Unconventional Gas Development on Public Lands in the United States

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Topics:
• Federal Regulatory Perspective
• Leasing, Permitting, Inspection, Enforcement and Reclamation
Federal Regulatory Perspective
Unconventional Gas Development
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Unconventional Gas Development

• All of the Federal Laws and Regulations that apply to conventional natural gas development also apply to unconventional natural gas development.
Federal Regulatory Perspective
Unconventional Gas Development

• Development of oil and gas, including unconventional gas, is regulated by complex set of Federal, State and local laws that address every aspect of exploration and operation.

• Development on Federally-owned lands is managed primarily by the Bureau of Land Management and U.S. Forest Service
Federal Regulatory Perspective
Unconventional Gas Development

• Private or state-owned minerals:
  • Are governed by state regulations and are enforced by state agencies.
  • Additionally, states have been granted “primacy” for the enforcement of certain Federal Laws and regulations; such as the Clean Air and Clean Water Acts.
  • The Federal government retains regulatory oversight over these programs.
United States Bureau of Land Management
Managing public lands for multiple-use
Federal Oil and Gas Regulatory Authorities Affecting Natural Gas Development

- Federal Land Policy and Management Act
  - Mandates multiple resource use and sustained yield for future generations

- National Environmental Policy Act (NEPA)
  - Requires thorough analysis for environmental impacts

- Mineral Leasing Act of 1920
  - Initiated the granting of leases for development of leasable minerals
Federal Oil and Gas Regulatory Authorities Affecting Natural Gas Development

• Federal Oil and Gas Royalty Management Act
  • Regulates royalty management and Inspection and Enforcement

• Federal Oil and Gas Leasing Reform Act
  • Regulates quarterly competitive oil and gas lease sales

• A myriad of other Policies & Regulations
Federal Oil and Gas Leasing
(Includes Unconventional Gas)
Leasing

Land Use Planning

• Lays the Foundation for Land Management
• Balances Resource Use and Protection
• Resolves Resource Conflict
• Involves the Public
Leasing

Land Use Planning

Planning Decisions Designate:

• Areas Closed to Leasing.

• Areas Open to Leasing with standard terms and conditions.

• Areas open to leasing with Moderate Constraints:
  
  • Seasonal Restrictions
  • Restricted Surface Use

• Areas open to leasing with Major Constraints:
  
  • No surface occupancy
  • Multiple overlapping constraints
Leasing

Parcel Nomination and Review Process

- Allows industry and the public-at-large to nominate parcels for lease
- BLM conducts an environmental review, which includes:
  - An Interdisciplinary review team
  - Assuring compliance with the land use plan
  - Parcel visits may occur
  - A public review and comment process
  - A public protest process
    - Protests are resolved before the parcel is offered for lease
Well Permitting (Includes Unconventional Gas)

Application for Permit to Drill (APD)
Well Permitting

Review and Approval of the Operator’s APD

The National Environmental Policy Act
- Requires environmental analysis

Depending on APD impacts, Environmental Review may require:

• Determination of NEPA Adequacy - quick
• Environmental Assessment – few months
• Environmental Impact Statement - requires thorough analysis which may take 4-6 years to complete.
Inspection and Enforcement
Inspection and Enforcement

Types of Inspections:

- Drilling
- Production
- Workover
- Records Verification
- Abandonment
- Undesirable Events
- Environmental
Reclamation

Restoring the Healthiness of the Habitat & Landscape

The Gold Book @ www.blm.gov
Reclamation

Key Concept:
- Energy Development must be seen as a temporary, not a permanent use of the land and water - Its footprint must be minimal.

1) Pre-Development: Planning

2) Development Phase: Minimize Impacts

3) Reclamation Phase: Restore Topography & Vegetation
3 years

…. Attain final use of the Land for other activities

10 years
Coalbed Methane (CBM) in U.S.
Coalbed Methane (CBM) in Wyoming

• Powder River Basin:
  • Geologic Region: 120 miles east to west and 200 miles north to south
  • Supplies 40 percent of coal in the U.S.
  • Currently: 33,000 CBM wells
    • Depth of most wells: 200 ft. – 1,200 ft.
    • 80 acre spacing
  • CBM reserves estimated as much as 25 TCF
  • Initial water production lowers the hydrostatic head above coal allowing methane desorption from the coal
Coalbed Methane Production Issues

• Water Quantity and Quality
  • Water Quantity
    • Wells may produce over 17,000 gal./day
    • Local water tables may depleted.
  • Water handling is controversial:
    • Surface discharge can change ephemeral drainages to perennial flow.
    • Impoundments are frequently needed to control or restrict surface flow.
  • Water Quality
    • Some produced water is naturally high in salinity and sodium adsorption ratio or SAR.
    • Saline water adversely affects plant growth.
Coalbed Methane Production Issues

• Conflicts with Coal Extraction
  • CBM development and coal mining in close proximity poses inherent safety hazards to CBM workers and coal miners.
  • CBM development precludes the opportunity to conduct coal mining until gas production has ceased.
• To minimize these issues BLM places a controlled surface use stipulation on all oil and gas leases issued within existing coal leases, which prohibits oil and gas development until the both lease holders and BLM concur on a safe plan of development.
Other Unconventional Gas Development Issues

• Shale Gas:
  • Issues with shale gas development within the Niobrara Formation of eastern Wyoming
  • Horizontal well bores cross multiple lease boundaries causing royalty allocation problems.
  • Drilling requires large volumes of fresh water.
  • Some wells may be in the vicinity of In Situ uranium mining operations.
    • Radio active water is potentially being re-injected into gas bearing zones.
Other Unconventional Gas Development Issues

• Tight Sand Formations:
  • Like Coalbed Methane, Tight Sands produce large volumes of water
  • The water is high in Total Dissolved Solids (TDS) content
  • Without expensive treatment processes the produced water is not suitable for:
    • Surface discharge
    • Drilling or well completion operations
• Gas production requires extensive high-pressure hydraulic fracturing (fraccing)