

# Cook Inlet Natural Gas: The Way Forward

Study conducted by  
Petrotechnical Resources of Alaska

Sponsored by:

ENSTAR Natural Gas  
Chugach Electric Association  
Municipal Light & Power



Presented by Tom Walsh  
March 19, 2010  
RDC Special Luncheon

# Why Do Utilities Care About Cook Inlet Gas?

## ▶ ENSTAR

- Cook Inlet gas provides 100% of supply
- 2009 consumption: 32.5 Bcf

## ▶ Chugach

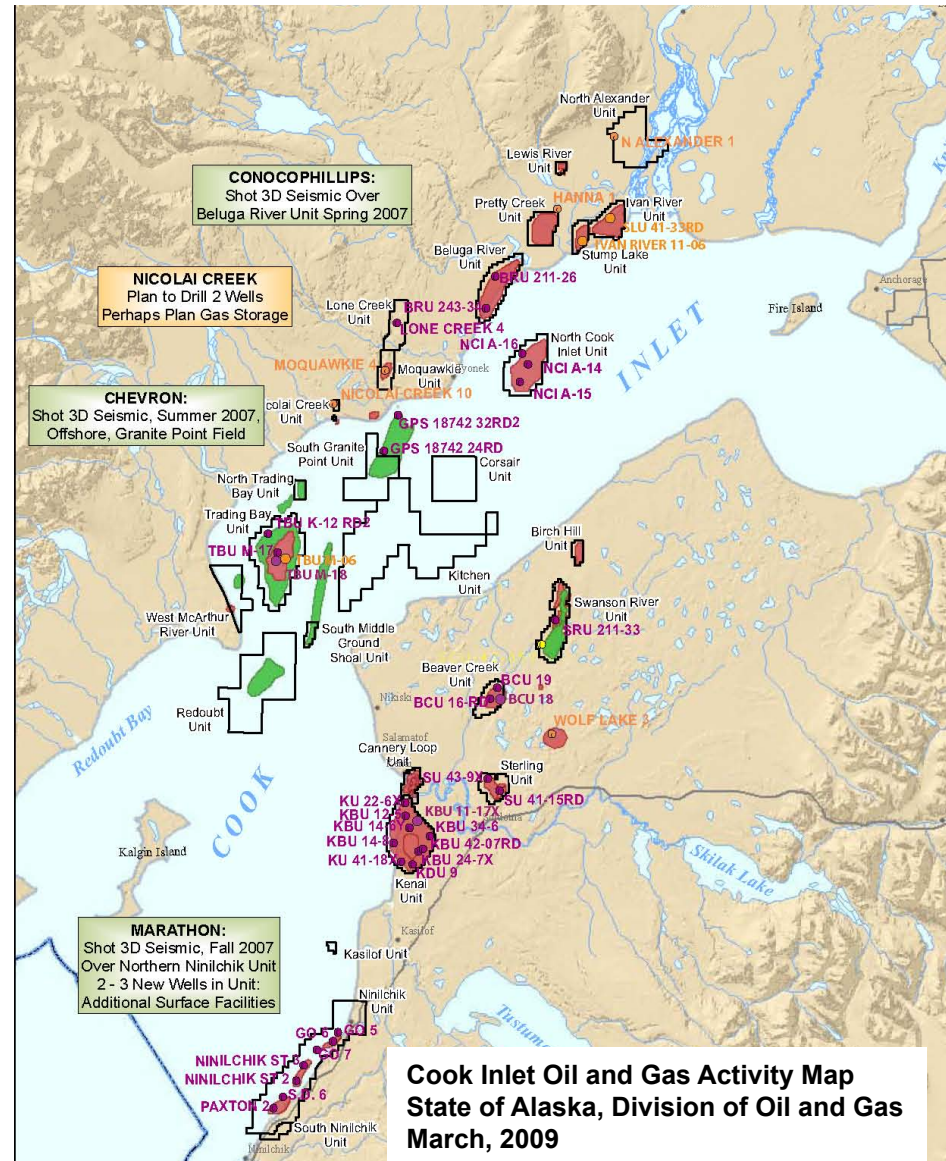
- Cook Inlet gas used for 90% of generation
- 2009 consumption: 26 Bcf

