



# **OIL & GAS ASSETS CONDEMNATIONS & VALUATION**

# CONDEMNATION CONSIDERATIONS

## Operator's Property

- Real property improvements
  - Wells
  - Production & storage facilities
  - Flowlines
- Personal property
  - Pumps
  - Mobile and skid mounted equipment
- Minerals

## De-commissioning Expenses

- Shut-down (operating expenses)
- ARO (capital expense)
  - Wells
  - Production & storage facilities
  - Flowlines
  - Site restoration
- Personal property relocation
- Well remediation
  - Lower casing top
  - Failed cement

The background of the slide is a complex, light gray wireframe structure, resembling a technical drawing or a 3D model of a building or industrial facility. The lines are thin and create a dense, geometric pattern that recedes into the background, providing a technical and architectural context for the text.

# **OPERATOR'S PROPERTY**

**Valuations:  
Approaches & Methodology**

# OIL & GAS PROPERTY CONSIDERED

- Wells
  - Active
  - Inactive
  - Under development (drilled, not completed)
- Production & storage facilities
  - Pumps
  - Treatment
  - Heaters
  - Separators
  - Controls & instruments
  - Tanks
- Flowlines
  - Active
  - Inactive (may or may not be serviceable)

# VALUATION APPROACHES & METHODOLOGY

## Approach

- Income
- Replacement
- Market comparison

## Methodology

- Income
  - DCF
  - CF multiplier
  - P/I ratio
  - ROI
- Replacement
  - Estimated cost
  - Estimated cost less depreciation or adjusted for remaining utility
- Market Comparison
  - Comparable transactions

The background of the slide is a complex, light gray wireframe of a building's structural framework, including columns, beams, and floor slabs, set against a white background. The top of the slide features a dark gray horizontal band with a faint, overlapping wireframe pattern.

