcentral	2028	Confidential until RCA filing	Financing secured, in environmental studies and permitting phase. Baseload contract needed
Alaska Renewables Little Susitna Wind	200 MW/ 4 BCFY	2029	Confidential until RCA filing	Financing secured, in environmental studies and permitting phase. Baseload contract needed.
Terra Energy Center coal/biomass power plant with possible CO2 sequestration – ~30 miles WSW of Skwentna	~ 400 MW/10 BCFY (100MW-1 GW; Plant capacity TBD on PPAs with power purchasers)	4 years from FID. Est. 2030	$2.2 B after tax credits ($3.5 before credits)	Baseload contract needed, agreements to sequester or use CO2 required.
ORPC Tidal Power – Cook Inlet	Unknown	10+ years	Not available	Still in pilot project stage
Alaska Marine Power - Cook Inlet Wind Farm, Alaska H2 Project	500 to 1,000 MW	Early 2030s	Not available	Project developed for H2 export market, additional power could be available to the Railbelt
Micro-nuclear	Up to 15 MWe	Unknown	Unknown	Significant cost and permitting hurdles
Total* **	**965 MW / 22 BCFY**			Projects need to move into execution phase

* Assumes no permitting or legal challenges. ** Conversion factor .025BCF/MW unless provided otherwise by project sponsor. *** Does not include micro-nuclear or AMP.

Natural Gas Development Projects Reviewed

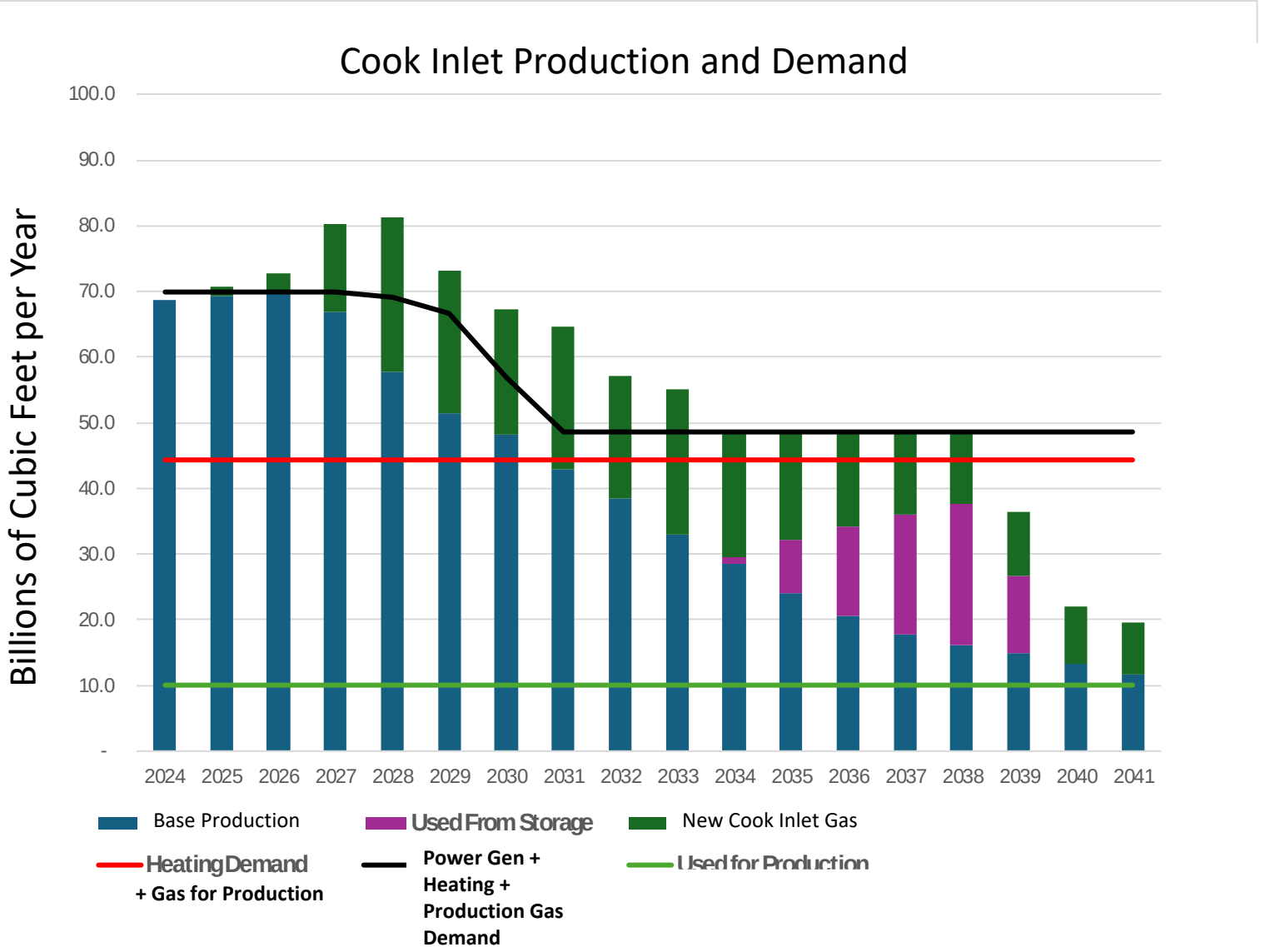
Project	Production	Earliest Start-up Date[1]	Cost	Comments
Hilcorp continued drilling	~ 200 BCF (included in existing base forecasts)[2]	Ongoing – 15-20 wells per year[3]	Not available. Historical – Hilcorp has spent over $1B drilling 153 wells since 2011	Drilling in nearly depleted reservoirs – results of drilling has potential to be highly variable
Blue Crest Cosmo Natural Gas Project. Kenai Peninsula offshore. Overlays existing Cosmo oil play	Estimated reserves 200 BCF	~ 3 years from FID	~$350 MM	Financing the project is an issue. Legislature passed a reserve-based lending bill in 2024 to help project sponsors with financing
Hex/Furie Kitchen Lights prospect	Estimated reserves 300 BCF with potential for significant upside. Pursuing additional opportunities besides Kitchen Lights	Can drill lower end of reserve est. from existing platform. Two to 3 years to drill out. Potential for second platform	Not available	Burdened with 12.5% State royalty and 12.5% private royalty. Asking State to reduce royalty before committing to future drilling. Limited drilling/support services

