DMITRE Round Table on Unconventional Gas

Adelaide
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Exploration

Appraisal

Development

Production

Rejuvenation

Asset Life Cycle

Drilling and Evaluation

Fluids and Chemicals

Completions and Production

Pressure Pumping

Reservoir Development Services
Unconventional Resources – Lessons from North America

- North American success with unconventional resources as a model for other countries
- Horizontal drilling and multi-stage fracturing are critical to economic viability
- Geoscience disciplines ensure optimized completion design
- Operator “mindset” change
  - Integrated approach
  - Rapid technology adoption
  - Willingness to trial
- Shale and tight gas must pass economic viability test

- Shale “revolution” took more than 30 years
- “Brute force” approach does not consistently deliver success
The Model Framework for Unconventionals

• Resource prerequisites
  – Sufficient volume – thickness and lateral extent, preferably with frac barriers above and below
  – Porosity, saturation and permeability are key for tight rock
  – TOC, maturity and clay content are key parameters for shale

• Infrastructure prerequisites
  – Service companies with sufficient drilling and frac capability
  – Logistics – drill pads and access for frac spreads and consumables
  – Existing pipeline network for production off-take

• Political and environmental prerequisites
  – Favorable legislative and fiscal environment
  – Favorable public sentiment
  – Access to water and proppant
Resources and Political Framework

- **Personnel**
  - Training – create “win win”
  - Exchange program – already ongoing in other locations
  - Retention incentives – stop talent drift
  - Visas – ease restrictions on oil/gas professionals

- **Capital Investment**
  - Activity levels – Better lookahead, retainers

- **Supply Chain**
  - Australia wide standards
  - Minimum regulations
Water Management

- Reducing water
- Recycling water
- Reusing water
- Resourcing water

- Know the water chemistry, how it will perform, the cost and the impact of regulations on water
Comments / Questions?