

Preliminary 2017 Fall Production Forecast

House Finance Committee

Presented by:

Paul Decker and Ed King

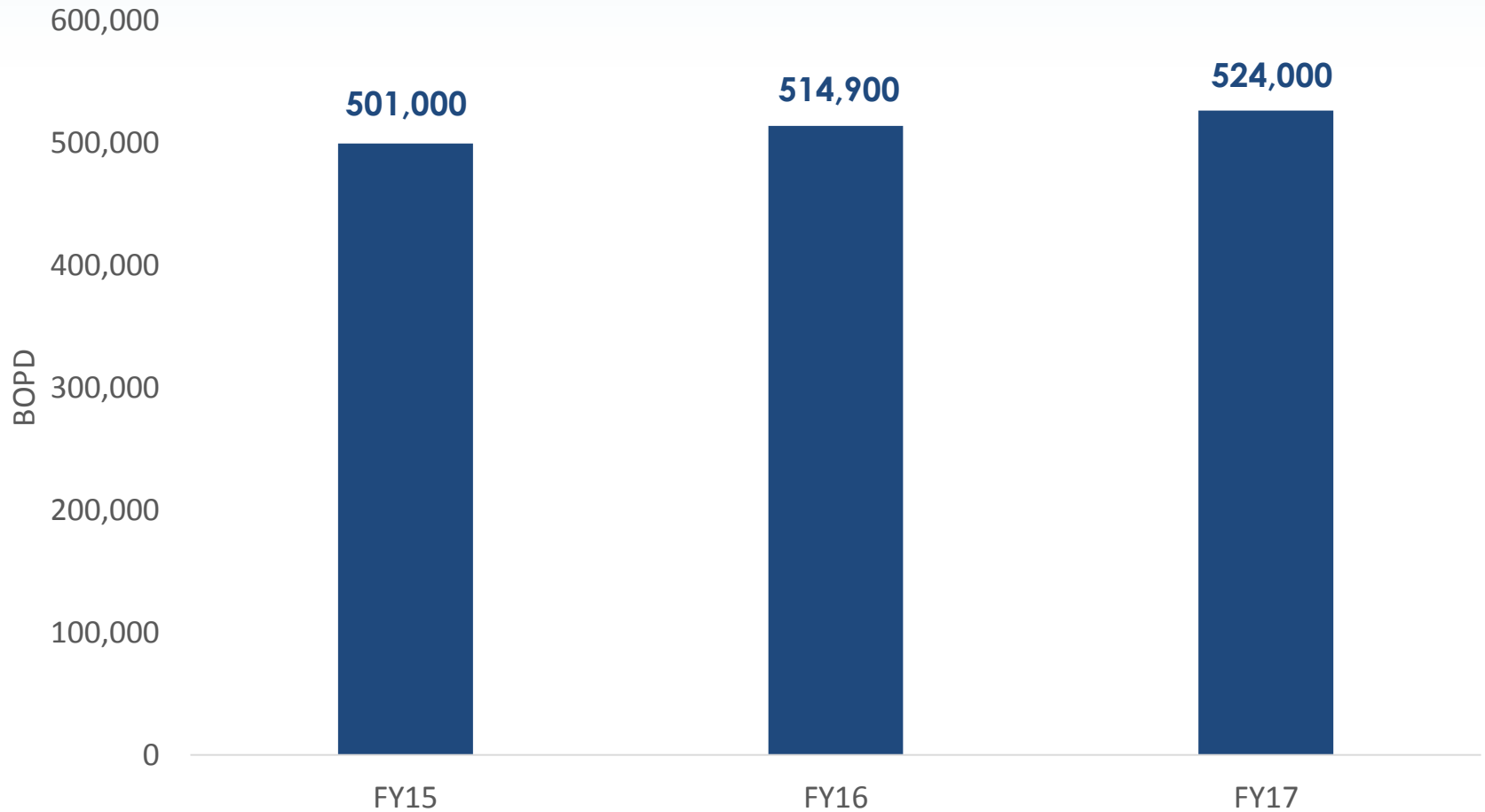
Division of Oil and Gas

Alaska Department of Natural Resources