# **OPERATOR'S PROPERTY**

**Real Property Improvements**

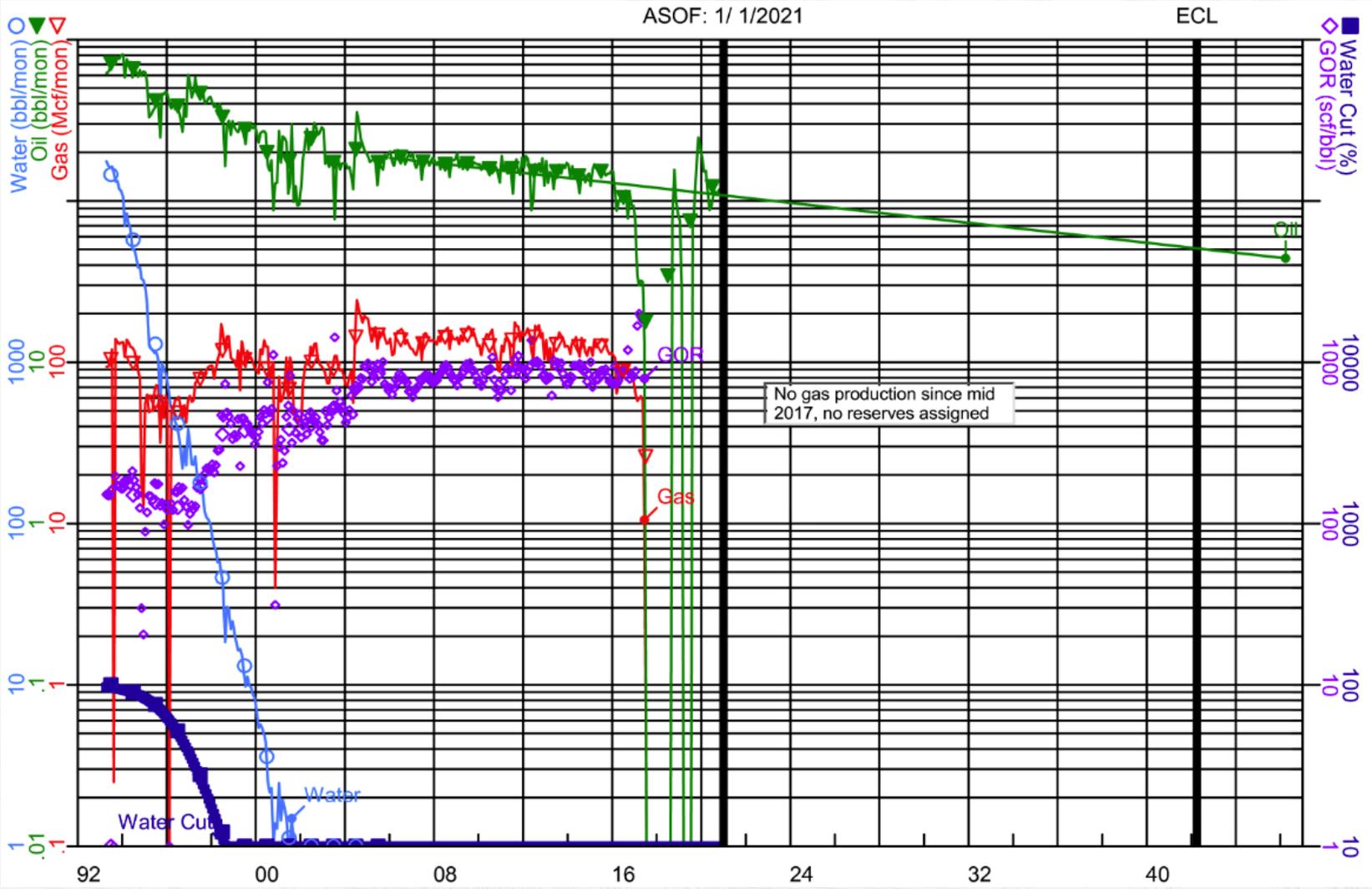
# APPROACHES - WELLS

- Income
  - Discounted cash flow
  - Petroleum reserves considerations
- Replacement cost (generally not used)
  - Cost to drill and complete from new surface location to existing bottom hole location
- Market comparables (generally not used)
  - Comparable sales on a flowing barrel basis