[1] Assumes no permitting or legal challenges.
[2] Estimated from Hilcorp production forecast data.
[3] Hilcorp presentation to Southcentral Mayors; Energy Coalition April 18, 2024

A Gas Forecast and Demand With New Cook Inlet Projects
Actual Will Be Different

- Base production is DNR forecast Includes future Hilcorp drilling
- Assumes Kenai Gas field storage capacity commercially available
- All production above the **black** demand line is stored and used in future years
- Undeveloped Projects
  - Low side new natural gas developments (240 BCF) starting 2025. Based on DNR forecast for known undeveloped gas
  - Shovel Creek Wind - 75MW to Southcentral 2028
  - Little Susitna Wind - 120 MW 2029
  - Terra Energy Center coal/biomass power plant - 400 MW 2030
  - Augustine Geothermal - 200MW 2030
  - Bradley Lake Dixon Diversion - 60 MW 2030
  - Puppy Dog Solar - 30 MW 2028

Conditions precedent for new projects make it unlikely that all projects will meet the dates/capacities listed above.



North Slope Gas

- AGDC pursuing initial phase serving domestic power generation and space heating
- $10.8B estimate for scaled back project with 42” pipeline
- Delivered price to utilities estimated to be in the $11-$13/MMBTU
- Large pipe provides the option for large scale LNG exports – could significantly lower consumer gas price
- In discussion with a large pipeline company to complete FEED
  - $50M effort supported by State of Alaska
  - Option for potential State investment
- Success case - first gas in 2031

Imported LNG Option

- Technology for importing LNG well understood
  - Floating storage regasification unit (FSRU)
  - Onshore regasification

- Gas Storage bill passed in 2024 provides for Hilcorp to store 3rd party gas in part of the Kenai Gas Field
  - Hilcorp permitting 50 BCF third party storage* – significant upside (200-500 BCF) for additional storage
  - CINGSA gas storage 11 BCF. Expanding to 13 BCF
  - Gas storage a key element in managing gas supply, for LNG imports, and meeting peak gas demand in the winter

- Pricing
  - 2024 Asian market LNG price $11 - $16/MCF[2]
  - Kitimat (British Columbia) coming on stream 2025 – potential for less expensive LNG

- Timing depends on negotiating LNG supply contract and permitting, construction timeframe

- Importing LNG has the potential to address the near-term gas shortfall – CEA/Enstar evaluating

[1] Hilcorp currently permitting 50 BCF of storage. Potential for as much as 500 BCF from conversations with Hilcorp.

[2] Source: JKM LNG (PLATTS) Future Pricing (https://www.ice.com/products/6753280/JKM-LNG-PLATTS-Future/data?marketId=6241399&span=2re Pricing)

Takeaways

- Exploration potential may be large, but the basin is not attracting significant exploration investment

- Reducing/eliminating the need for natural gas for power generation does not solve the long-term natural gas shortfall for heating
  - Renewables will need backup source for high demand, low output periods

- North Slope gas a possibility
  - Timing (earliest 2031) does not meet anticipated near-term supply gap
  - Negotiations with potential partner not complete

- LNG imports could be an option that provides certainty of supply in near term, variability in volume and could be phased out if other, more price competitive solutions materialize

- Unless a strategy (likely with multiple components) is selected and affirmatively pursued, a significant gas shortfall is all but guaranteed

Southcentral Mayors' Energy Coalition - Mayors

Peter A. Micciche – Chair, Kenai Peninsula Borough
Carter Cole – Houston
Dave Dickason – Whittier
Edna DeVries – Matsu Borough
Glenda Ledford – Wasilla
Steve Carrington – Palmer
Brian Gabriel – Kenai
Paul Whitney – Soldotna
Rachel Lord – Homer
Suzanne LaFrance – Anchorage
Sue McClure – Seward

Southcentral Mayors' Energy Coalition – Technical Committee

Scott Jepsen – Chair, Retired (ConocoPhillips)	Kara Moriarty - AOGA
Andrew Buchanan – Bluecrest Energy	Mike Salzetti – Homer Electric Assoc.
Bart Armfield – Chugach Electric	Pete Leathard – Veco International
Brent Sheets – University of Alaska, Fairbanks	Ray Latchem – Spectrum LNG
Derek Nottingham – DNR, Division of Oil and Gas	Roger Marks – RM Economics
Jenn Miller – Renewable IPP	Steve Colt – University of Alaska Fairbanks
John Hendrix – Hex/Furie	Todd Lindley – Alaska Gold Communications
John Sims - Enstar	William Horvath – Petroleum Physicist, Engineer
Julie Estey – Matanuska Electric Association	Rob Power – Flatlands Energy
Julie Wellman - Petroleum Engineer	

Questions?