October 25, 2017

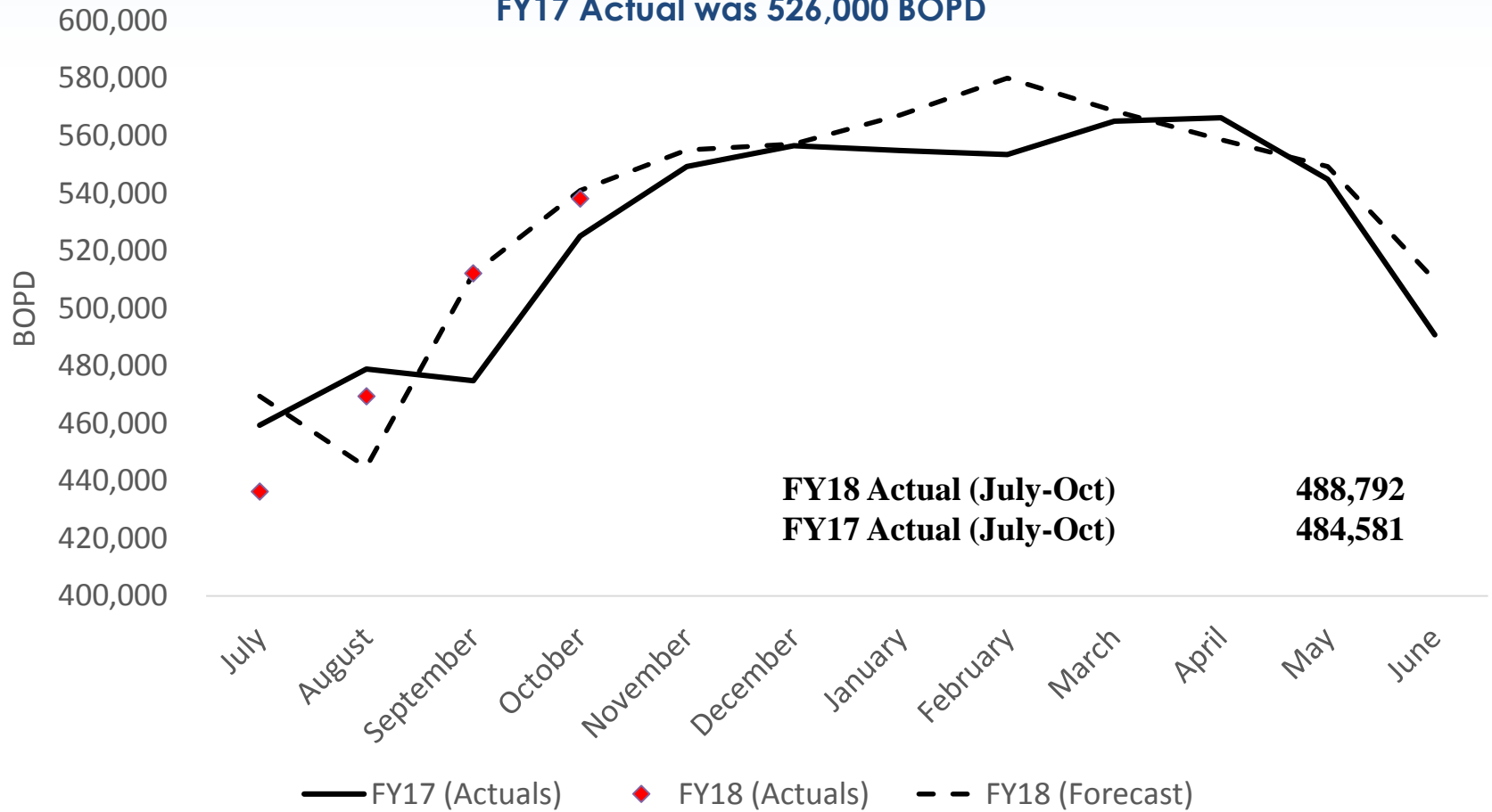


2 Years of Production Increases

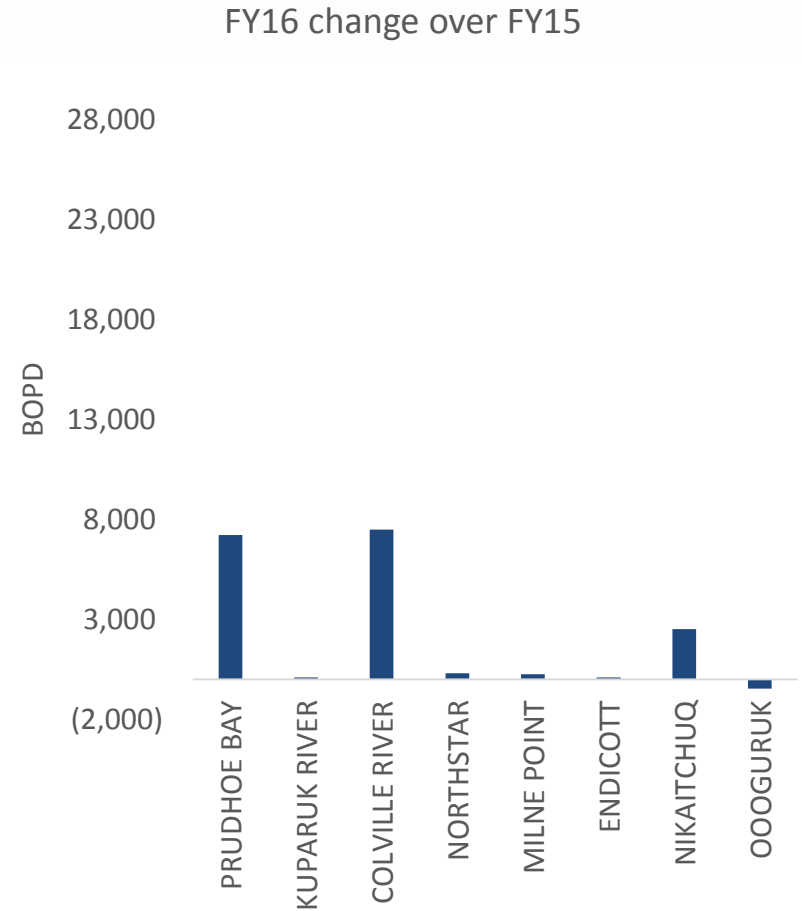
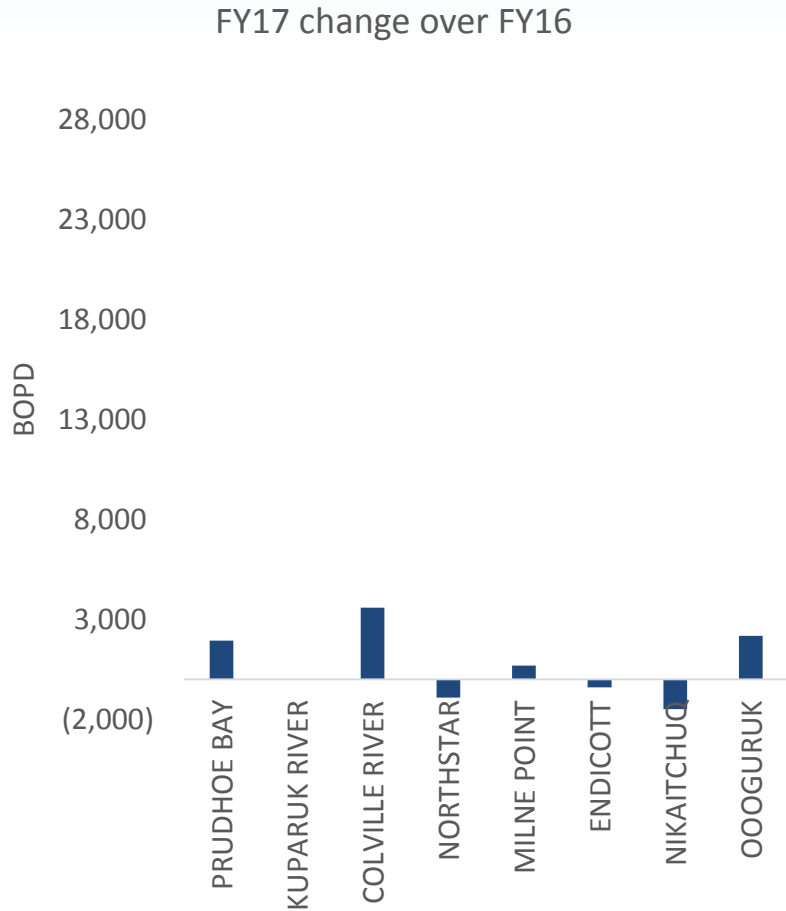


