

Forecasting new wells' supply of oil & natural gas

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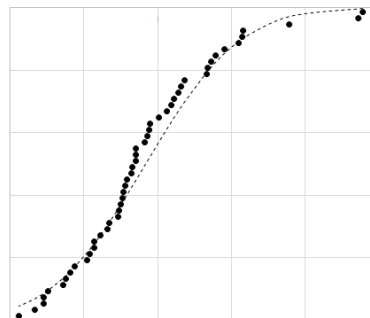
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Motivation

- To improve long term estimates of oil and natural gas supply forecast
- To identify trends of production by producing pools and technology
- Flexibility in developing elasticity-based scenarios in forecast
- To build a geological knowledge-base for non-geologist scholars

Methodology



Analytics

Data retrieval

- Production data
- Pools' data
- Wells' data

Data Validation

- No data
- Mismatching date
- Abnormal values

Disaggregation

- By completion date
- Producing pool
- Trajectory

Curve fitting

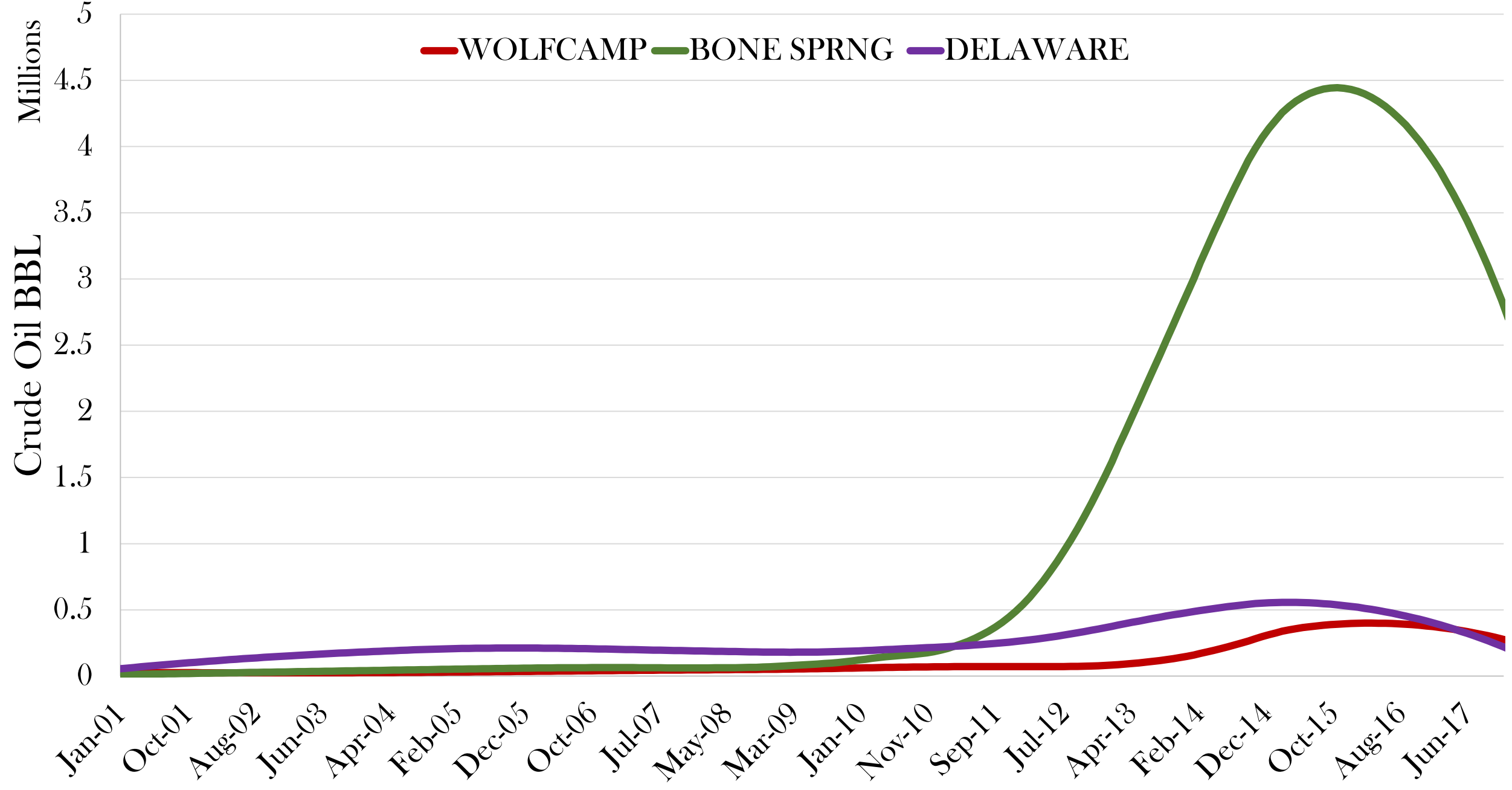
$$\min \sum_t e_t^2 = (Q_t - \hat{Q}_t)^2$$
$$\hat{Q}_t = \frac{Q_i}{(1 + b \cdot D_i \cdot t)^{\frac{1}{b}}}$$

