

The Energy Revolution

Case Study: Wolfcamp Shale of the Permian Basin

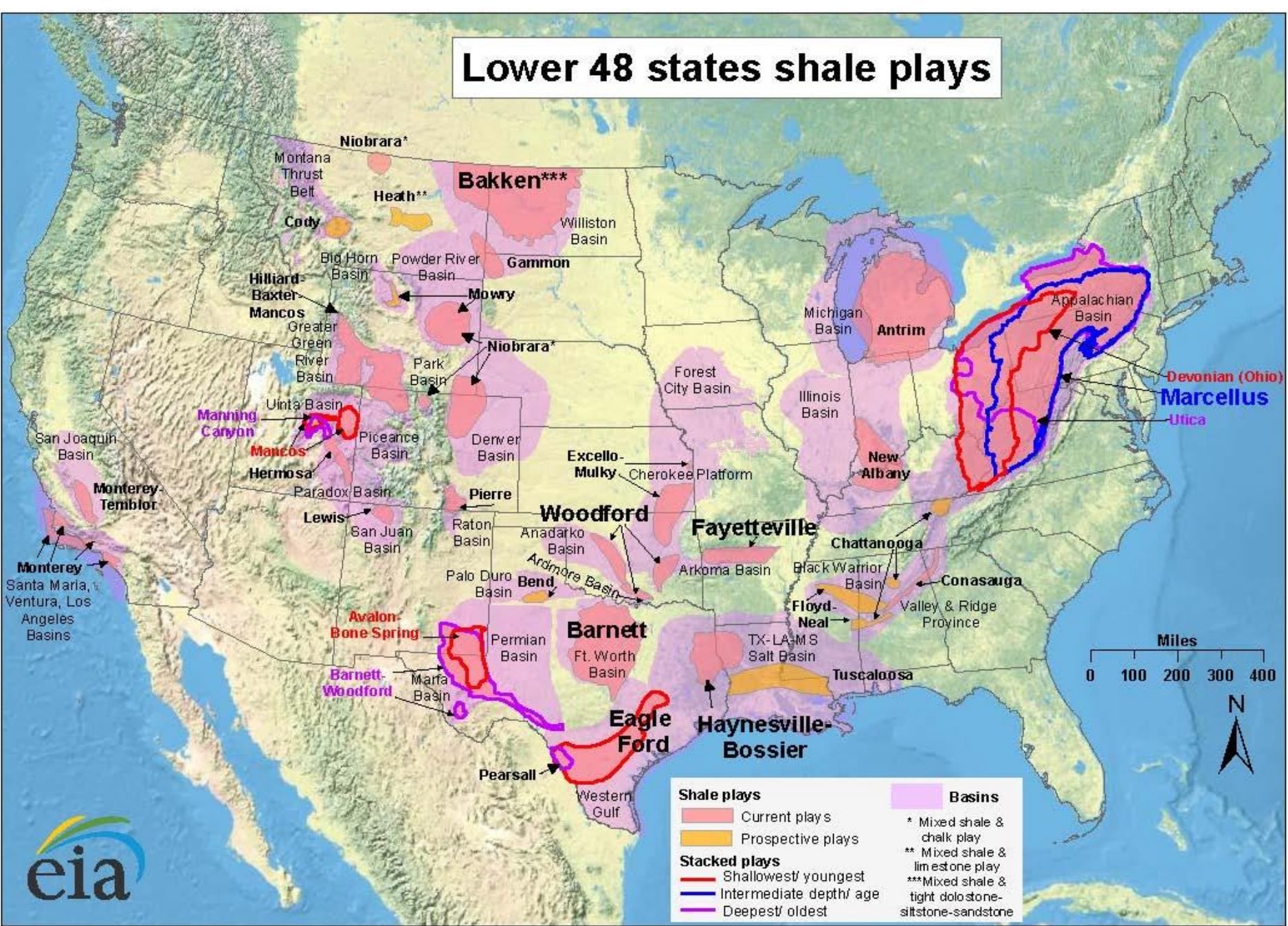
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Unconventional Resource Development in the US

- Unconventional Resource Plays, Generally
- Typical Transaction Structure
- Other Agreements/Documents
- Acquisition Agreement
- Joint Development Agreement/JOA
- Due Diligence Issues
- Miscellaneous
- Alternative Approaches to Acquiring Reserves

Lower 48 states shale plays



Source: Energy Information Administration based on data from various published studies. Updated: May 9, 2011

