Oil and gas on Federal lands
A summary of resources, trends, and what they mean for the future

September 25, 2018
Michael Ford
Economist, Bureau of Land Management
Land use planning

The land use plan lays the foundation for land management:

• Identifies areas for Resource Use
• Identifies areas that need Protection
• Resolves Resource Conflicts

Resource Management Plans (RMPs) balance resource planning decisions:

• Areas closed to leasing, areas open to leasing, open with stipulations
Basis for RFD estimates

National Environmental Policy Act of 1969 (NEPA)

• To the fullest extent possible, all Federal agencies shall –
  • (C) include in every recommendation or report ... a detailed statement on:
    – (i) the environmental impact of the proposed action (EIS).


• Section 201 (a): “The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values...”

Federal Regulations (43 CFR § 1610.4-3)

• Inventory data and information shall be collected in a manner that aids application in the planning process, including subsequent monitoring requirements.
Federal resources

Resource estimates in BLM decisions

• An RFD is a reasonable projection of the most likely oil and gas activity
  • Primarily based on geology, along with past and present development
  • Also includes economics, technology, limitations to access
  • Approaches can vary by BLM office

• Technically Recoverable Resources (TRR): starting point for an RFD
  • Make the most sense over a 20-year timeframe
  • USGS basin estimates, overlayed with RMP boundaries
  • Limitation layers to estimate undeveloped TRR (UTRR)
  • How or whether this is done also varies by BLM office
Total Fed Onshore Resources

*Energy Policy Conservation Act (EPCA) Phase III - method*

- Phases I (2003), II (2006) and III (2008) all use the 2002 National Oil and Gas Assessments’ USGS TRR estimates, with peer review

- Phase II – 12 geological provinces, expanded to 18 under Phase III

Total Fed Onshore Resources

_Energy Policy Conservation Act (EPCA) Phase III - results_

- For the U.S., about 17% of oil, 20% of gas UTRR are Federal onshore
- 17% of Federal acreage is accessible, including 8% oil, 10% gas UTRR

**Acreage (279 million acres)**

- 17% Inaccessible (Categories 1-4)
- 23% Accessible with restrictions (Categories 5-8)
- 60% Accessible under standard lease terms (Category 9)

**Oil (31 BBbl)**

- 8% Inaccessible (Categories 1-4)
- 30% Accessible with restrictions (Categories 5-8)
- 62% Accessible under standard lease terms (Category 9)

**Natural Gas (231 TCF)**

- 10% Inaccessible (Categories 1-4)
- 41% Accessible with restrictions (Categories 5-8)
- 49% Accessible under standard lease terms (Category 9)

Growth in tight oil

Sales of Federal onshore oil production, by Region, FY2008-2017
barrels per day

Federal onshore vs. other U.S. production, FY2008-2017
million barrels per day


Note: Tight oil regions are determined using the county designations from the U.S. Energy Information Administration's Drilling Productivity Report.

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Growth in shale gas

Sales of Federal onshore natural gas production, by Region, FY2008-2017
billion cubic feet per day

Federal onshore vs. other U.S. production, FY2008-2017
billion cubic feet per day

Note: Tight oil regions are determined using the county designations from the U.S. Energy Information Administration’s Drilling Productivity Report.

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Projecting forward

ONRR provides actual data on volumes and prices for counties, that are grouped into Basins, which are assigned to EIA OGSM regions.

Growth of a Federal basin depends on % growth of assigned OGSM region.

Integrates EIA estimates of TRR (discovered + undiscovered reserves).

Source: Federal volumes from Department of Interior, Office of Natural Resource Revenue. Projected using EIA AEO2018 percentage changes

*Permian = Adjusted EIA projections at Wolfcamp and Avalon/Bone Spring formations.
TRR and OGSM

Table 1. Technically recoverable U.S. crude oil resources as of January 1, 2016

<table>
<thead>
<tr>
<th>Region</th>
<th>Proved Reserves</th>
<th>Unproved Resources</th>
<th>Total Technically Recoverable Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower 48 Onshore</td>
<td>28.4</td>
<td>165.7</td>
<td>194.1</td>
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<tr>
<td>East</td>
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<td>4.6</td>
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<tr>
<td>Gulf Coast</td>
<td>5.8</td>
<td>32.0</td>
<td>37.8</td>
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<tr>
<td>Midcontinent</td>
<td>2.4</td>
<td>14.3</td>
<td>16.5</td>
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<td>Southwest</td>
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<td>71.7</td>
<td>80.9</td>
</tr>
<tr>
<td>Rocky Mountain/Dakotas</td>
<td>8.3</td>
<td>39.2</td>
<td>47.6</td>
</tr>
<tr>
<td>West Coast</td>
<td>2.2</td>
<td>4.5</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Permian Federal onshore oil volumes using three projection scenarios

Projections – royalty revenue

OMB oil and natural gas price projections, PB 2019 vs. PB 2018

Oil (West Texas Intermediate, $nom/barrel)

Natural gas (Henry Hub, $nom/million British thermal units)

Royalty revenue projections at 12.50% and 18.75% base rates, PB 2019 vs. PB 2018

12.50% (billions of dollars)

18.75% (billions of dollars)

Questions?