## ▶ ML&P

- Cook Inlet gas used for 88% of generation
- 2009 consumption: 10.8 Bcf

# Cook Inlet Fields

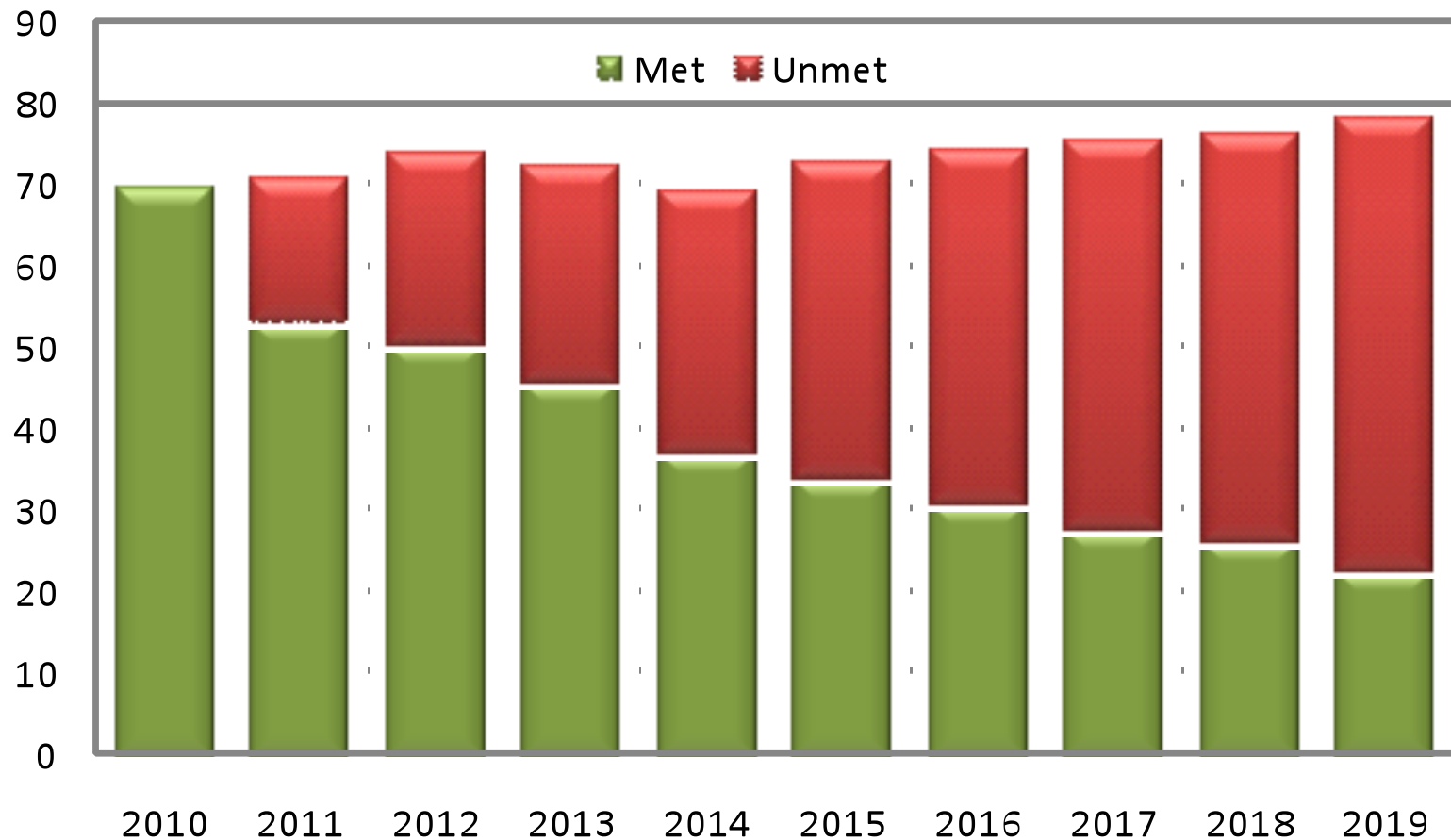
BRU 27% of 2010 production  
 TBU 18%  
 NCI 16%  
 Kenai and Ninilchik ~10% each



# Gas Under Contract/Ownership

- ▶ ENSTAR
  - 100% of needs met through 2010
  - Approximately 25% unmet needs beginning 2011
- ▶ Chugach
  - 100% of needs met to spring 2011
  - 50% met through 2014; 60% in 2015; 29% in 2016
- ▶ ML&P
  - Share of Beluga field estimated to meet majority of needs through 2015

# Combined Utility Met and Unmet Gas Demand

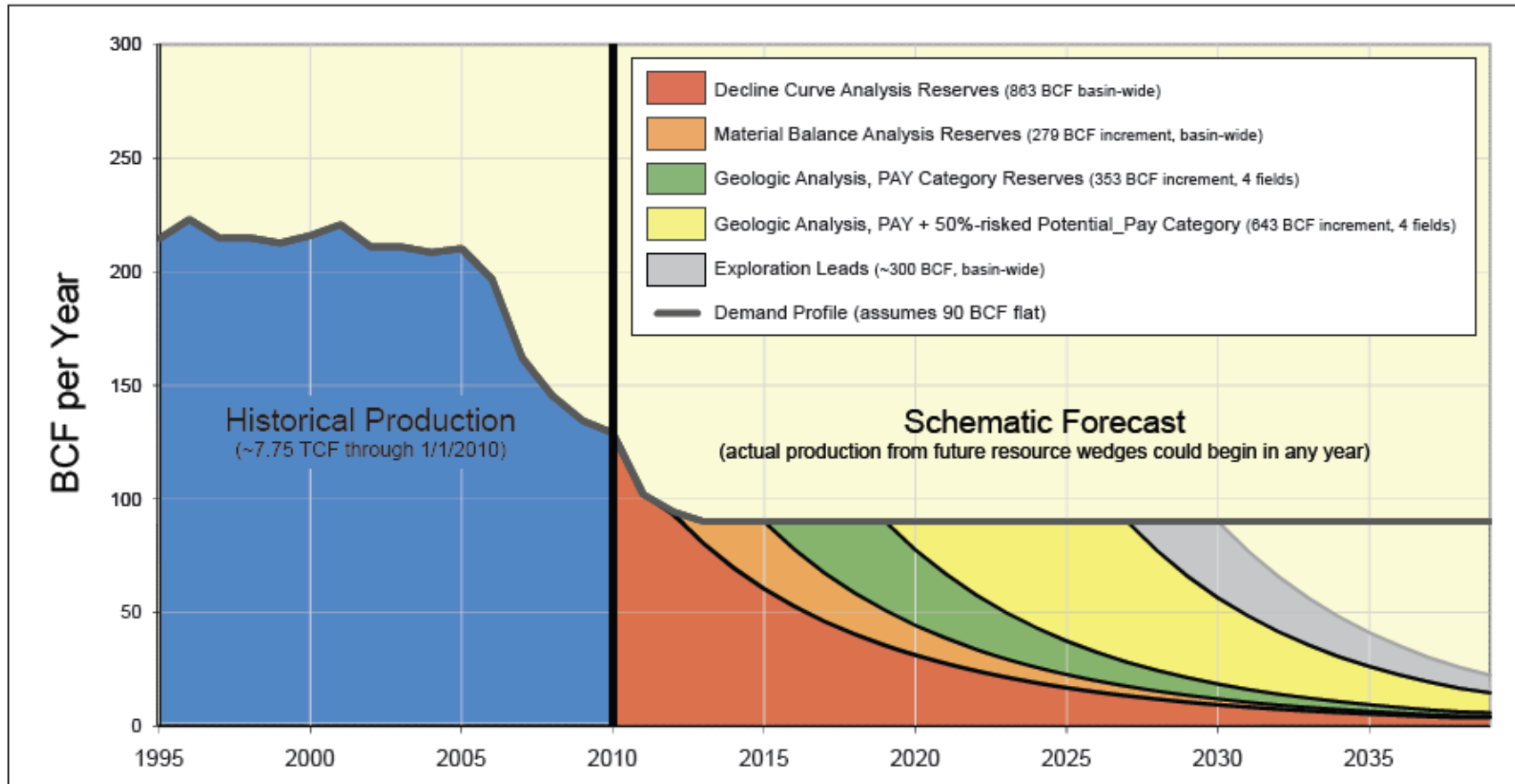


# Supply Concepts

- ▶ Reserves
  - Proven
  - Probable
  - Possible
- ▶ Annual supply
- ▶ Deliverability (seasonal demand)
  - Storage
    - Needed by winter 2011-2012
    - Agreement in progress