Unconventional Resource Plays, Generally

- Large-scale and continuous, but tight (low permeability), formations
- Traditionally viewed as source rock, as opposed to as reservoir rock
- Historically considered unviable
- Advances in technology = economic viability

Unconventional Resource Plays, Generally

Continued

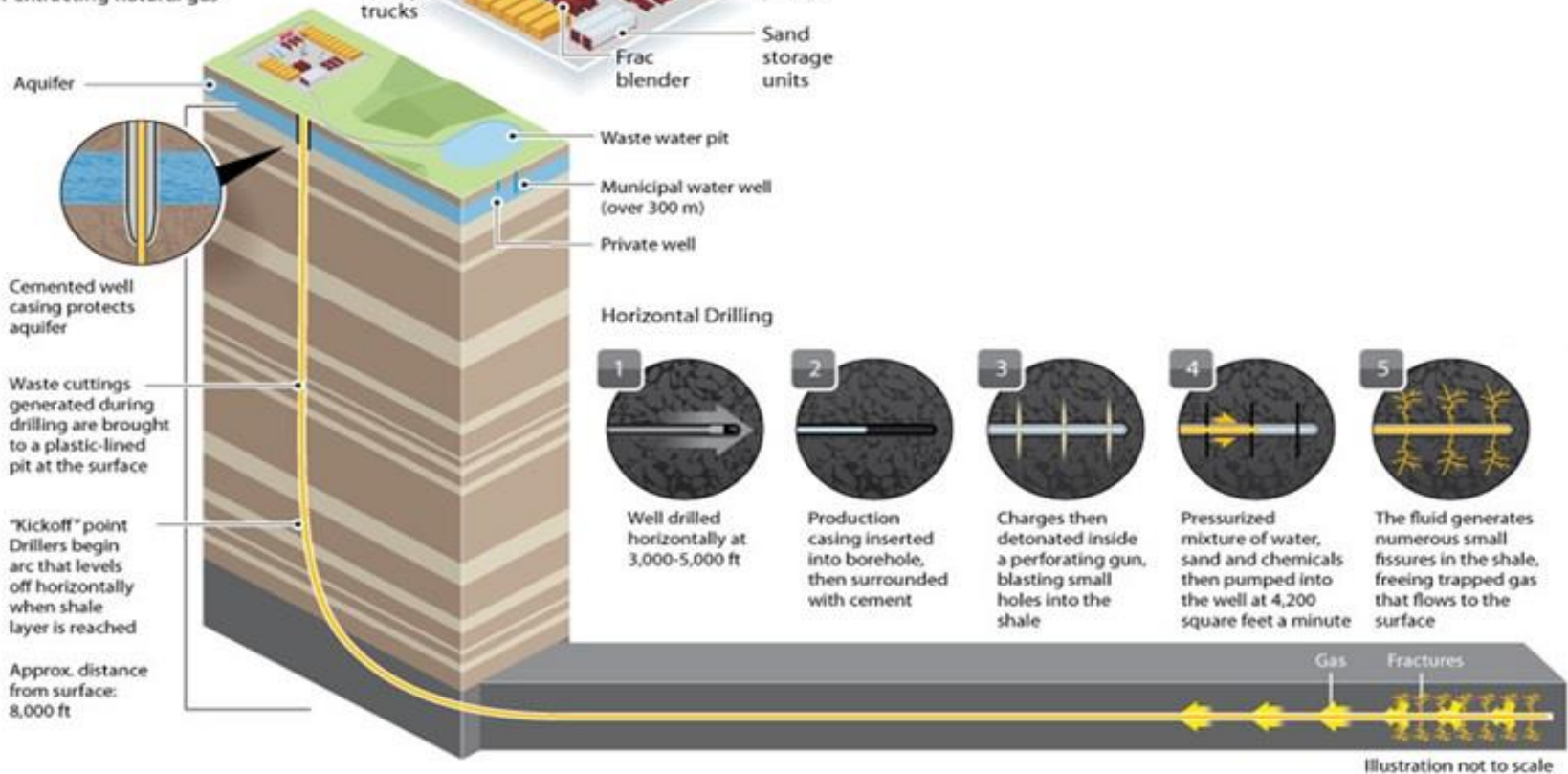
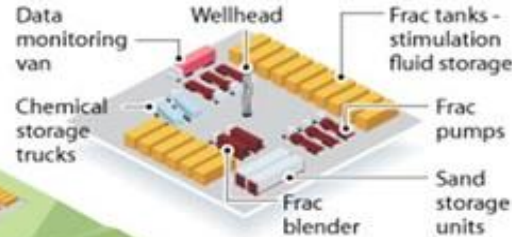
- Horizontal drilling combined with hydraulic fracturing opened door to development
 - Significant advantages to horizontal wells
 - Exposes more of wellbore to target formation
 - Lessens environmental footprint
 - Hydraulic fracturing is key
 - Water, sand and chemical agent pumped at high pressure fractures target formation
 - Proppant (sand) holds open fractures
 - Typically done in multiple stages (“multi-stage hydraulic fracturing”)
- Sensitive to commodity prices, ability to continue drilling, and water issues
 - Production profile tends to be high initially, with quick decline and a gradual leveling out
 - Fracking uses large quantities of water
 - Creates issues regarding water sourcing and disposal