Characteristics of NM Permian & San Juan Basins

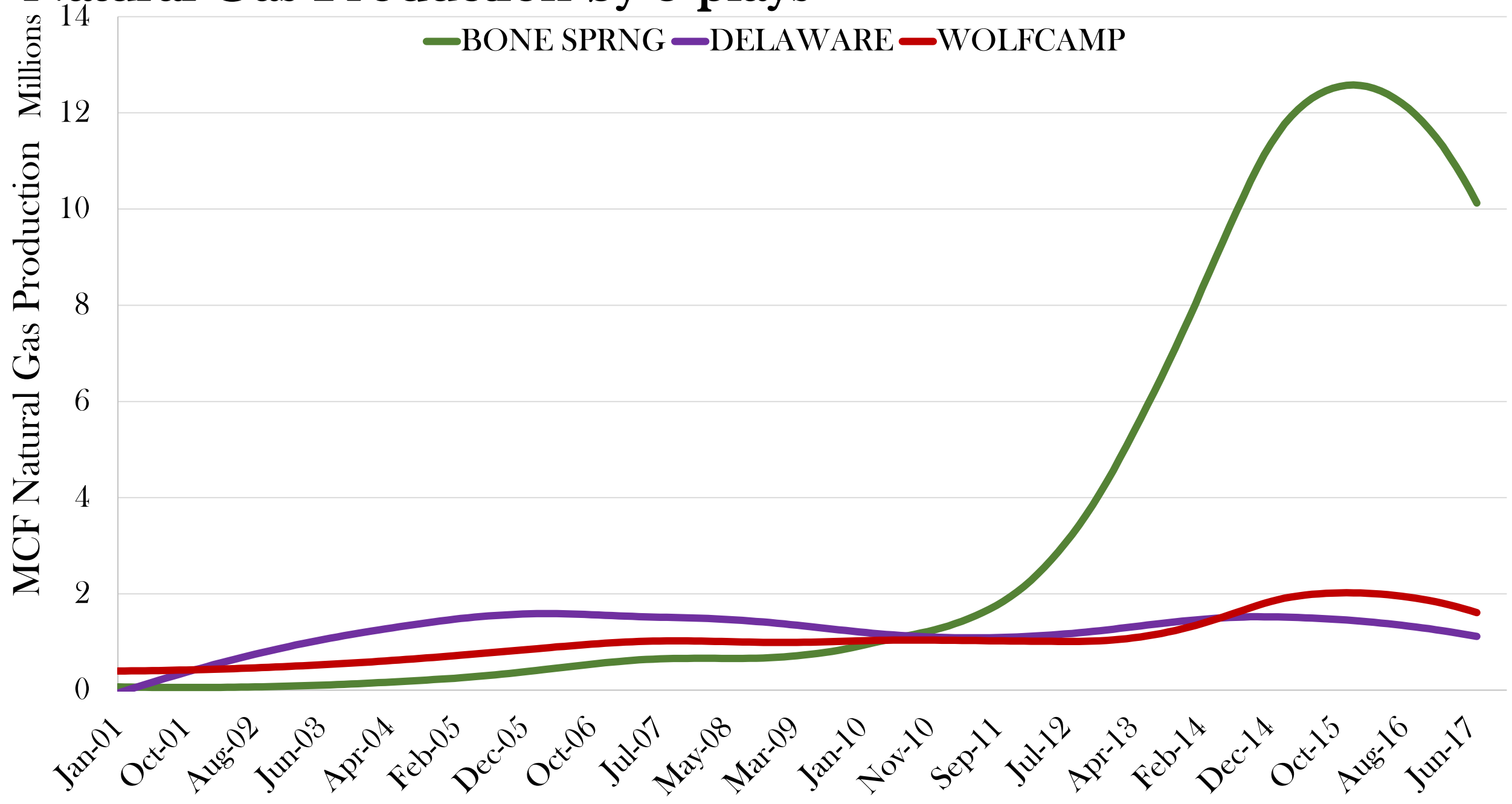
- Total of **26** plays
- **6** have produced neither natural gas nor crude oil since 2001
(Artesia, Barnett, Entrada, Leonardian, Lewis & Woodford)

