J P KENNY

MTS SYMPOSIUM
SESSION 2: MAJOR CONCEPT DRIVERS

DELIVERS. EVOLVES.

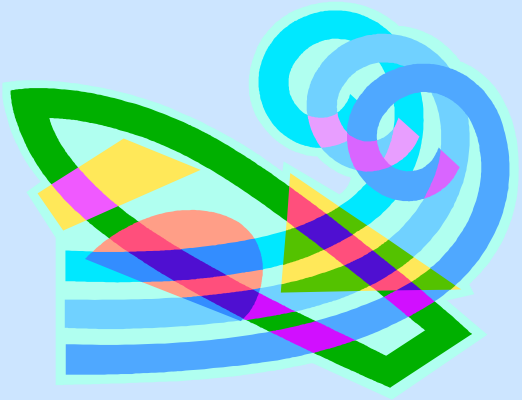
WHOLE LIFE SOLUTIONS FOR PIPELINE AND SUBSEA SYSTEMS

Presentation 3: System Selection

Return to session directory

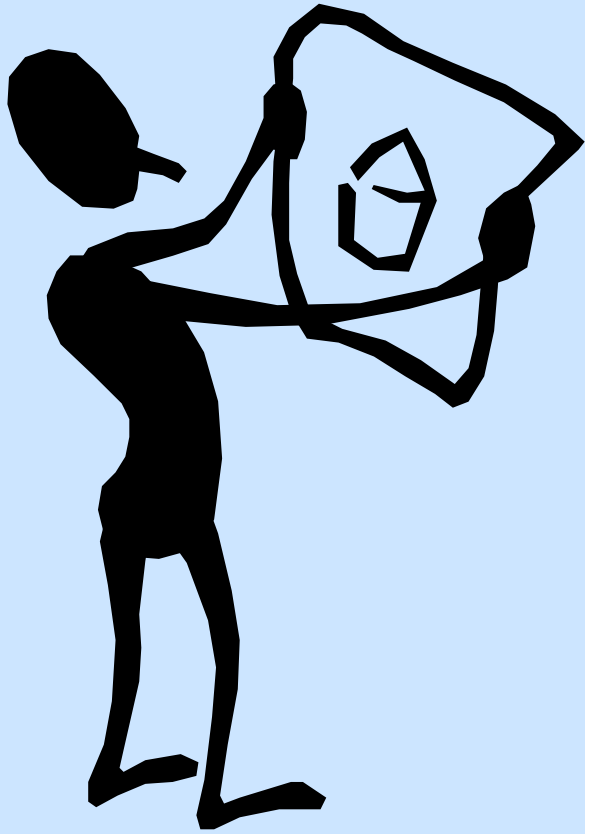
Design Basis

- Physical Data
  - Water Depth, Distance to Transportation Nodes
  - Wind/Wave/Current, Tides, Soil Strength
  - Fluid Properties
- Functional Requirements
  - Performance
    - Production Function
    - Well Count
    - Processing Capacity and Product Specifications
  - Philosophies
    - Safety
    - Environment
    - Operations (Including Controls, Manning, Sparing, Firefighting, Resupply)



Development Planning With Minimal Information

- Configuration
  - Tieback
  - In-Field Host
- Well Information
  - Reserves and Recovery/Well → Well Count
  - Well Rate and GOR → Oil and Gas Rates
  - Drainage Radius and Well Reach → # Drill Centers
  - Water and Gas Injectors Added
- Other Physical Data
  - Water Depth
  - Offset from Transportation Infrastructure