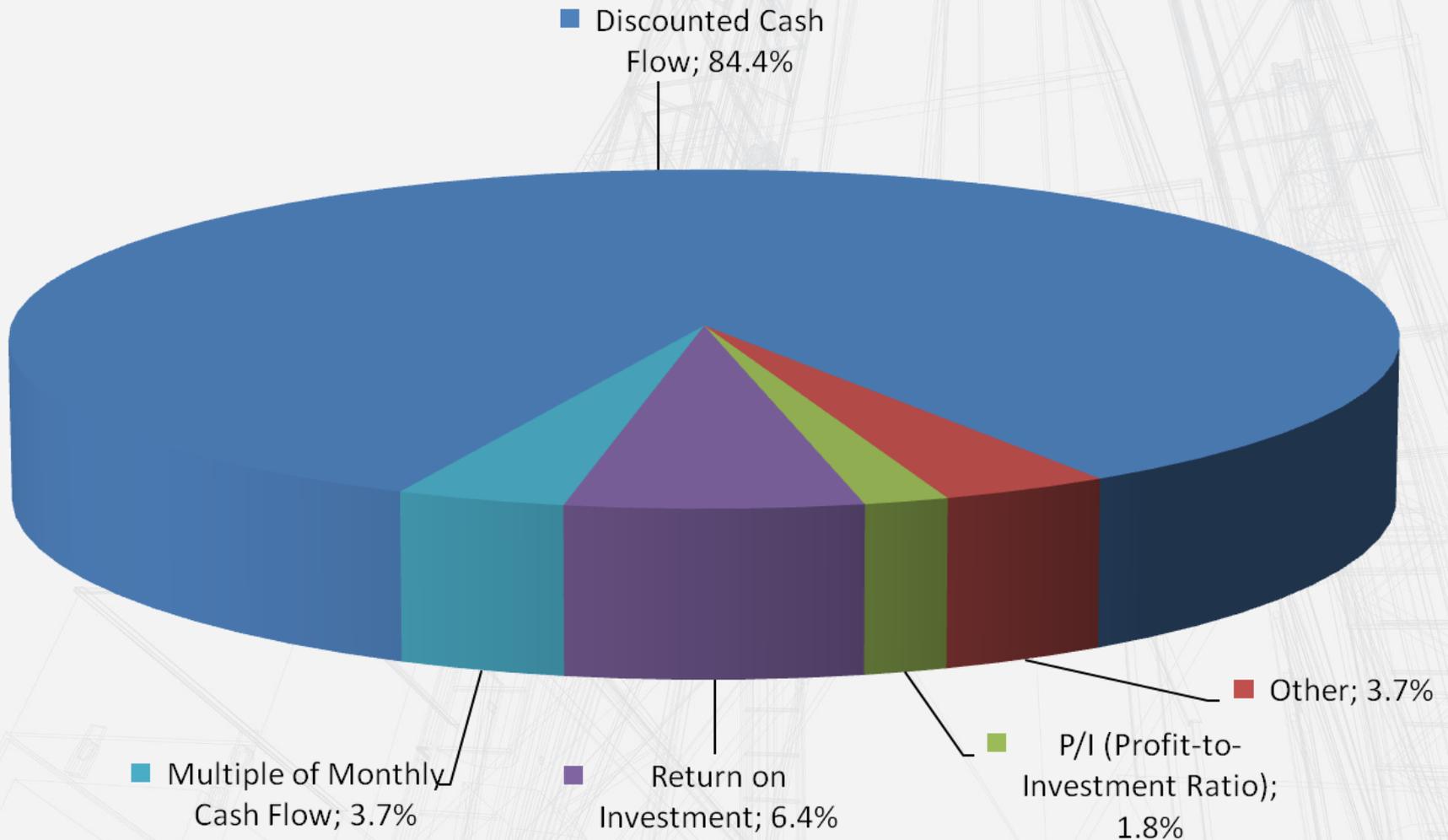
# WELLS – INCOME APPROACH

- Value relies upon forecast production
  - Price assumptions
  - Lease operating expenses
  - DCF for net revenue interest
- Forecasting future production by a type curve based upon historical production is a simple, repeatable method with narrow range of interpretation
- PDP can be attributed to an individual wellbore