# Annual Supply



Source: AK DNR December 2009 Study

# Cook Inlet Gas Study



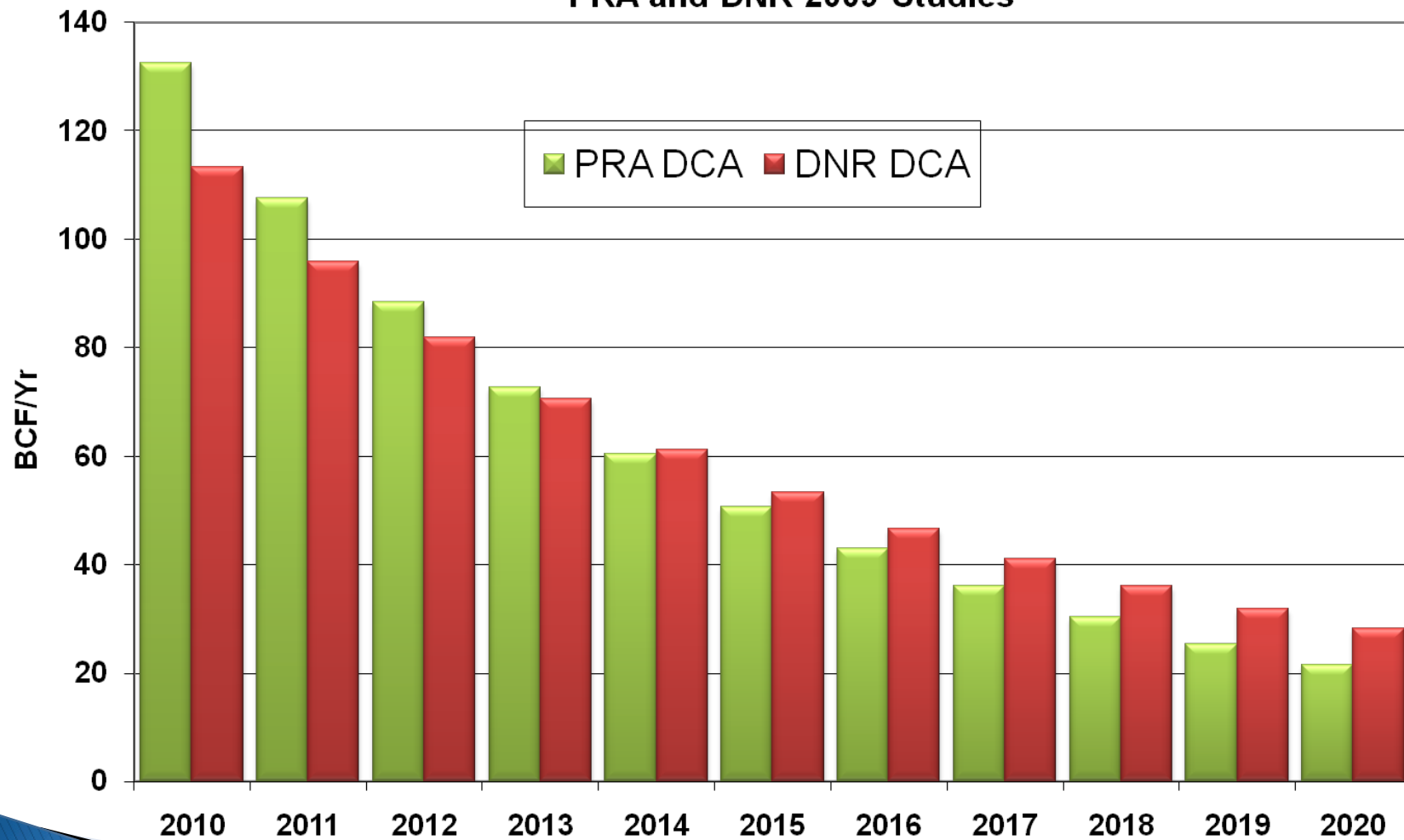
# The Study

- ▶ Commissioned by ENSTAR, Chugach and ML&P
- ▶ Performed by PRA
- ▶ Completed March 2010

# Study Objectives

- ▶ Review DNR reserves analysis
- ▶ Review the deliverability of Cook Inlet gas wells drilled from 2001-2009
- ▶ Forecast deliverability of existing and future gas wells
- ▶ Analyze timing required for delivery of non-Cook Inlet gas sources