Unconventional Resource Plays, Generally *Continued*

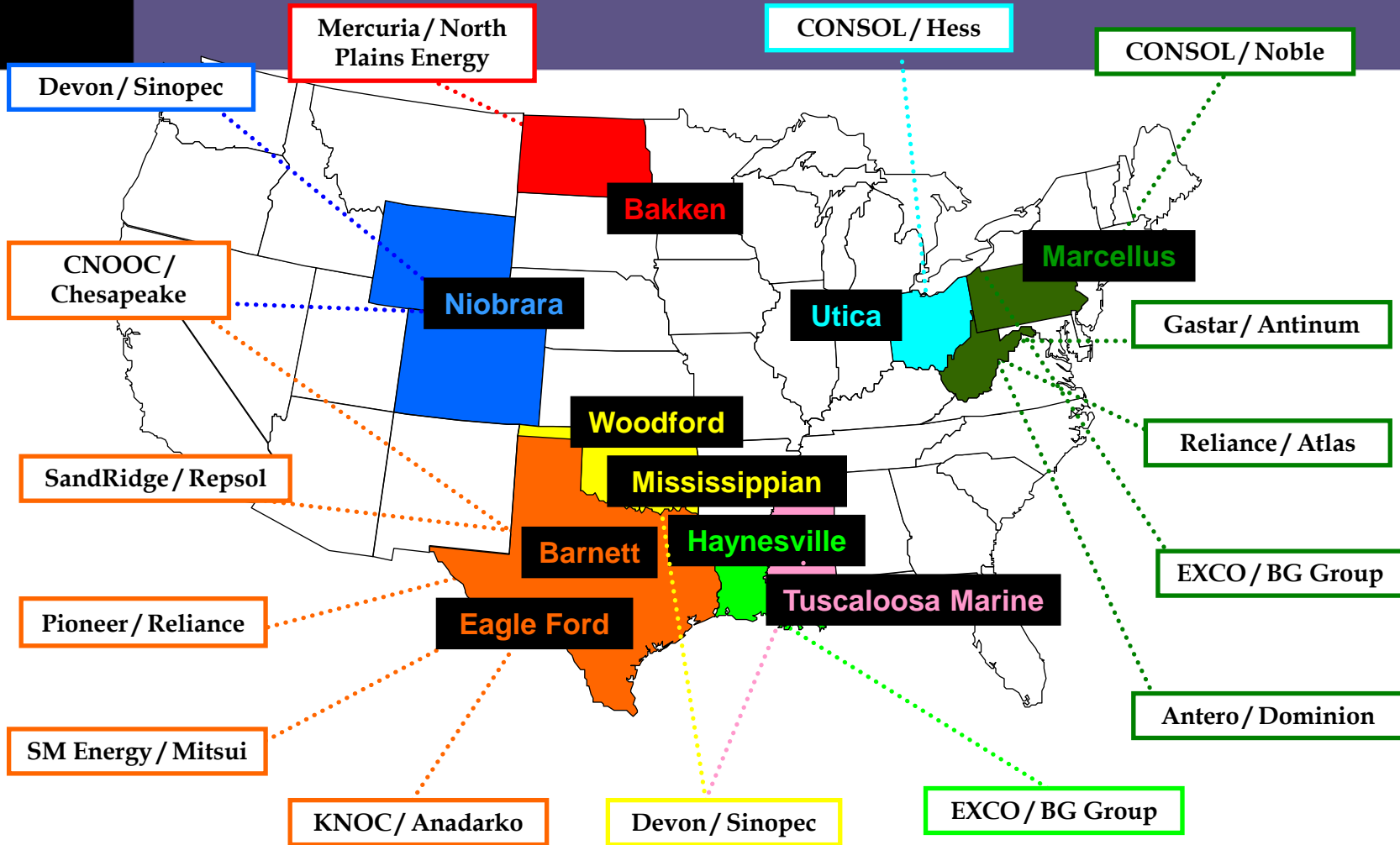
THE PROCESS

Hydraulic fracturing, commonly known as fracking, is the creation of fractures in rock formations in the earth using pressurized fluid, generally for the purpose of extracting natural gas.