Either vertical technology or both vertical and horizontal are present (no play uses horizontal as a sole production technology)

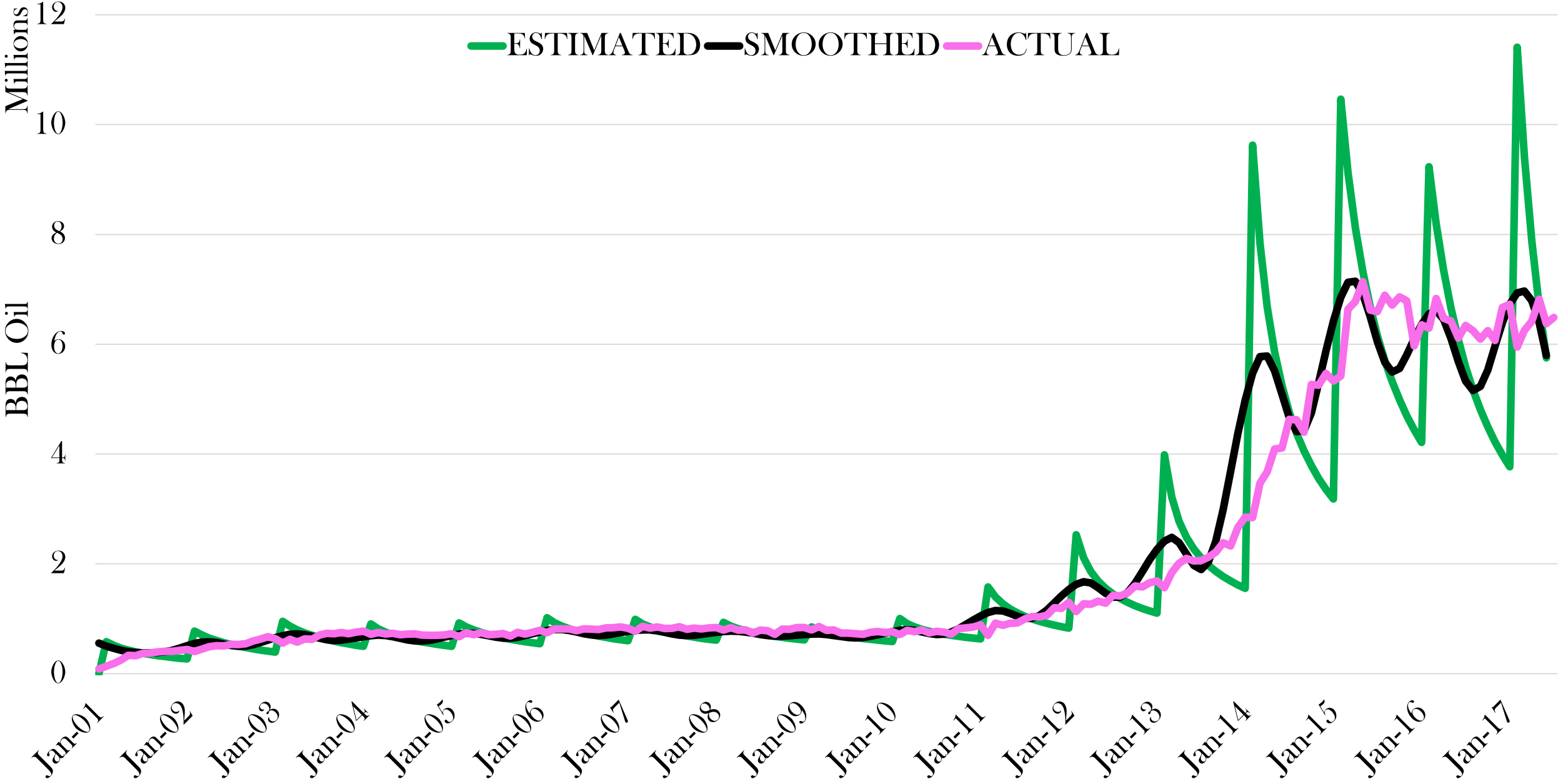
Crude Oil Production by 3 plays



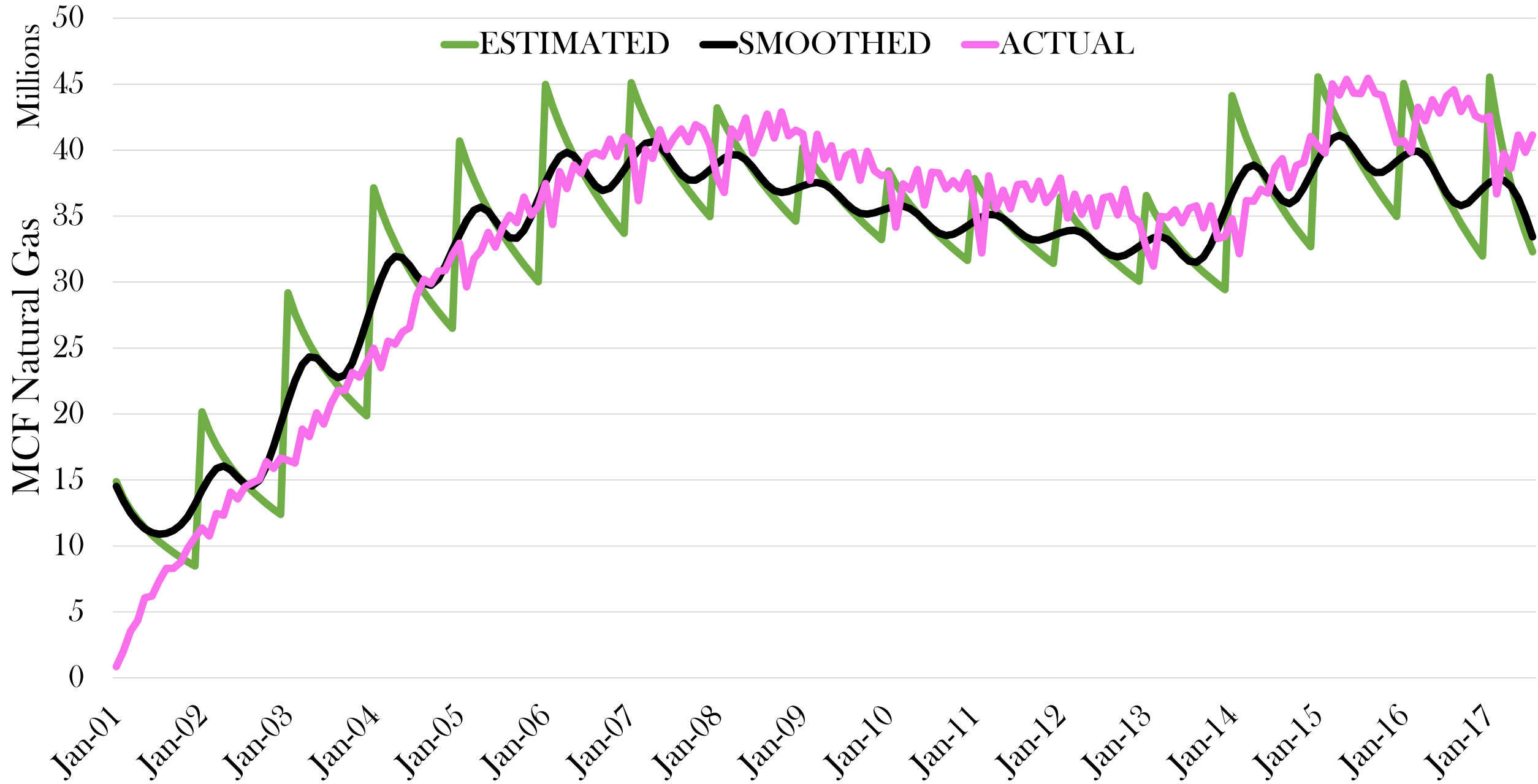
Natural Gas Production by 3 plays