**Cook Inlet Gas Production Forecast  
from Decline Curve Analysis  
PRA and DNR 2009 Studies**



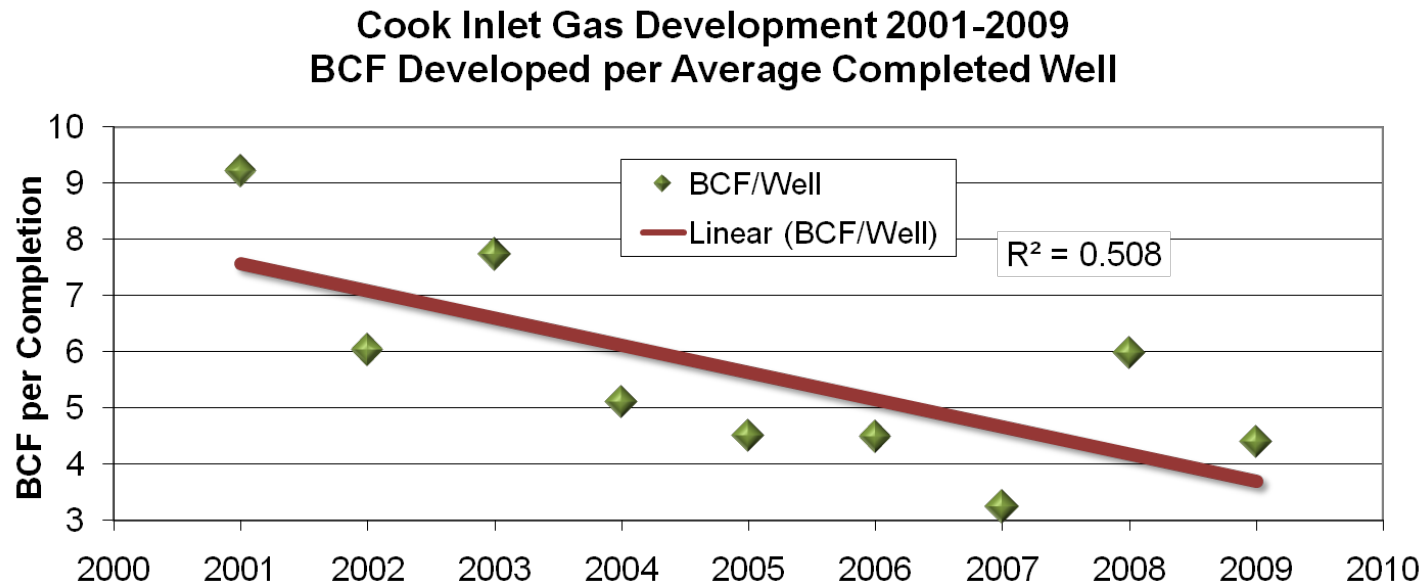
# Methodology

- ▶ Field-level decline curve analysis
- ▶ Individual well decline curve analysis
  - Initial Production
  - Production profile
- ▶ IP progression through time
- ▶ Calculate activity required to meet demand
- ▶ POD review
- ▶ Analysis of business drivers

# Cook Inlet Drilling Results

Period	Gas Wells Drilled	Gas Wells Completed	Initial Production (MMCF/day)
2001–2009	128	105	3.6 per well
2007–2009	34	34	3.1 per well

# Cook Inlet Gas Development



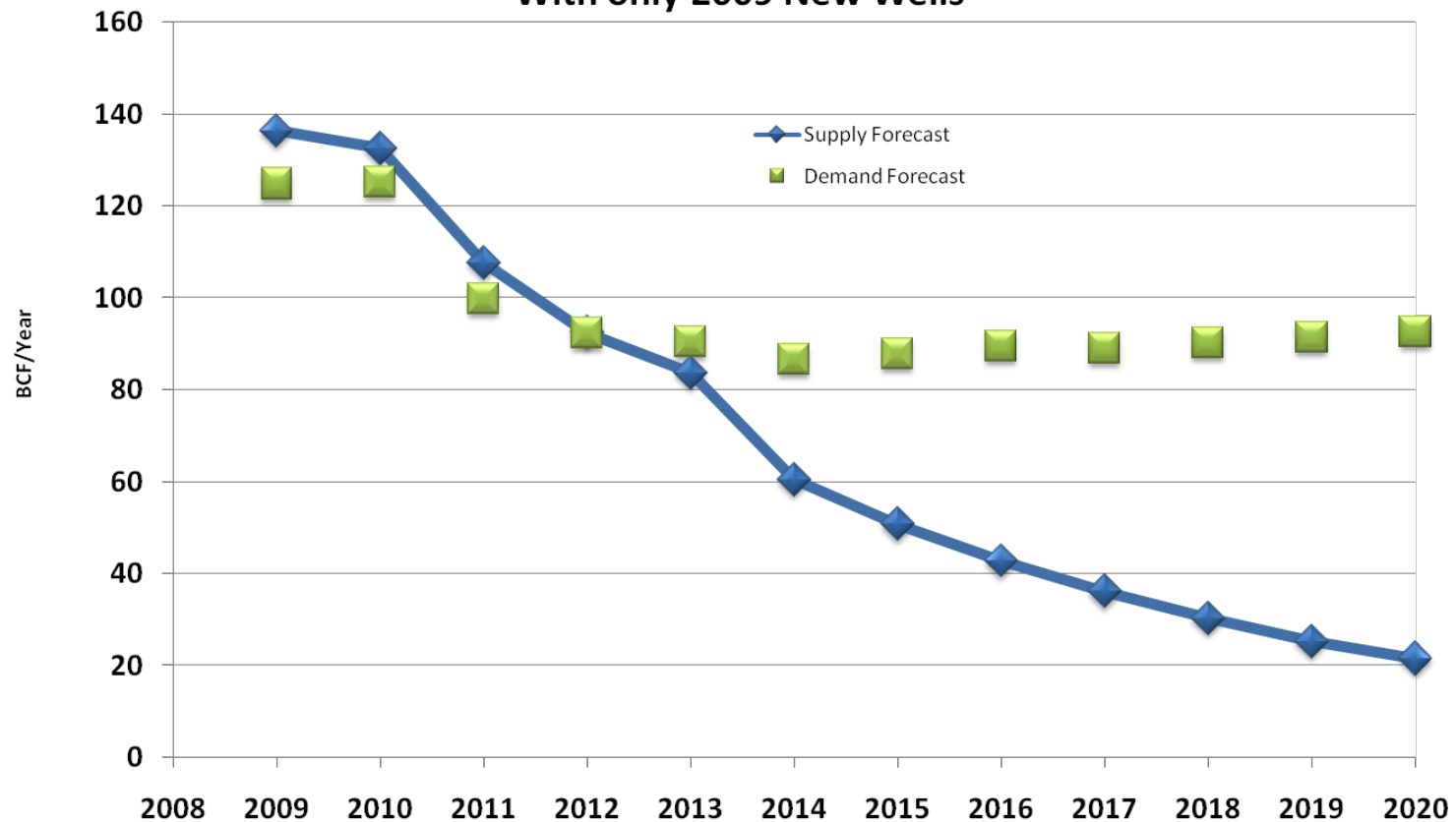


# The Problem

- ▶ Both PRA and DNR conclude from decline curves we have annual supply problems by 2013 if no new wells are drilled
- ▶ PRA study concludes that significant development activity is required