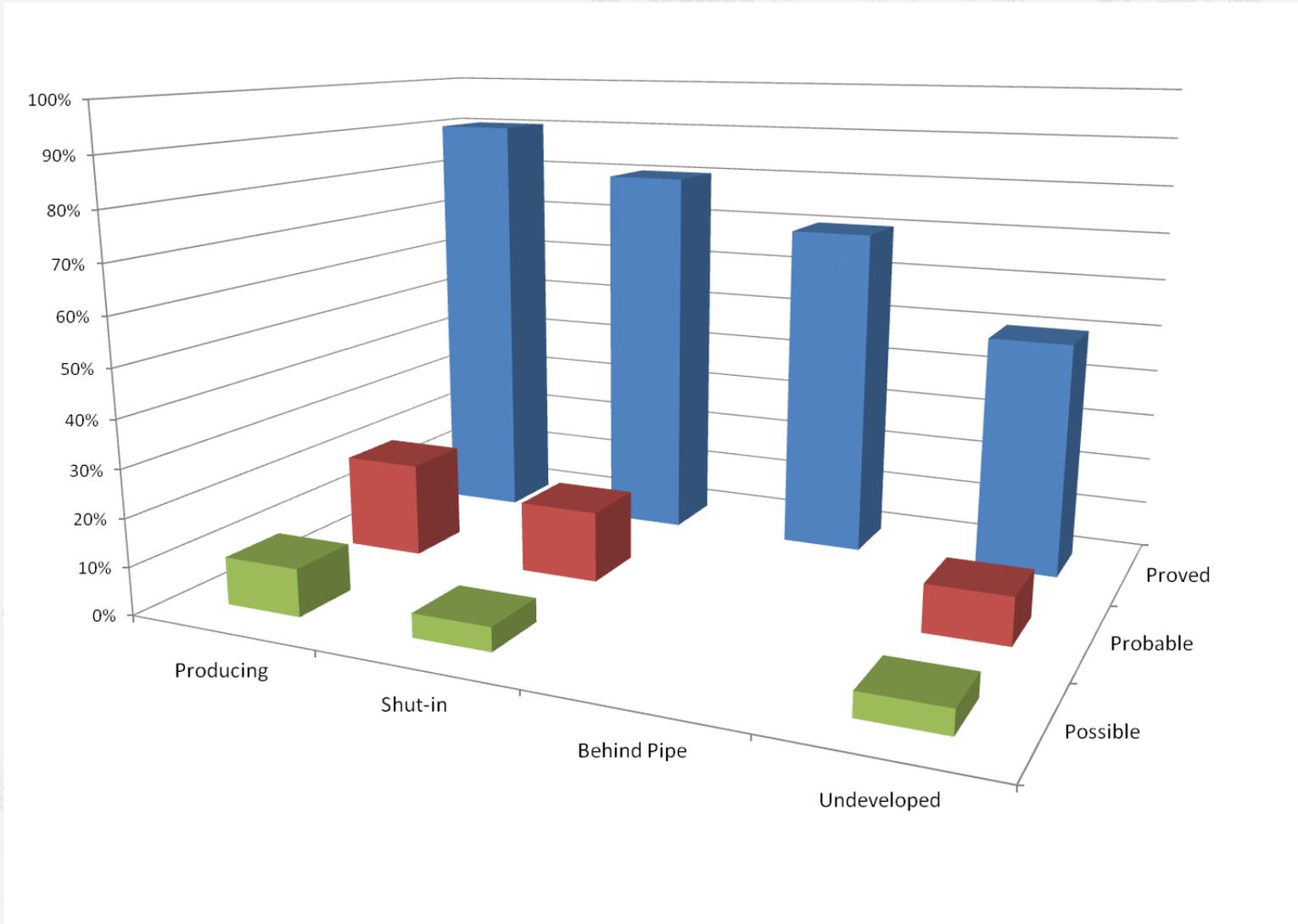
# TYPE CURVE



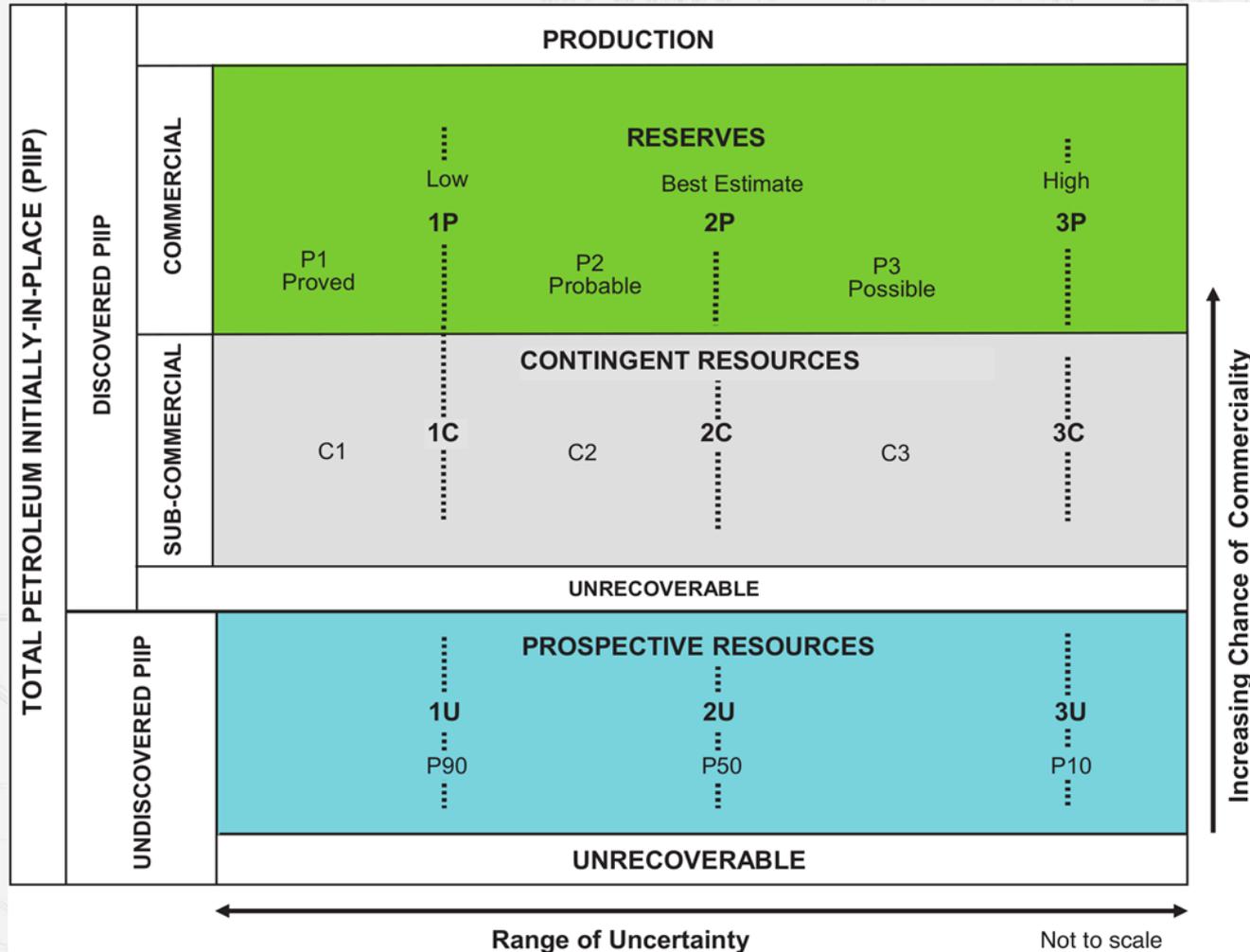
# INCOME METHODOLOGIES - WELLS



# INCOME DISCOUNTS BY RESERVES CATEGORIES



# RESERVES CATEGORIES



# REPLACEMENT APPROACH WELLS

- Method - Estimated Cost
  - Wellbore prognosis
    - TVD
    - MD
    - Diameter & casing (number of runs calculated by pore pressure / fracture gradient)
    - Completion
  - AFE
    - Dry-hole cost
    - Completion cost
    - Tangible cost
    - Intangible cost

# MARKET APPROACH - WELLS

- Method – Market Comparison
  - Price per flowing BBL
  - Implied reserves value
  - Implied precedent transaction value

# APPROACHES PRODUCTION & STORAGE FACILITIES

- Generally there is no income method
  - Toll income is possible, but rare
- Replacement method
  - New construction cost estimate
  - Cost to relocate existing facilities
  - Any adjustments for depreciation
- Market comparable method
  - Salvage value

# APPROACHES FLOWLINES

- There is no income method
- Replacement method
  - Inch-mile cost estimation
  - Use of PFD to determine feed and transfer points on flowline
  - Use of decision tree to determine future utilization
  - Field inspect to ascertain if serviceable
- There is no market comparison method

The background of the slide is a complex, light gray wireframe structure. It consists of numerous overlapping lines and planes that form a 3D architectural or engineering model. The lines are thin and create a sense of depth and complexity. The overall appearance is that of a technical drawing or a digital model of a building or industrial structure.