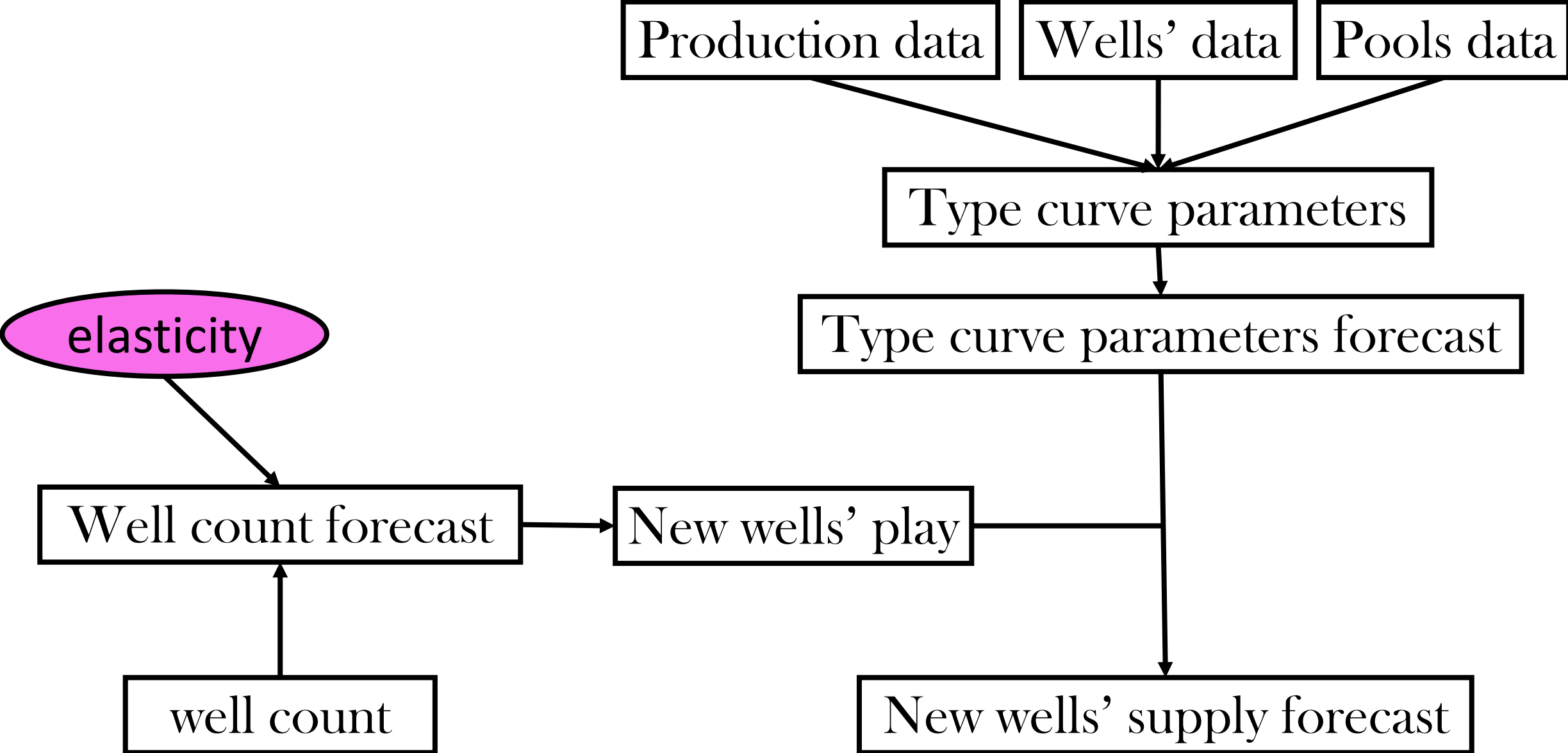
Aggregated Crude Oil Production



Aggregated Natural Gas Production



Forecast of future supply



Questions and comments