# Annual Supply

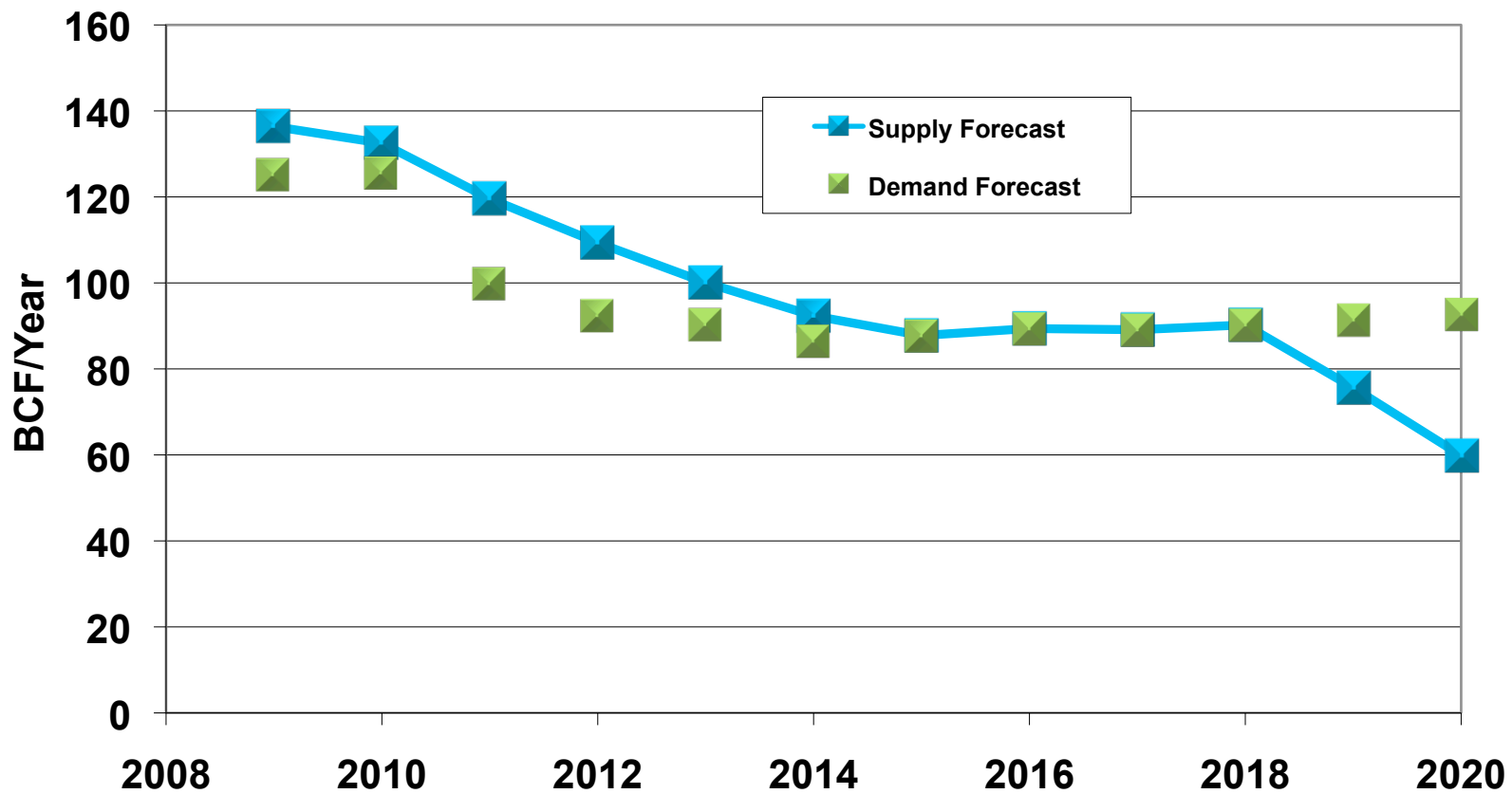
Cook Inlet Supply and Demand  
PRA Forecast December 2009  
With only 2009 New Wells