# **OPERATOR'S PROPERTY**

Personal Property

# OPERATORS PERSONAL PROPERTY

## IRS 4.48.3 Tangible Personal Property Valuation Guidelines

### Examples:

- Pumps
- Sucker rod
- Tubing
- Well control equipment
- Skid mounted or tire mounted equipment

Personal property is generally not condemned and the owner is not compensated for its loss

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# **OPERATOR'S PROPERTY**

**Mineral Rights**

# OWNERSHIP OF MINERAL RIGHTS

- The State of Ohio can acquire mineral rights
- In the event the State acquired mineral rights in a condemnation it creates an issue of management
  - The State's mineral interest will likely require unitization with lease from which they were acquired
  - Extraction by adjacent mineral owner prior to pooling order (petroleum resources migrate)
  - Pooled resources are allocated losses as well as profits
  - Should minerals be pooled, oversight of the operator's revenue and expenses would be required
  - Royalty payments
- The value of mineral rights is based upon the mineral reserves

# VALUATION APPROACHES & METHODOLOGY

## Approach

- Income
- Replacement
- Market comparison

## Methodology

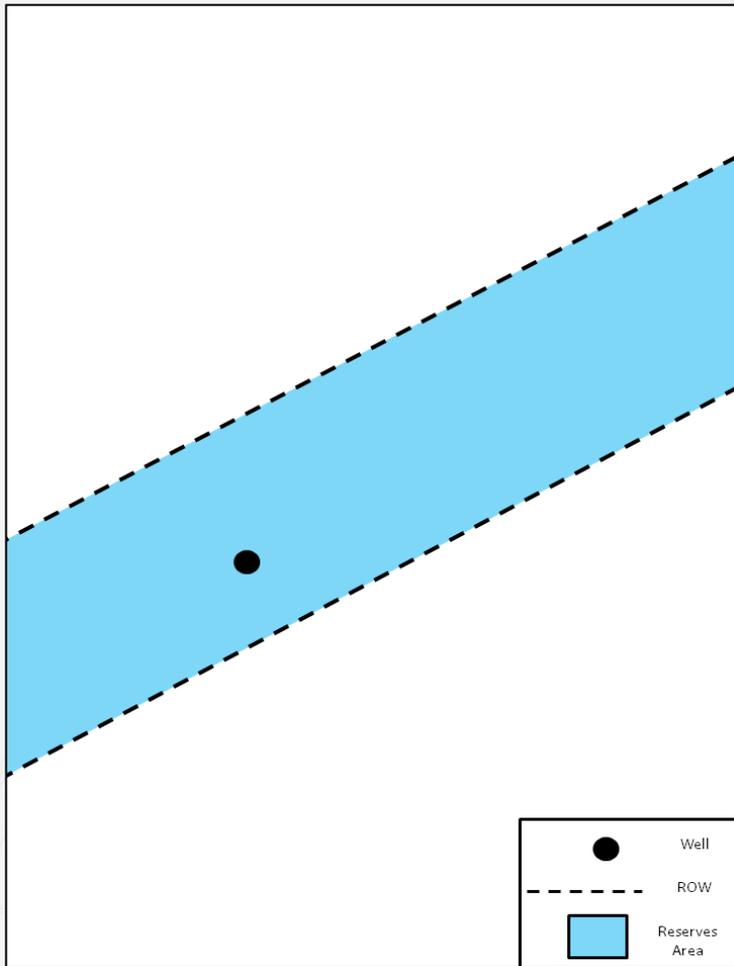
- Income
  - DCF
  - CF multiplier
  - P/I ratio
  - ROI
- Replacement
  - Not applicable
- Market Comparison
  - Comparable transactions