Common Fracturing Equipment



Selected US Shale JVs



Typical Transaction Structure

Implementation of terms

- Acquisition Agreement (AA)
- Joint Development Agreement (JDA)
 - Terms of Carry
 - Governance
 - Project level issues
- Joint Operating Agreement (JOA)
 - Operations
 - Typically based on 1982 or 1989 AAPL form
 - Contract Area vs. Unit-by-Unit vs. Well-by-Well
- Shared Use Agreement
 - If only limited depths are being acquired

Typical Transaction Structure *Continued*

- Amount of interest/Depths being acquired (AA)
- Consideration typically in the form of “cash and carry” (AA and JDA)
- Amount of cash paid upfront (AA)
- Amount of the Producer’s costs to be carried (JDA)
- Coverage of the carry (JDA)
 - Drilling, completing and equipping wells
 - Operating expenses
 - Horizontal wells in target formation
 - Exclusion of liabilities, damages, etc.

Typical Transaction Structure *Continued*

- Length of the carry (JDA)
 - Expenditure of entire carry consideration
 - Defined time period
 - Extension due to lower commodity pricing
- Offramps (JDA)
 - Investors are increasingly requesting some type of “off-ramp” and/or suspension of the Carry in certain circumstances
 - Decreases in commodity prices, production targets not being met, Increases in drilling costs, etc.
 - Consequences and duration of Off-Ramps vary:
 - Suspend obligation to pay the Carry for an agreed upon time period
 - Automatic reduction in drilling plan
 - Reduction in the percentage of the Producer’s costs to be carried by the Investor
 - Buy-out of remaining Carry at a pre-determined present value discount

Typical Transaction Structure *Continued*

- Limitation on use of Off-Ramps is negotiated
 - Once per X number of years / only once for term of JDA
- Tax Partnership needed to capture tax benefits associated with the carry (JDA)
- Treatment of formations other than the target formation – alignment issue (Shared Use Agreement)
- Treatment of midstream assets – alignment issue (Various Structures)

Other Agreements / Documents

- Joint Operating Agreement (JDA)
- Assignment and Bill of Sale (AA)
- Buyer Parent Guaranty (AA)
- Tax Partnership Agreement (JDA)
- Buyer Parent Guaranty (JDA)
- Mortgages (JDA)
 - To be coordinated with JOA mortgage/lien

Other Agreements / Documents *Continued*

- Memoranda (JDA)
 - To be coordinated with JOA recording supplement
- Agreed Work Program and Budget (JDA)
- Provisional Work Programs and Budgets (JDA)
- Form of Assignment, if AMI utilized (JDA)
- Secondment Agreement (JDA)
 - Ability to second buyer employees into seller's organization
 - Not common in US industry
 - Knowledge transfer, confidentiality and liability issues
- Technical Services Agreement (JDA)

Acquisition Agreement

- Consideration Structure
 - In addition to any upfront and/or staggered cash payments, consideration includes entering into the Joint Development Agreement and other JV documents
 - Increasingly, many transactions have less or no upfront consideration
- What does a typical Acquisition Agreement cover?
 - Covers the interest to be conveyed to, or earned by, the investor and other typical issues found in purchase agreements for upstream oil and gas assets (consideration adjustments, representations and warranties, title and environmental due diligence mechanisms, consent and pref right mechanisms, indemnities and closing conditions and mechanics)

Joint Development Agreement / JOA

- Producer typically serves as operator (JDA)
 - Joint Development Agreement typically has robust description of operator duties, in addition to description of duties in Joint Operating Agreement
 - Investors increasingly seeking opportunities to operate
 - Investor may negotiate special purpose entity as operator
- Change-in-operatorship options (JDA)
 - Investor ability to become operator
 - Drilling vs. Production
 - Property-by-property
 - Occurrence of specified milestones
 - Passage of time