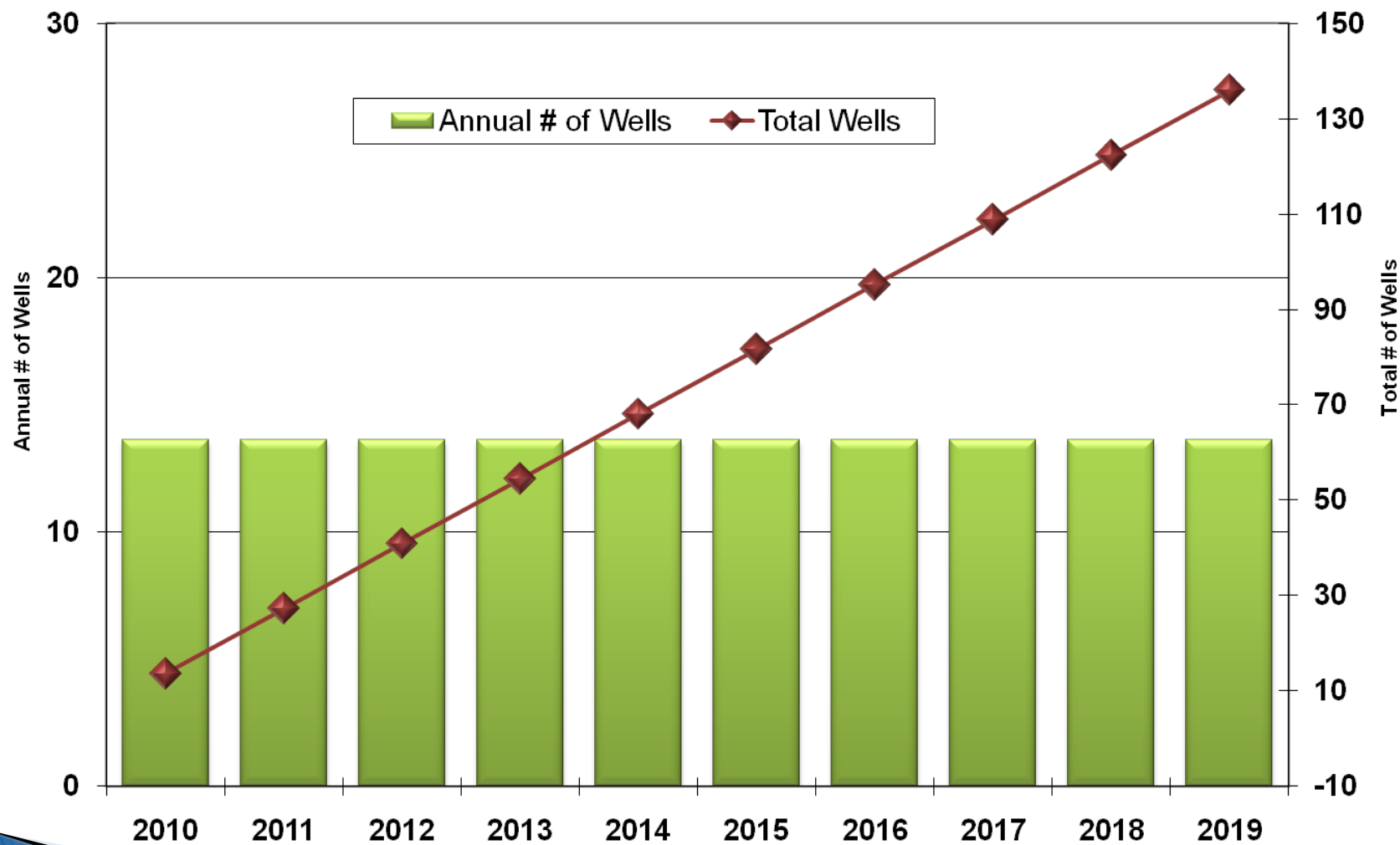
# Scenarios

- ▶ With development drilling continuing at the same pace as in 2007-2009, supply is sufficient to meet demand until 2018, assumes 136 new wells being drilled

**Cook Inlet Supply and Demand**  
**PRA Forecast December 2009**  
**Assumes 2007-09 Drilling Activity of 13.6 Completions/Yr 2010 to 2019**