# MINERAL RESERVES CONSIDERATION

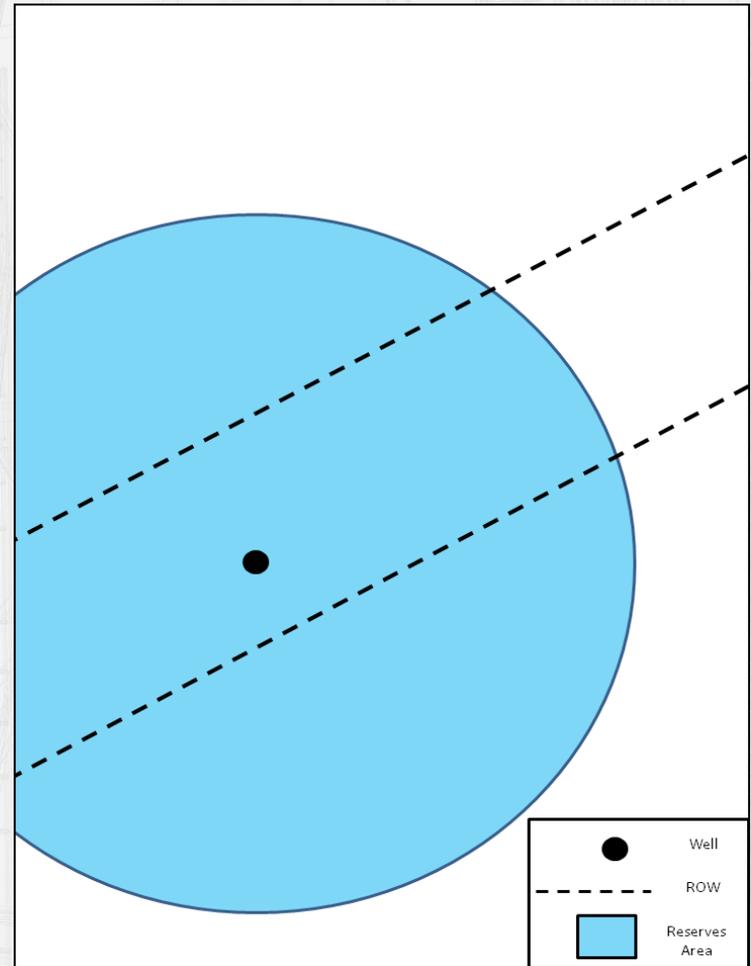
- Dependency upon mapped volumes
  - OOIP
    - Material balanced equation
    - Reservoir simulation method
  - EUR
- Dependency upon field development plan
  - Cost
  - Timing
- Reserves categories
- Pooling considerations
- Highly interpretive with wide range of outcomes

# ALTERNATIVE DETERMINATIONS FOR RESERVES

Reserves below ROW



Reserves in contact with a condemned well





# **DECOMMISSIONING EXPENSES**

# SHUT-DOWN EXPENSE

- Operating Expenses
  - Pumping and purging
  - Tag-out
  - Blind flange / capping
  - Disconnect utilities

# ASSET RETIREMENT OBLIGATIONS

- Plugging of wells
  - *Ohio Admin Code 1501:9-11*
- Duty to restore disturbed land surface
  - *15 Ohio Rev. Code. § 1509.072*
- Analysis and disposition of material resulting from construction, operation, or plugging of a horizontal well
  - *15 Ohio Rev. Code. § 1509.074*
- Rules for methods of plugging
  - *15 Ohio Rev. Code. § 1509.15*