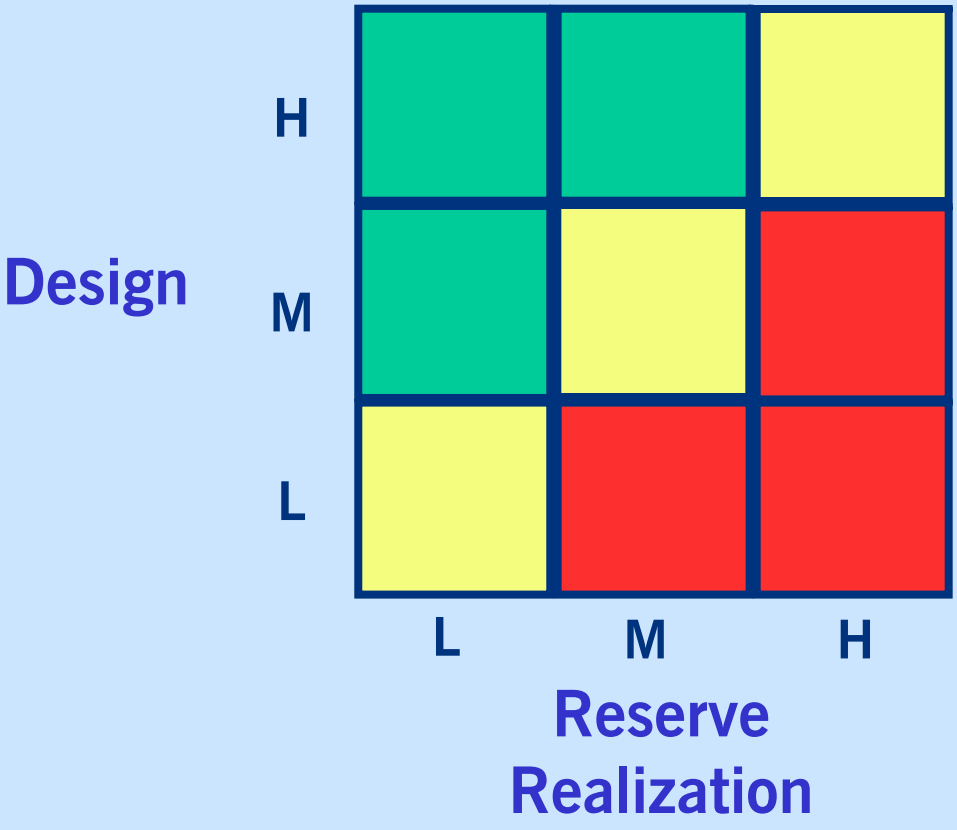


Development Planning With Minimal Information

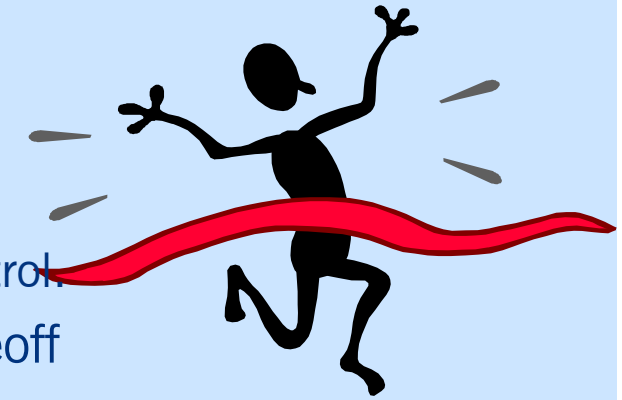
- Judgement Item Examples
  - Facility Processing Capacity
  - Water Injection Replacement Ratio
  - Number of Wells Per Manifold
  - Flowline and Export Pipeline Capacities
  - Unit Cost Information
- Resources
  - Curve Fit of Industry Data
  - Preliminary Design Tools → Curve Fits
  - Consultant Studies

- Identify the Significant Cost Drivers
  - Mooring → Water Depth
  - Hull → Topsides Throughput and Drilling Payload
  - Topsides → Oil and Gas Throughput
  - Risers → Diameter and Water Depth
  - Pipelines → Length and Diameter
  - Subsea → Well Count

Robustness - Right, Wrong, or Robust?



Summary



- Reservoir information will change until final production.
  - How we respond to the uncertainty is within our control.
- There is an manageable number of high value tradeoff decisions.
- Good development cost accuracy can be generated based on relatively few pieces of information.
  - The caveat is that one of the pieces of information is reserve size.
- There are strategies that allow robust development planning in the face of large reserve uncertainty.