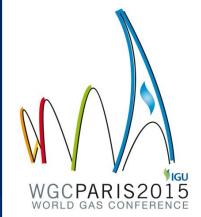
26th World Gas Conference

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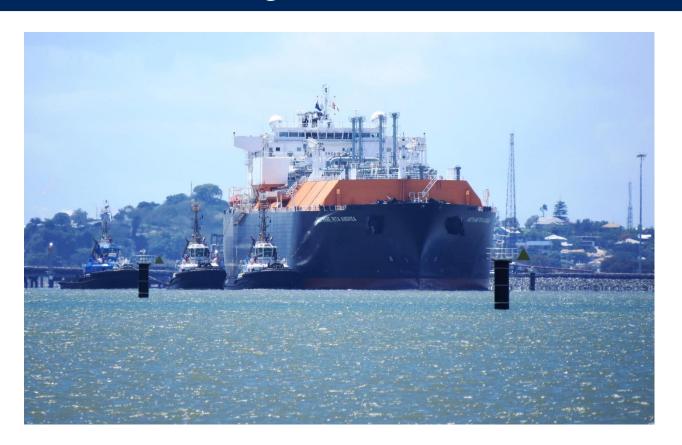
Challenges in Developing Unconventional Gas: An Australian Case Study

Dr Graeme Bethune EnergyQuest



World's first CBM LNG cargo

BG LNG carrier Methane Rita Andrea Gladstone Queensland January 2015



Challenge 1: Early resource over-optimism

- Good knowledge of Queensland coals but limited CBM production history and resource appraisal at FID
- Original plans for > 10 trains
- Current: 6 trains, 5 CBM, maybe one more
- Exploration and appraisal drilling continue
- Early reserve/cost forecasts optimistic, sweet spots limited
- Call on domestic market

Challenge 2: Regulate, regulate, regulate

- Government support critical but requires heavy environmental regulation
- Extent not anticipated by companies or governments
- Strict environmental regime, EIS's 13,500 pages per project, 1,500 regulatory conditions
- Regulation creep
- Compliance and cost challenges for companies but challenges also for governments

Challenge 3: Hearts and minds

- Massive change for local communities
- Initially an engineering issue for companies, working to tight timetables. But an emotional issue for communities
- Not just landholders but importance also of winning support/avoiding opposition from towns, local government, farming industry and media
- Largely achieved in Queensland but not New South Wales

Challenge 4: Costs

- Project cost increases of 7%-36%
- Rising oil and gas development costs globally, national resource and LNG development boom, rising exchange rate, tight labour market, uncertainties of novel development projects, under-estimation of regulation, high community expectations
- Competing projects. No cooperation or coordination.

Challenge 5: Impacts on domestic gas markets

- CBM LNG development has taken place within a domestic gas market, tripling demand
- Challenge for domestic gas buyers, particularly manufacturing
- Higher gas prices also switching power generation back to coal
- Call for domestic gas reservation but not generally supported politically

Failure in NSW

- Unlike Queensland, gas development stalled in NSW due to community opposition and resulting restrictive government policies
- Absence of decisive government support, different land use (vineyards, hobby farms, horse studs, prime farm land), media opposition, NIMBY, anti-gas movement
- Government buying back exploration licences
- Difficult to win back support

Some lessons

- Beware over-optimism on unconventional reserves
- Importance of government support but the cost is regulation
- Need to win hearts and minds
- Be careful of the macroeconomics
- Everyone wants to dip into a deep pocket
- Egos have a price
- Timing is everything