# 136 Wells Completed 2010 to 2019 (2007-09 Level of 13.6 Completions/Yr)

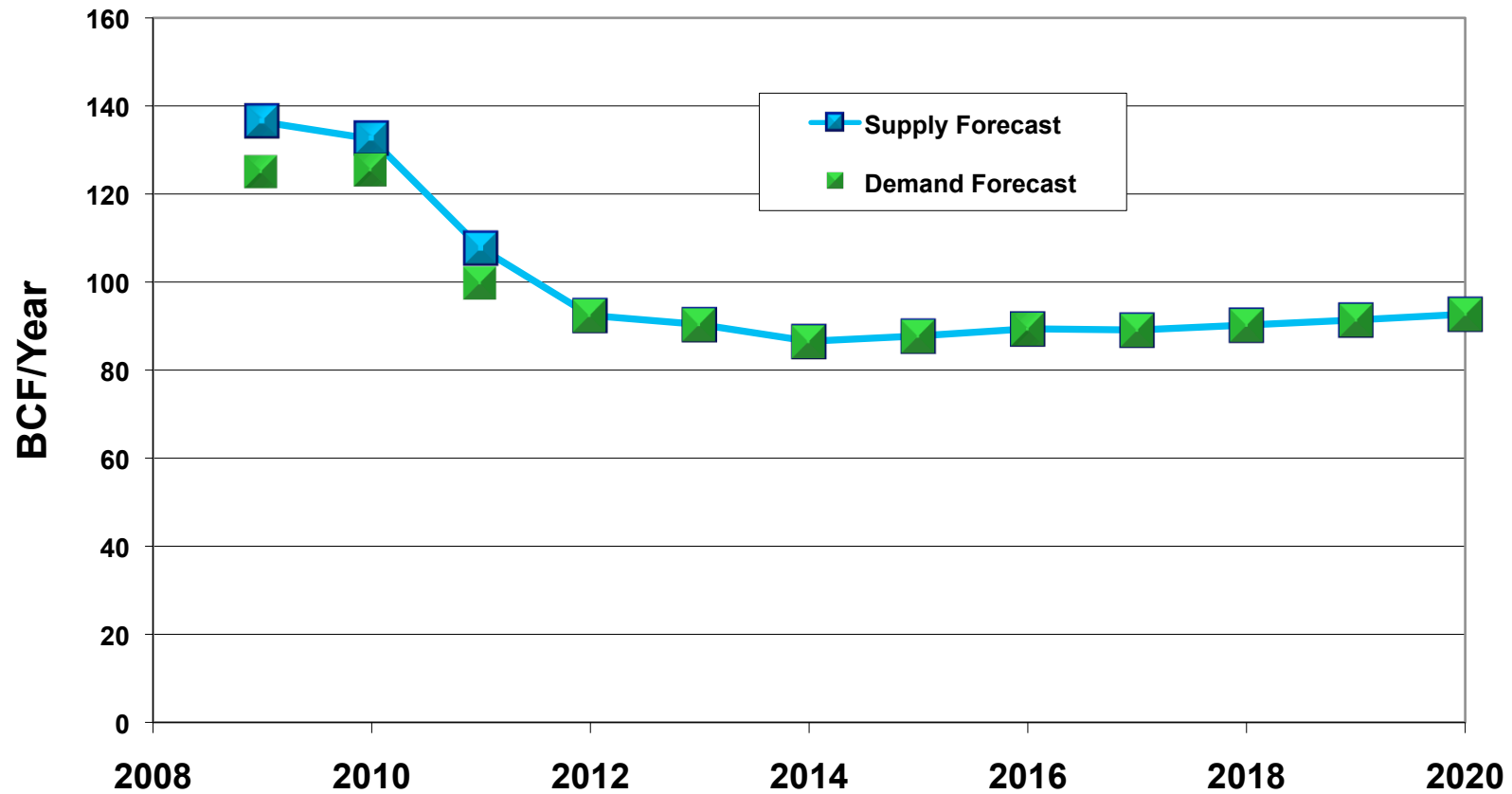


# Scenarios

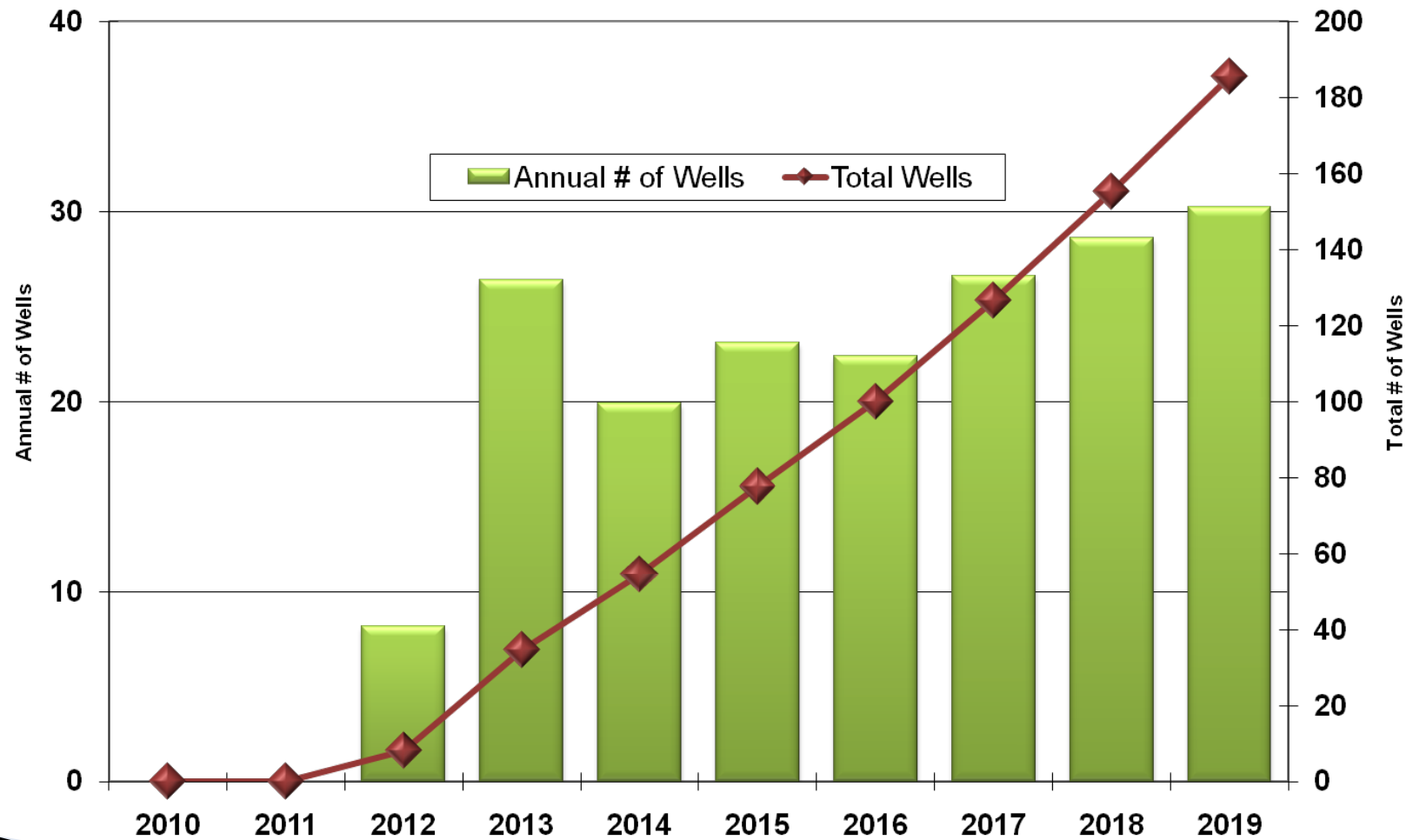
- ▶ If current trends in drilling success rates continue, an estimated 185 new wells must be drilled to meet utility needs between now and 2020



**Cook Inlet Supply and Demand  
PRA Forecast December 2009  
Includes 185 Wells Completed to Meet Demand to 2020**



## 185 Wells Completed 2012 to 2019 Meet Demand Through 2020



# The Cost

- ▶ The estimated cost of drilling & development in the past decade was \$1 – \$1.2 billion
- ▶ The estimated cost of drilling & development in the coming decade is \$1.9 - \$2.8 billion
- ▶ Higher production costs will lead to higher prices for energy

# Caveats

- ▶ Near-term drilling **must** be successful or gas resources from outside the Cook Inlet could be required as early as 2013
- ▶ If near-term drilling does not keep pace with demand, **the only viable option is LNG imports**; that option requires immediate action
- ▶ LNG imports could be necessary for several years until an in-state gas line is available

# Where Must We Go From Here?

# Immediate Actions Needed

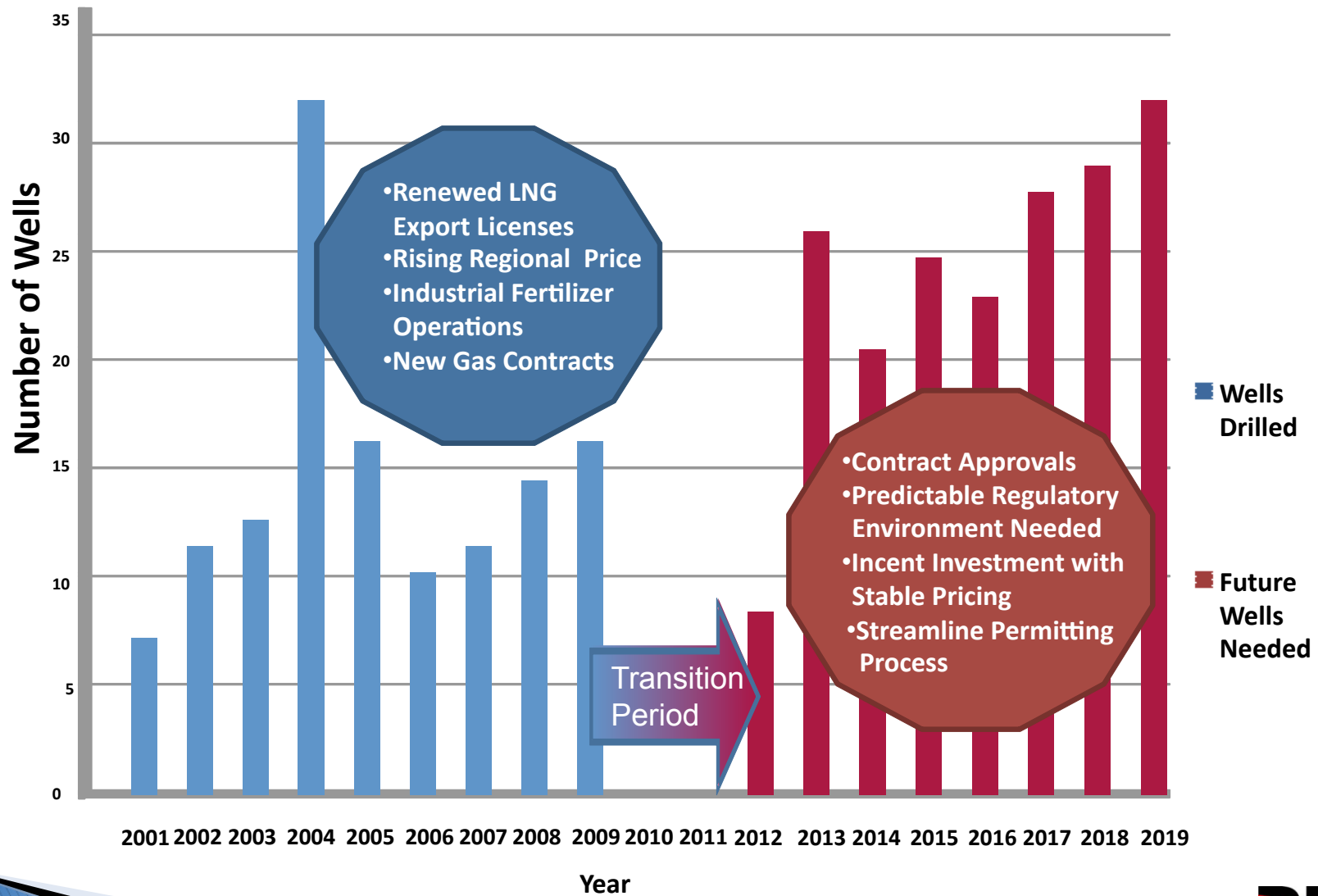
- ▶ New gas supply agreements between Cook Inlet Utilities and producers
- ▶ Predictable timelines and standards for RCA approval of agreements
- ▶ Utilities must secure storage
- ▶ Continue customer awareness, conservation and curtailment plans