SHORT-TERM FORECAST

FY18 Forecast is 533,000 BOPD
FY17 Actual was 526,000 BOPD

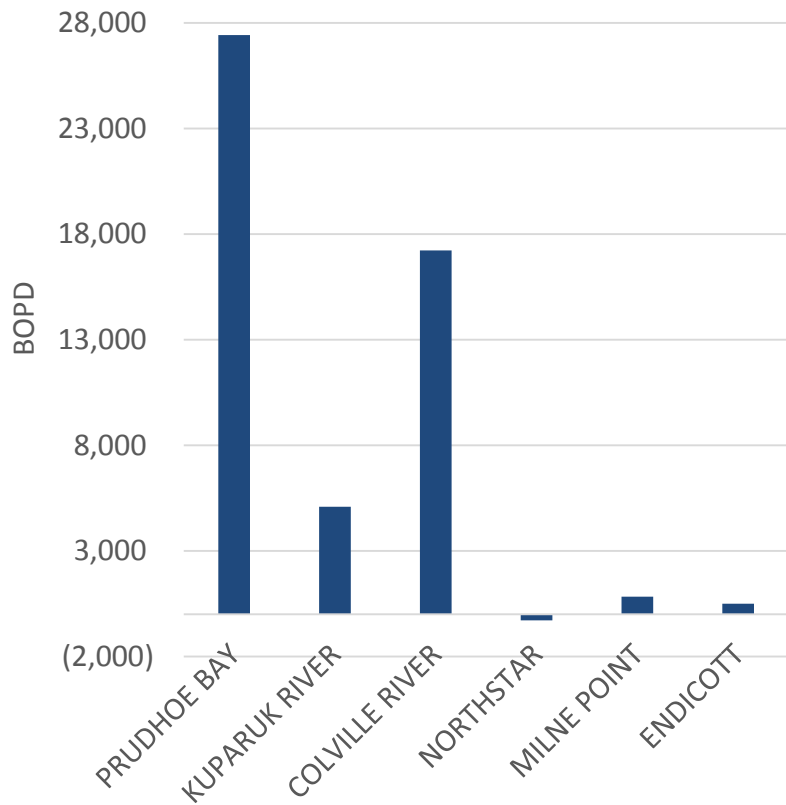


Where the Increases Came From

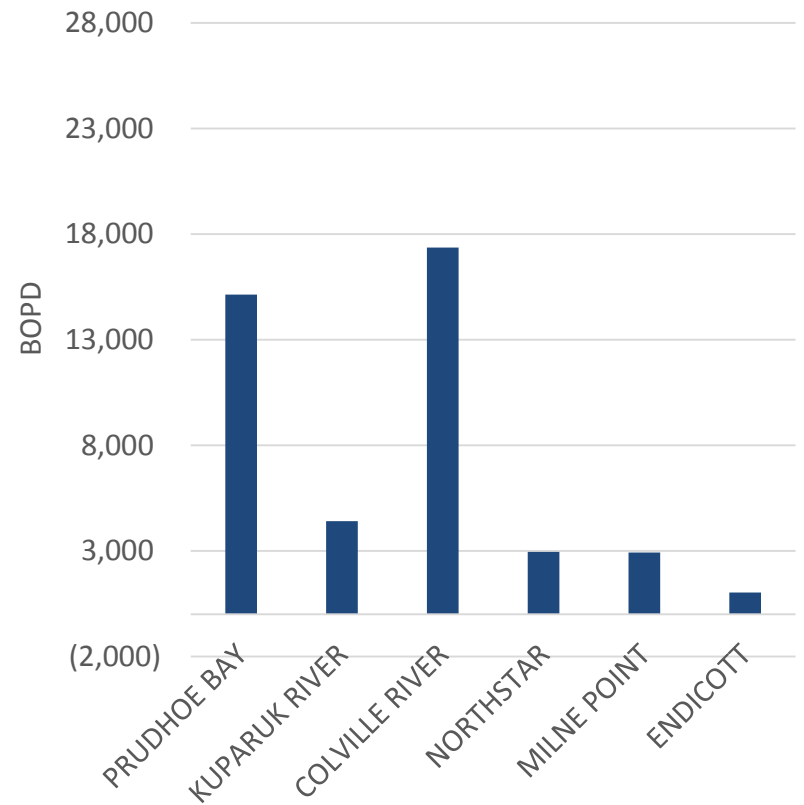


Impressive Industry Performance

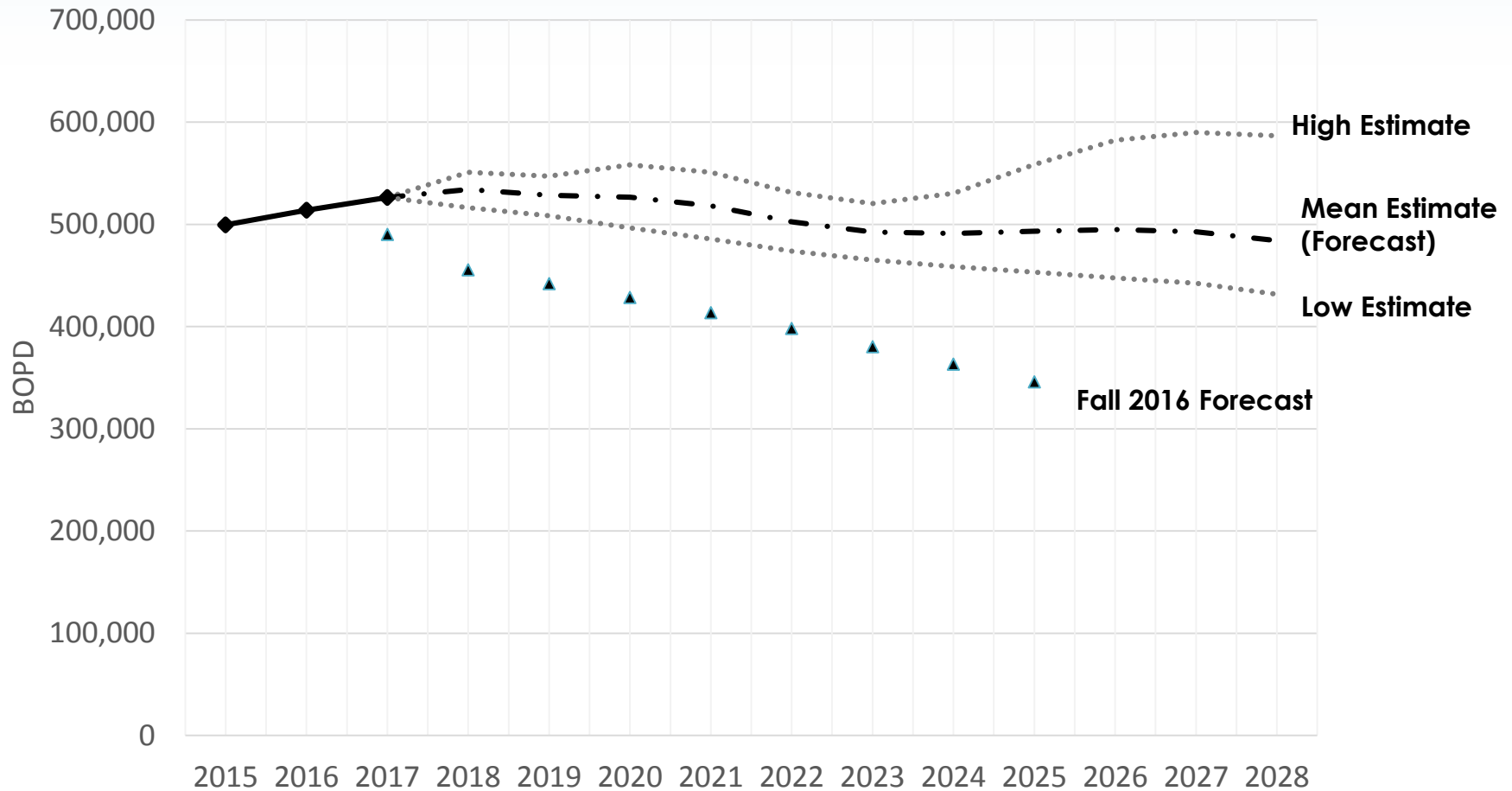
FY17 Actual Versus Trend



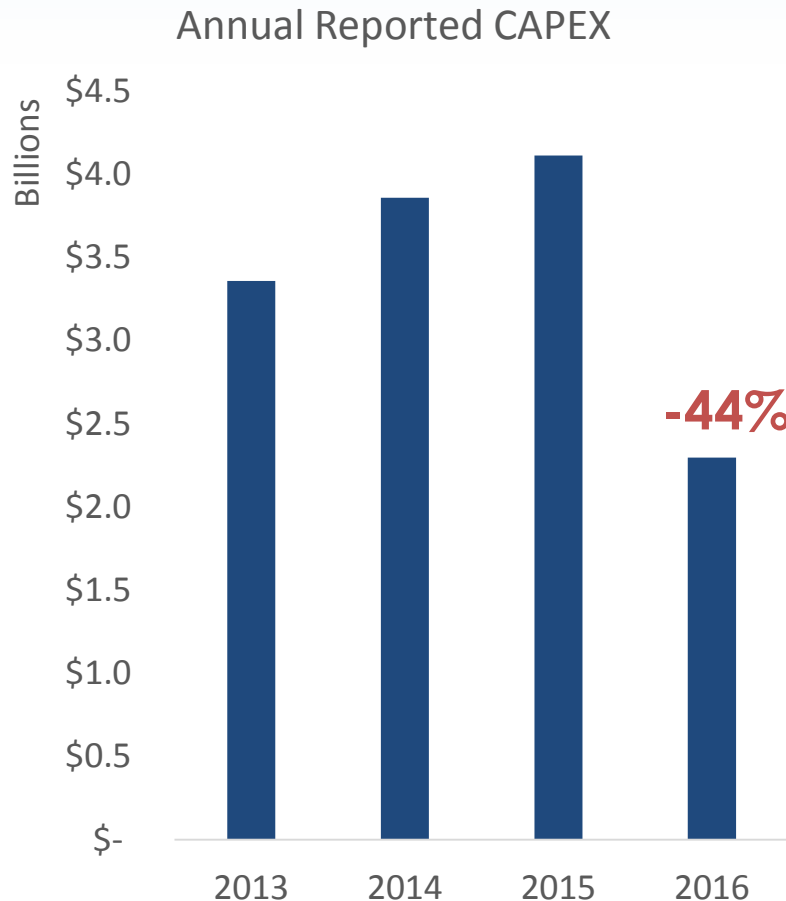
FY16 Actual Versus Trend



10-YEAR FORECAST

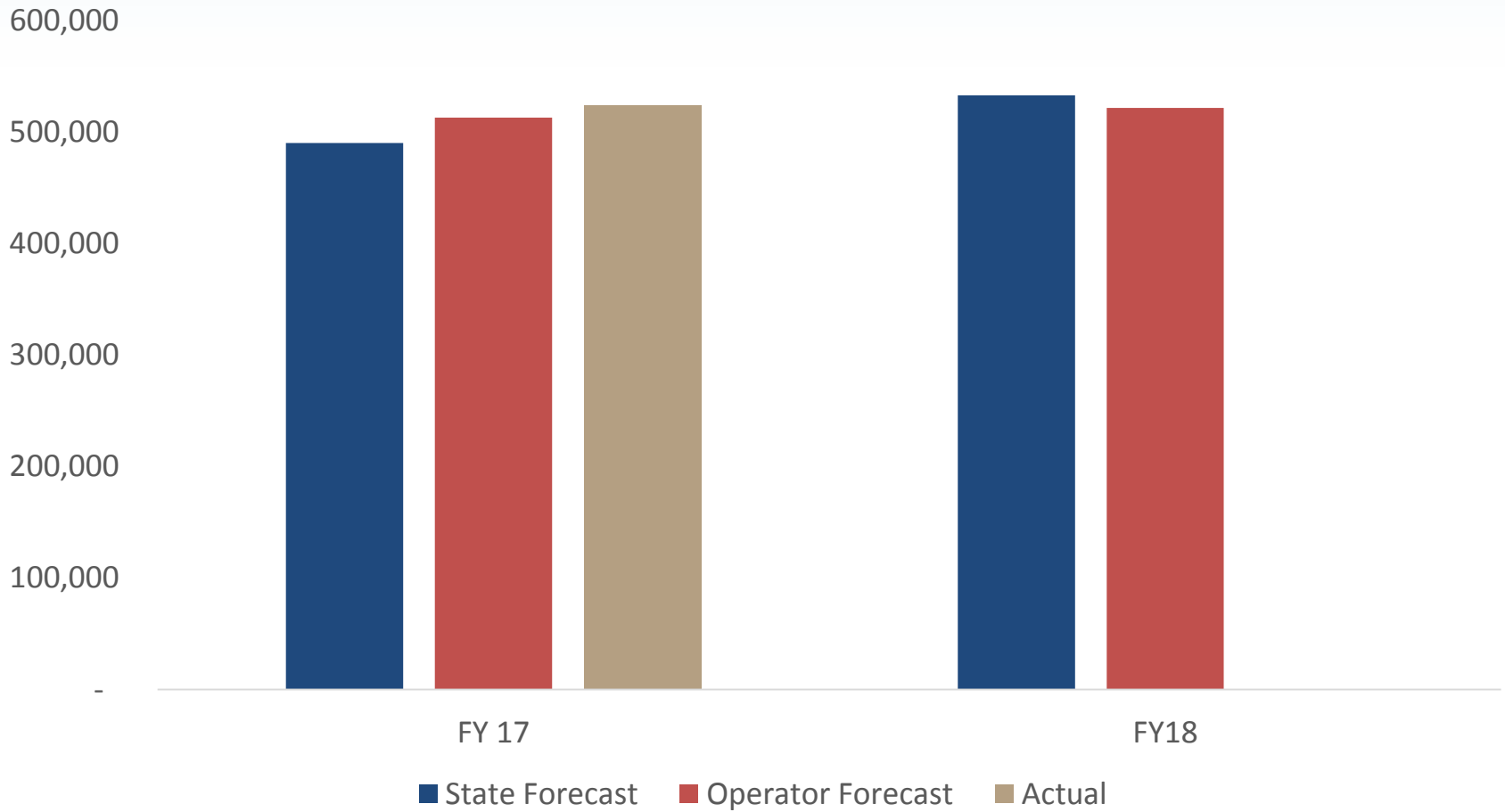


Lessons Learned



- We assumed reduced capital expenditures and rig laydowns would result in accelerated decline
- The operators outperformed expectations, doing more with less

Lessons Learned



METHODOLOGICAL CHANGES

CHANGES - FALL 2016 TO FALL 2017

Fall 2016

- 5 yr future projects outlook
 - Beyond 5 yrs was treated as “Pot of Gold” (outside official forecast, excluded from Revenue Sources Book)
- Annualized rates without seasonal fluctuations shown
- Emphasized improving long term predictions
- Under Evaluation projects were not risked for chance of occurrence

Fall 2017

- 10 yr future projects outlook
 - Beyond 5 yrs considered “Under Evaluation 2” (part of official forecast, included in Revenue Sources Book)
- Monthly rates with seasonal fluctuations shown
- Near term emphasis w/ attention to realistic long-range outlook
- Under Evaluation projects risked for chance of occurrence within ten-year forecast window, first oil start date, and probabilistic range in production profiles

TECHNICAL PROCESS CHANGES

- Increase understanding of tools and technique
 - Closer collaboration with software developer
 - Hindcasting exercise/sensitivities to test applicable Decline Curve Analysis regression periods
 - Steps to improve near-term accuracy
- Improve process efficiency:
 - Improved collaboration (Team, Department of Revenue)
 - Regular consultation with Department of Revenue
- Improve communication with clients and stakeholders