Joint Development Agreement / JOA

Continued

- Formation of Operating Committee / Joint Technical Team (JDA)
 - Sharing of technical information
 - Exposure to technology
 - Input
 - Control
 - Advisory vs. decision-making role
- Development and approval of annual and multi-year budgets and/or plans (JDA)
 - Work Programs and Budgets
 - Operations and estimated costs
 - Planning vs. commitment
 - Agreed vs. provisional
 - AFEs

Joint Development Agreement / JOA

Continued

- Areas of Mutual Interest
 - Parties share in acquisitions in the contract area
 - Maintains alignment
 - Primary acquiror
 - Investor involvement
- Transfer restrictions
 - Standstill during Carry period for investor
 - Consents to assign
 - Preferential rights to purchase
 - Asset sale vs. change in control
 - Exclusions based on type of sale
 - Maintenance of Uniform Interest

Joint Development Agreement / JOA

Continued

- Tax partnership
 - Carry requires use of tax partnership to capture full tax benefits
 - Treats interests as being in partnership for US federal tax purposes only
 - Eliminates issue of income recognition in relation to acreage earned outside a drill site
- AAPL Form Joint Operating Agreement
 - Changes to address horizontal drilling

Due Diligence Issues

- Title
 - Potentially longer title diligence period
 - Level of title diligence carried out by Investor
 - Amount of acreage held by production
 - Transactions typically characterized by significant portions of PUDs and/or other non-producing acreage
 - Potential use of replacement acreage (non-producing acreage) to address title defects
 - Development plan for the contract area
 - Unusual surface restrictions
- Commercial
- Material Contracts

Due Diligence Issues *Continued*

- Field/Facilities Inspection
- Environmental Review
- Rig Availability
- Frack Crew Availability
- Water Sourcing – Rights and Infrastructure
- Water Disposal – Rights and Infrastructure
- Gathering/Handling/Processing, Transportation and Sales Infrastructure (and Rights)
- Data Licensing Requirements
- Access to Technology

Miscellaneous

- Midstream options
 - Future midstream activities should be addressed
 - Structuring and alignment are critical to success
 - Provide take-away capacity for upstream assets
 - Represent potential separate business opportunities
 - Potential forms of structure
 - Investor acquires undivided interest in midstream infrastructure and contract rights
 - Investor contracts to use Producer's midstream assets and capacity
 - Establish jointly-owned midstream special purpose entity

Miscellaneous *Continued*

- Non-US investors
 - Unfamiliar property concepts
 - Private ownership of minerals
 - Security Liens/Mortgages
 - Title/environmental due diligence
 - Unfamiliar tax concepts
 - Tax partnerships
 - Committee on Foreign Investment in the United States (“CFIUS”)
 - Potential US government inter-agency review
 - Threshold inquiry – threat to the national security of the United States
 - To file or not to file, that is the question
 - Potential prohibition or “un-winding” of transaction
 - Normal course of action

Miscellaneous *Continued*

- Qualification to hold federal or state leases
 - Restrictions on ownership of leases of foreign nationals/entities
 - Outer Continental Shelf Lands Act (and its regulations) – OCS
 - Mineral Lands Leasing Act (and its regulations) – BLM
 - Others?
 - Corporate structuring to address requirements
- Potential technology transfer restrictions

US Shale JV Structuring Issues in a Nutshell

US Upstream JV Issues

Structure

- Jointly owned entity
- Individual / direct leasehold ownership
- Drill to earn structures

Consideration

- Upfront cash
- Carry
 - off-ramps (situations where carry may not apply – e.g. price threshold or when drilling plan is reduced)
 - costs covered by carry
 - percentage of costs subject to carry
 - term

JDA/PA

- Governance (management committee)
- Development plan
 - pre-approved for default situations
- Carry Mechanics
- Budgets
 - approval rights
 - default budget procedures
- Operatorship
 - removal rights
 - operatorship split between parties
 - reporting to non-operator parties
- Area of mutual interest
 - scope / duration
- Transfer restrictions
- Exit strategies
 - term limit
 - Drag / tag rights
 - If entity, IPO / sale of equity

Tax Considerations

Acquisition/Contribution Agreement

- Cash Consideration
- Title/Environmental Defect Mechanisms
- Representations/Warranties
- Closing Mechanics
- Indemnities

Alternative Approaches to Acquiring Reserves

- Standard Purchase and Sale Agreement
 - Outright purchase of reserves
 - No joint development
- Volumetric Production Payment
 - Future delivery
 - Specified volumes during specified periods