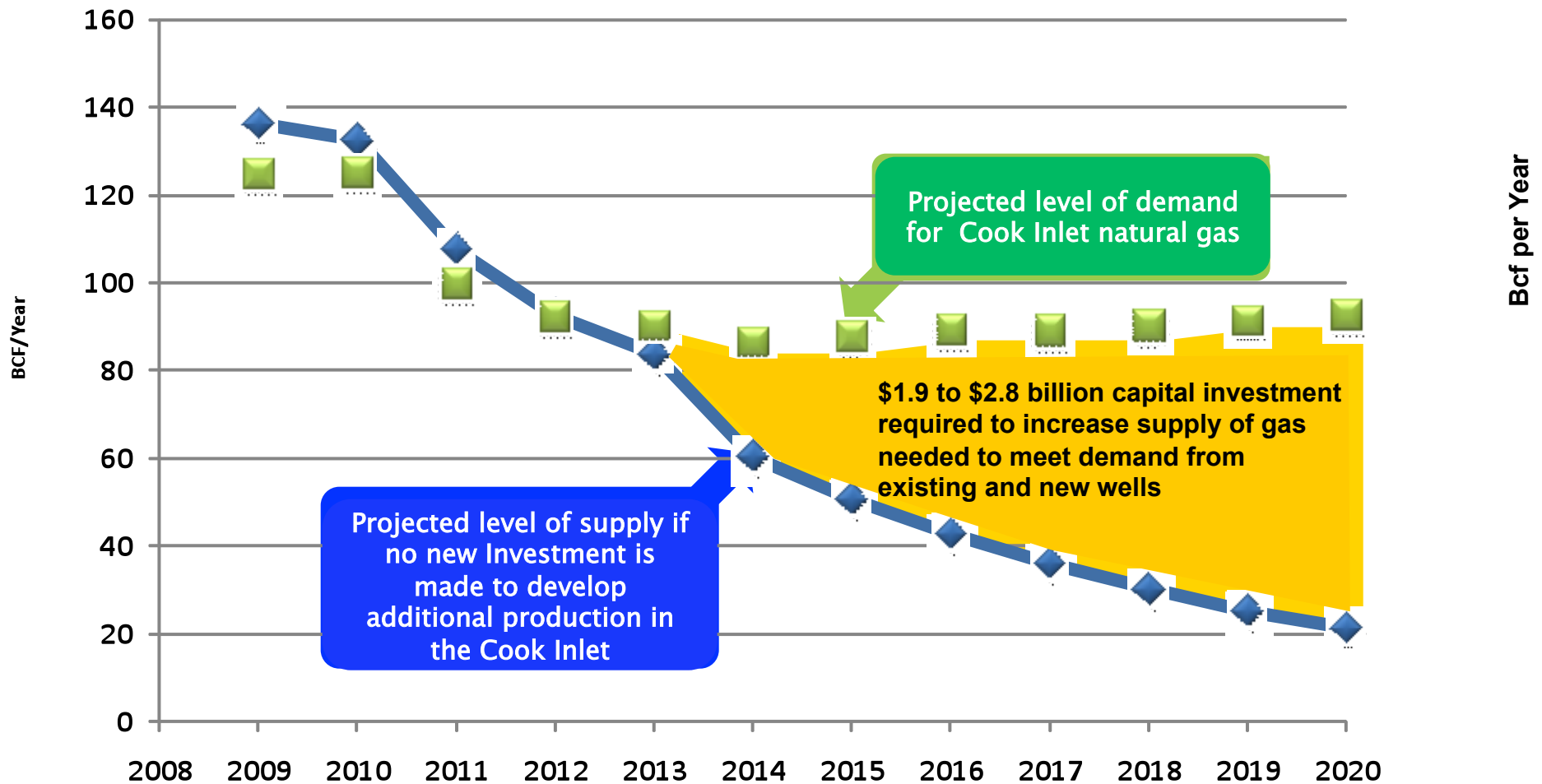
## Immediate Actions Needed (cont.)

- ▶ Land management processes must be streamlined
- ▶ Determine how gas will come to the region to meet long-term needs of consumers
- ▶ Attract exploration & development companies

# Wells Drilled, Wells Required & Influencing Factors



# Summary



# The Way Forward

- ▶ Increase drilling in Cook Inlet
  - Streamline resource development processes
  - Timely contract approval to incent drilling
- ▶ Facilitate natural gas storage
- ▶ To backstop drilling program, develop LNG import options for 2013
- ▶ In-state gas line offers long term solutions

# Example Decline Curve (BRU)

## BELUGA RIVER UNIT Gas Production