NEAR-TERM UNCERTAINTY

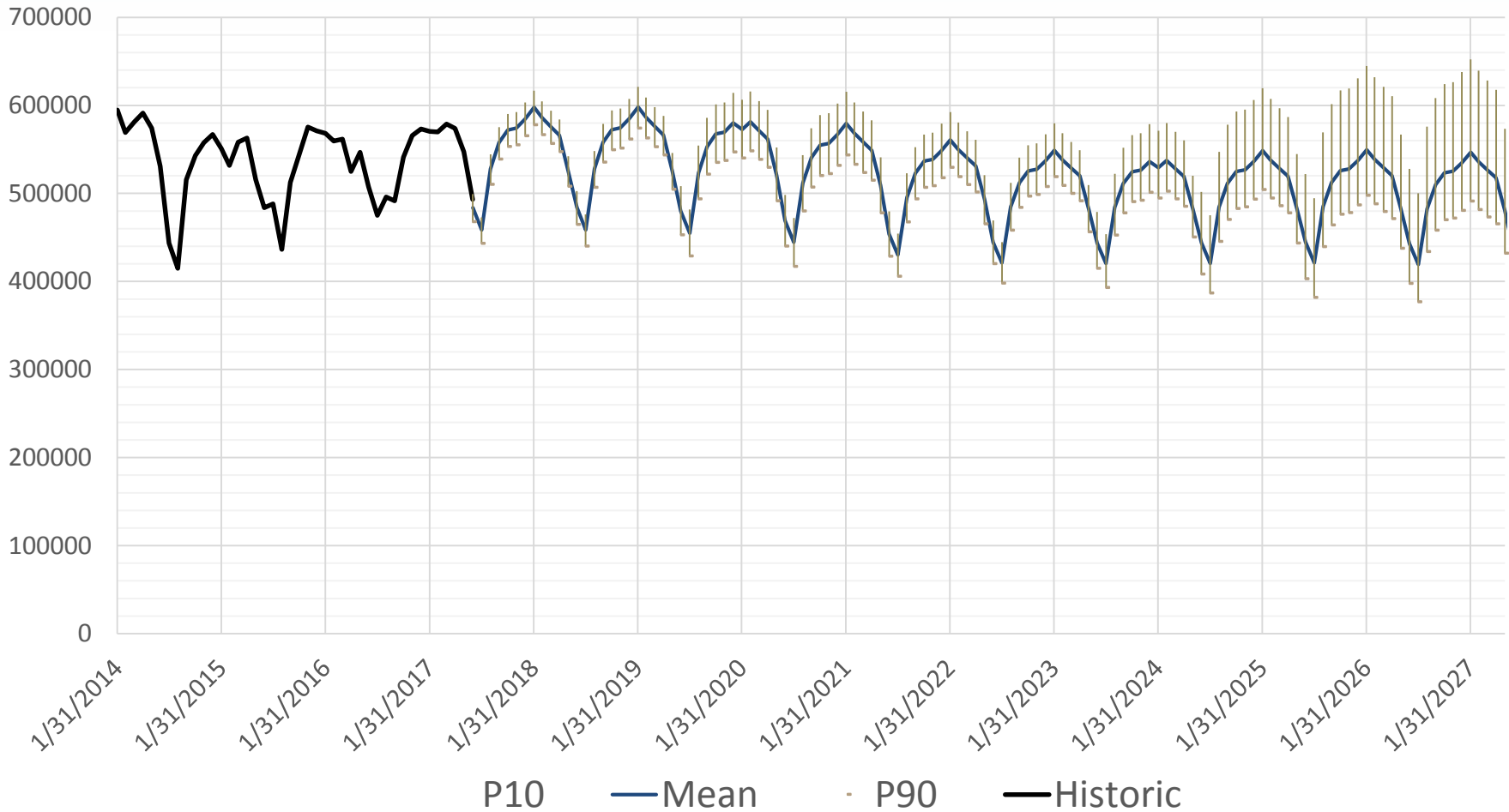
- Decline Curve Analysis weighted toward recent production history (2 to 5 yrs)
- Probabilistic range beginning from first date of forecast (previously probabilistic curves were pinned to last month of historical production)
- Full credit to planned UD production (previously we discounted nearly all UD as within background)
 - Makes for more accurate near term production
 - Makes up for rate increases from non-drilling rate additions