# ESTIMATION

## ASSET RETIREMENT OBLIGATION

- Plugging & abandonment costs
- Removal of treatment and storage facilities costs
- Removal (as necessary) of flowlines
- Environmental remediation cost
  - Well pads
  - Ponds
  - Treatment and storage pads
  - Utilities and flowline rights of way
- Surface grade restoration and reseeding cost

# PERSONAL PROPERTY REMOVAL EXPENSES

- Christmas tree
- Pumps
- Sucker rods
- Metering / production test equipment
- Smart well data systems
- Skid mount equipment
- Trailer mount equipment
- Temporary / moveable storage

# WELL REMEDIATION EXPENSES

- Inspection for failed cement
- Inspection for failed casing
- Lowering casing tops for burial requirements below finished grade
- Drilling out failed cement and plugs
- Drilling out and lowering cement and plugs

The background of the slide is a complex, light gray wireframe architectural drawing of a multi-story building. The lines are thin and create a sense of depth and structure. The drawing is centered and occupies most of the page. At the top, there is a dark gray horizontal bar. The text 'CONDEMNATION REPORT' is centered over the wireframe.

# **CONDEMNATION REPORT**

# TOPICS TYPICAL TO CONDEMNATION REPORT FOR OIL & GAS ASSETS

- Identify oil & gas property in ROW or condemnation area
- Field survey to confirm recorded locations, conditions, and statuses
- Recorded net revenue and working interests
- Lease operating expense allocated to impacted wells
- Production forecast for wells
- Wellbore interest determined by DCF
- Well replacement cost estimate (when appropriate)
- Cost estimate for inspection of recorded P&A wells in ROW and, when necessary, cost to remediate failed cement, inadequate burial depth for future cut & fill, etc.
- Cost estimate to reroute / replace flowlines
- Estimate cost to remove, relocate, and / or replace production & storage equipment

# TERMS & DEFINITIONS

**Abandon:** (1) The proper plugging and abandoning of a well in compliance with all applicable regulations, and the cleaning up of the wellsite to the satisfaction of any governmental body having jurisdiction with respect thereto and to the reasonable satisfaction of the operator.(2) To cease efforts to find or produce from a well or field.(3) To plug a well completion and salvage material and equipment.

**Acquisition (minerals):** The procurement of the legal right to explore for and produce discovered minerals, if any, within a specific area; that legal right may be obtained by mineral lease, concession, or purchase of land and mineral rights or of mineral rights alone.

**Acquisition costs, mineral rights:** Direct and indirect costs incurred to acquire legal rights to extract natural resources. Direct costs include costs incurred to obtain options to lease or purchase mineral rights and costs incurred for the actual leasing (e.g., lease bonuses) or purchasing of the rights. Indirect costs include such costs as brokers' commissions and expenses; abstract and recording fees; filing and patenting fees; and costs for legal examination of title and documents.

**Amortization:** The depreciation, depletion, or charge-off to expense of intangible and tangible assets over a period of time. In the extractive industries, the term is most frequently applied to mean either (1) the periodic charge-off to expense of the costs associated with non-producing mineral properties incurred prior to the time when they are developed and entered into production or (2) the systematic charge-off to expense of those costs of productive mineral properties (including tangible and intangible costs of prospecting, acquisition, exploration, and development) that had been initially capitalized (or deferred) prior to the time the properties entered into production, and thereafter are charged off as minerals are produced.

**Authorization for Expenditure (AFE):** A budgetary document, usually prepared by the operator, to list estimated expenses of drilling a well to a specified depth, casing point or geological objective, and then either completing or abandoning the well. Such expenses may include excavation and surface site preparation, the daily rental rate of a drilling rig, costs of fuel, drillpipe, bits, casing, cement and logging, and coring and testing of the well, among others. This estimate of expenses is provided to partners for approval prior to commencement of drilling or subsequent operations.

# TERMS & DEFINITIONS CONTINUED

**Asset retirement obligation (ARO):** Legal obligations associated with the retirement of tangible, long-lived assets, where a company must ultimately remove equipment or clean up hazardous materials from a leased site

**Barrel (BBL):** An oilfield BBL is a unit of measure defined as 42 US gallons (0.16 m<sup>3</sup>).

**Casing:** Pipe cemented in the well to seal off formation fluids or keep the hole from caving in.

**Cash Flow (CF):** Cash flows are the net amount of cash and cash-equivalents being transferred into and out of a business.