Methodology

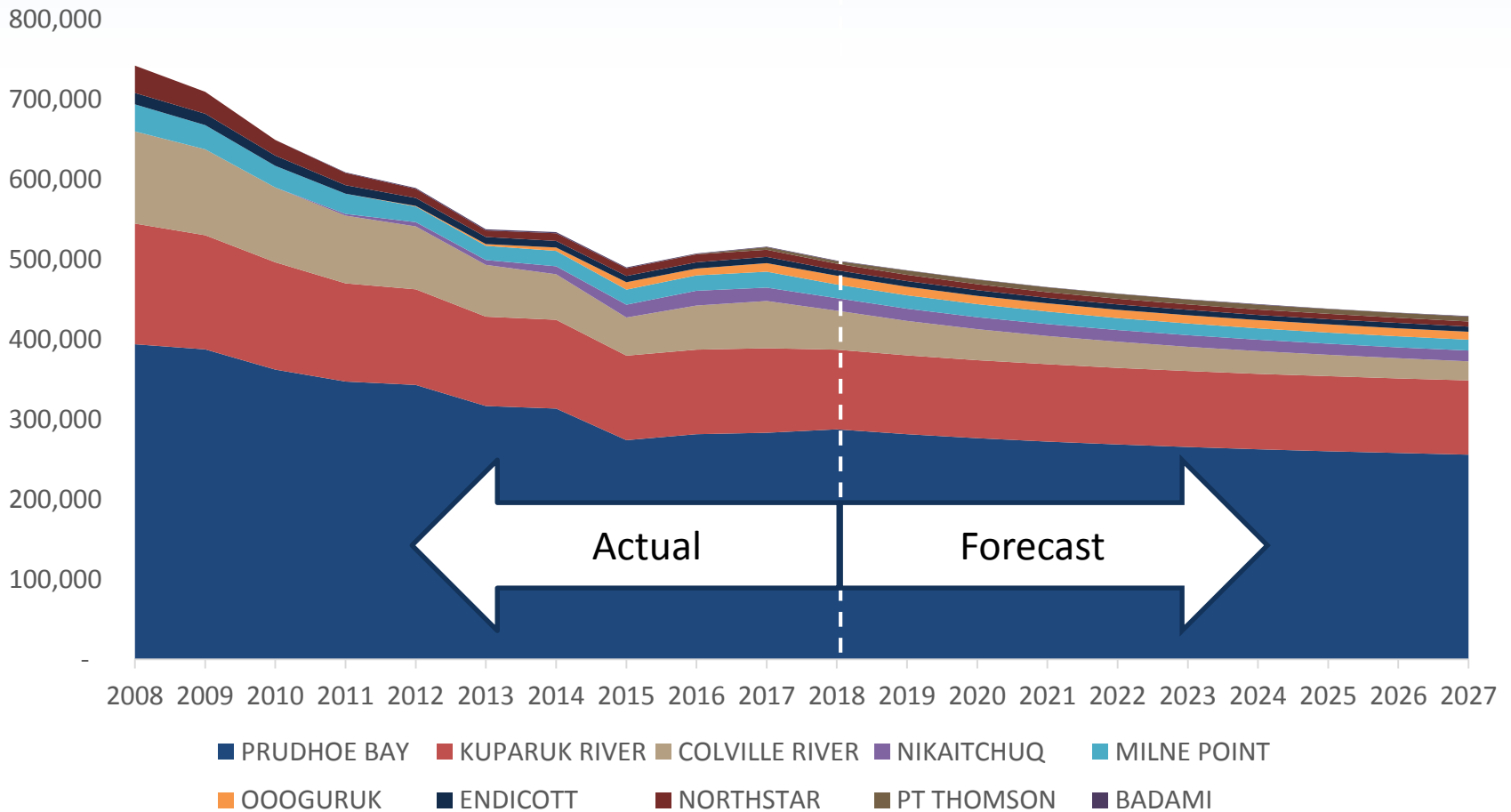
- Currently producing:
 - Small uncertainty range due to established behavior of production pools
 - Quantitative probabilistic range of outcomes for CP pools
- Projects Under Development:
 - Applied quantitative probabilistic ranges using type wells
 - Some financial risk: Addressed using estimated project breakeven price and Department of Revenue oil price forecast
 - Projects detailed in plans of development or in confidential meetings with DOR
- Projects under Evaluation
 - Projects that have been announced, but are premature for sanctioning
 - Applied quantitative probabilistic ranges using type wells
 - Financial risk using project breakeven price and Department of Revenue oil price forecast
 - Other uncertainties included
 - Project chance of occurrence
 - Project timing risk

FALL 2017 FORECAST RESULTS

Production Forecast Range (All Alaska)

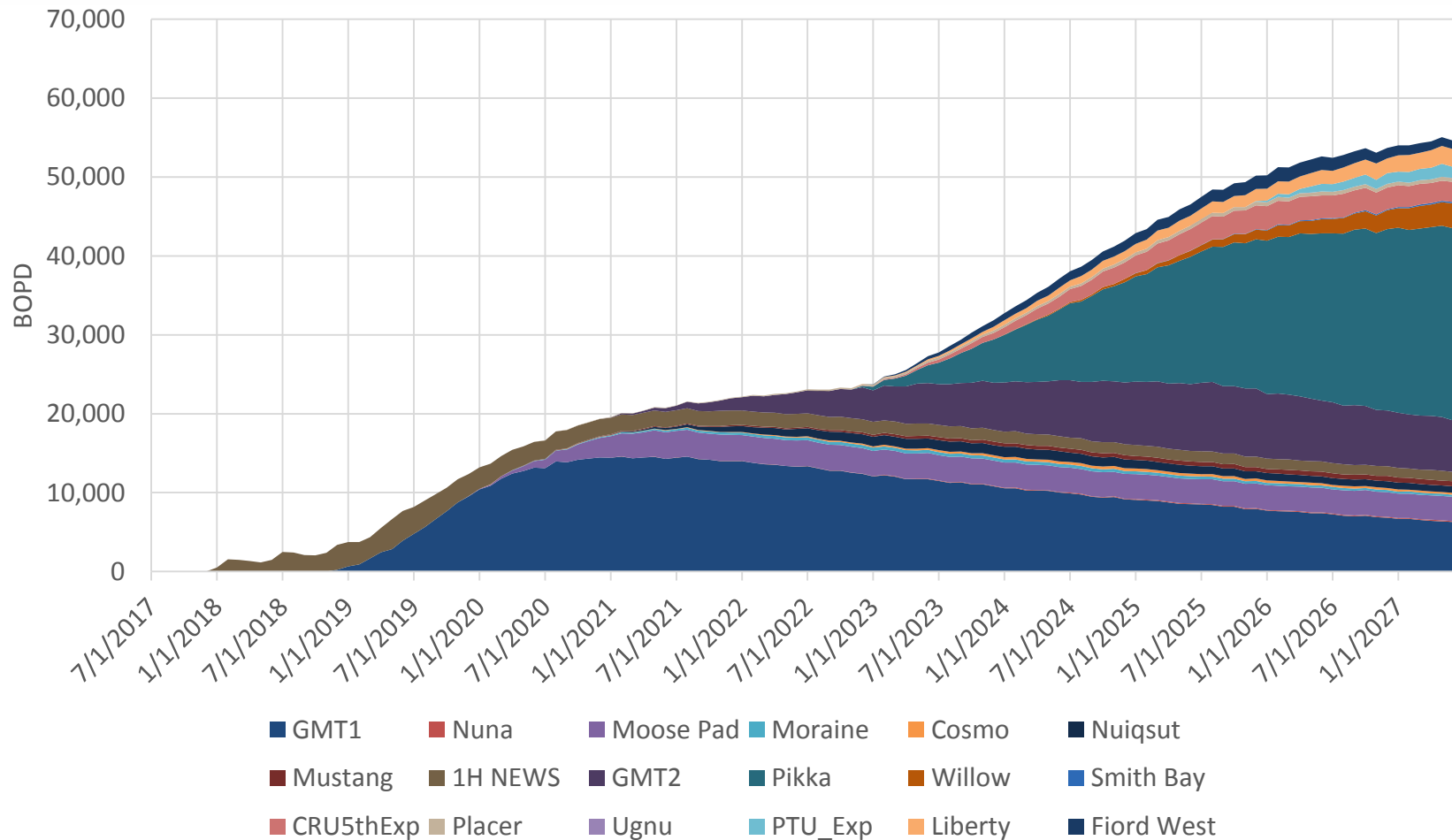


Currently Producing Forecast



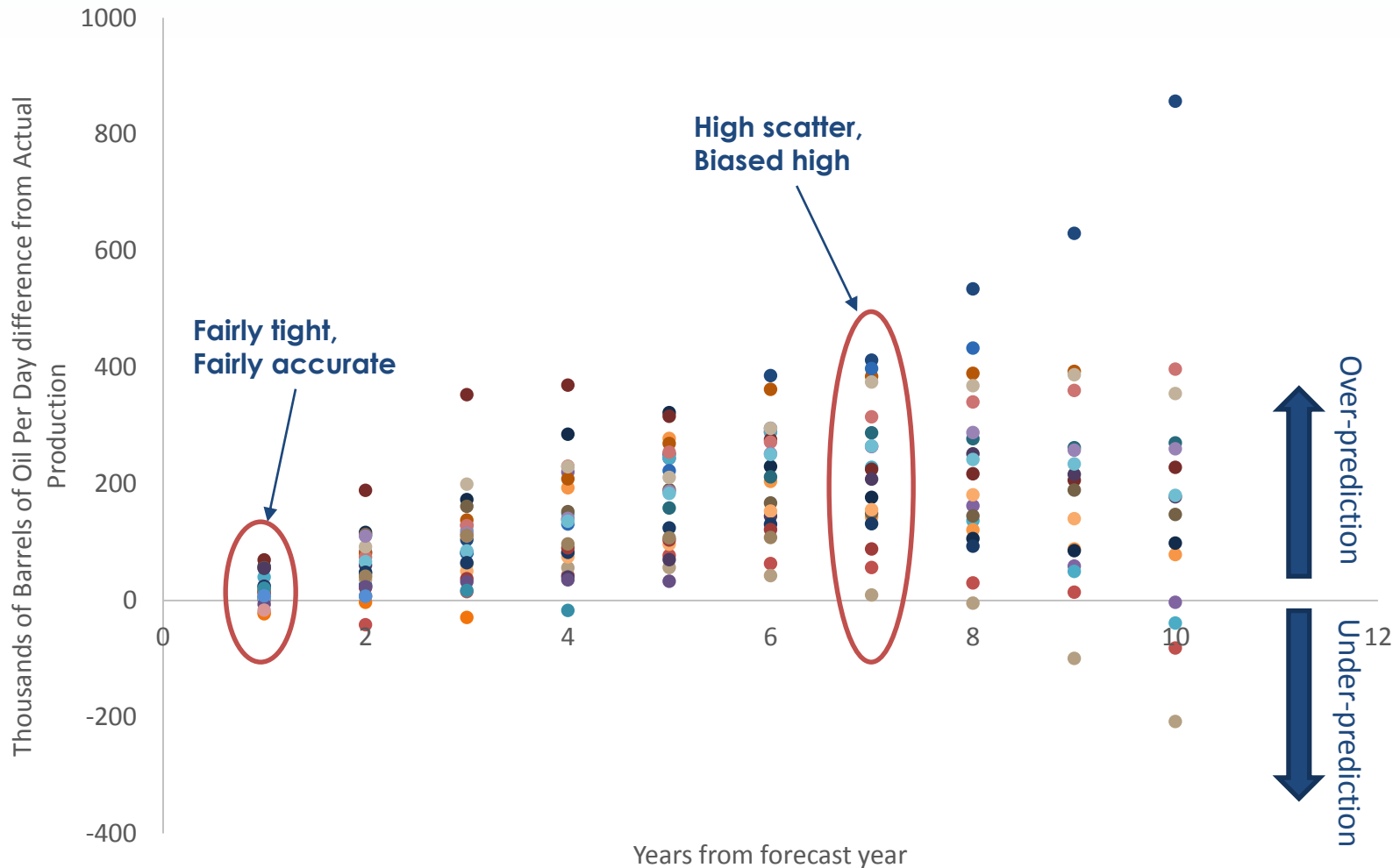
WHERE WILL THE NEW OIL COME FROM?

All UE Projects-Risked for occurrence, timing and scale



PREVIOUS FORECASTS vs ACTUAL PRODUCTION: STRONG BIAS TOWARD OVERPREDICTION

Fall Forecasts vs Actual Production from 1990 through 2015



HOW SHOULD WE INTERPRET THIS FORECAST?

- There's a lot to be excited about
 - but there is still a lot of uncertainty in future projects
- The forecast is a probability weighted average of many possible outcomes
 - It is not a prediction of exactly which scenario will come to be
- Each year in the forecast is it's own best estimate
 - The year to year changes are not actually predictions of decline rates

THANK YOU!



550 W. 7TH AVE, STE. 1100, ANCHORAGE, AK 99501
www.dog.dnr.alaska.gov