**Christmas Tree:** An assembly of valves, spools, pressure gauges and chokes fitted to the wellhead of a completed well to control production. Christmas trees are available in a wide range of sizes and configurations, such as low- or high-pressure capacity and single- or multiple-completion capacity.

**Completion:** The installation of permanent wellhead equipment for the production of oil and gas.

**Direct capitalization:** Converts income into value by dividing the Net Operating Income (NOI) by the Capitalization Rate

**Discounted cash flow (DCF):** Used to estimate the value of an investment based on its expected future cash flows. It attempts to figure out the value of an investment today based on projections of how much money it will generate in the future

**Estimated ultimate recovery (EUR):** An estimate of the expected ultimate recovery of oil or gas from a producing well

**Flowline:** Also known as a gathering line, is a pipe that carries oil, gas or water from the wellhead to a well-test manifold or production facilities

**Flowing barrel basis:** A metric used to estimate the value

**Income valuation method:** Converts the income generated or projected into an estimate of value using one of the two options to generate fair market value

**Lease operating expense:** Direct and indirect costs incurred to maintain the production of a well

**Market comparable valuation method:** Takes into account other properties that may have recently gone through a similar transaction

# TERMS & DEFINITIONS CONTINUED

**Measured Depth (MD):** Measured depth is the full length of borehole

**Mineral rights:** The ownership of rights to minerals, including oil and gas, contained in a tract of land. A mineral right is a real property interest and can be conveyed independently of the surface estate

**Oilfield:** A geographic area under which an oil reservoir lies.

**Original oil in place (OOIP):** A gross quantity independent of recovery efficiency or economics of operation

**Personal Property:** Tangible personal property includes items such as vehicles, antiques, silver, artwork, collectibles, furniture, machinery, and equipment. Tangible personal property is anything other than real property or intangible personal property which includes items such as patents, copyrights, stocks, and the goodwill value of a business.. See IRM [4.48.3 Tangible Personal Property Valuation Guidelines](#) for complete definition.

**Plugging & abandonment (P&A):** To prepare a well to be shut-in and closed permanently. There are typically regulatory requirements associated with the P&A process. In most cases, a series of cement plugs is set in the wellbore, with an inflow or integrity test made at each stage to confirm hydraulic isolation.

**Process Flow Diagram (PFD):** A process flow diagram is a diagram to indicate the general flow of industrial processes and equipment.

**Production forecast:** The estimation of future production seen from a well

**Production and storage facilities:** Facilities required in the lifting of oil and gas to the surface and gathering, treating, field processing (as in the case of processing gas to extract liquid hydrocarbons), and field storage.

**Profit Investment Ratio (P/I):** P/I is the ratio of payoff to investment of a proposed project.

**Proved Developed Producing Reserves (PDP):** Reserves expected to be recovered from currently producing zones under continuation of present operating methods.

**Real Property:** 26 CFR § 1.856-10 Real property. The term real property means land and improvements to land. Local law definitions are not controlling for purposes of determining the meaning of the term real property. See IRM [4.48.6 Real Property Valuation Guidelines](#) for further guidance.

# TERMS & DEFINITIONS CONTINUED

**Recoverable oil-in-place:** A net quantity which is dependent upon recovery efficiency and economics of operation.

**Recoverable reserves:** That proportion of the oil and/gas in a reservoir that can be removed using currently available techniques.

**Replacement:** Replacement cost details the cost to replace the existing structure with a substitute of “like kind” or “equal utility,” using current standards of materials and design, reproduction cost is the cost to construct an exact replica in all salient characteristics of the subject property. Adjustment to account for depreciation is not generally applied to replacement costs for wells.

**Reserve:** That portion of the demonstrated reserve base that is estimated to be recoverable at the time of determination. The reserve is derived by applying a recovery factor to that component of the identified coal resource designated as the demonstrated reserve base.

**Return on Investment (ROI):** ROI a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments.

**Right of way:** A path or route that may lawfully be used.

**True Vertical Depth (TVD):** True vertical depth is the measurement of a straight line perpendicularly downwards from a horizontal plane.

**Shut-in well:** A well which is capable of producing but is not presently producing. Reasons for a well being shut-in may be lack of equipment, market or other.

**Well:** A hole drilled in the earth for the purpose of (1) finding or producing crude oil or natural gas; or (2) producing services related to the production of crude or natural gas.

**Workover:** Remedial work to the equipment within a well, the well pipework, or relating to attempts to increase the rate of flow.