

Australian Oil and Gas: Where to from here?

The need for innovation and robustness



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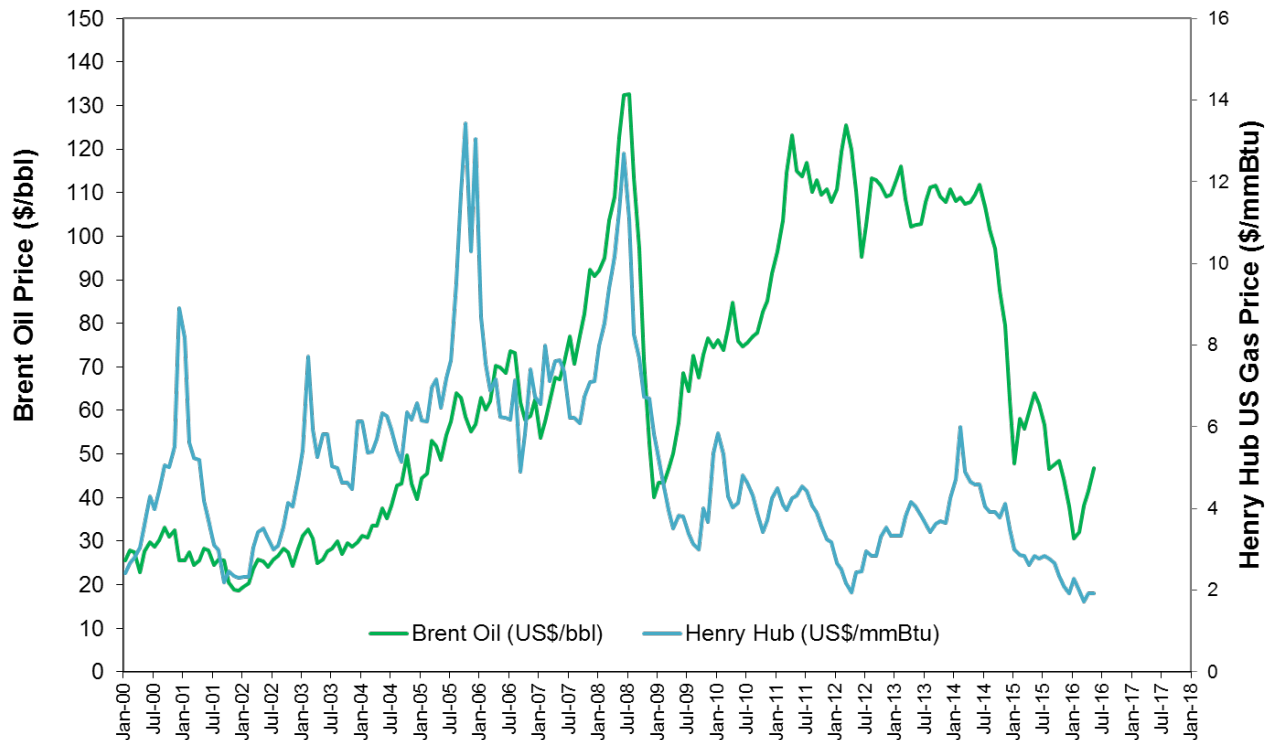
decisions with confidence



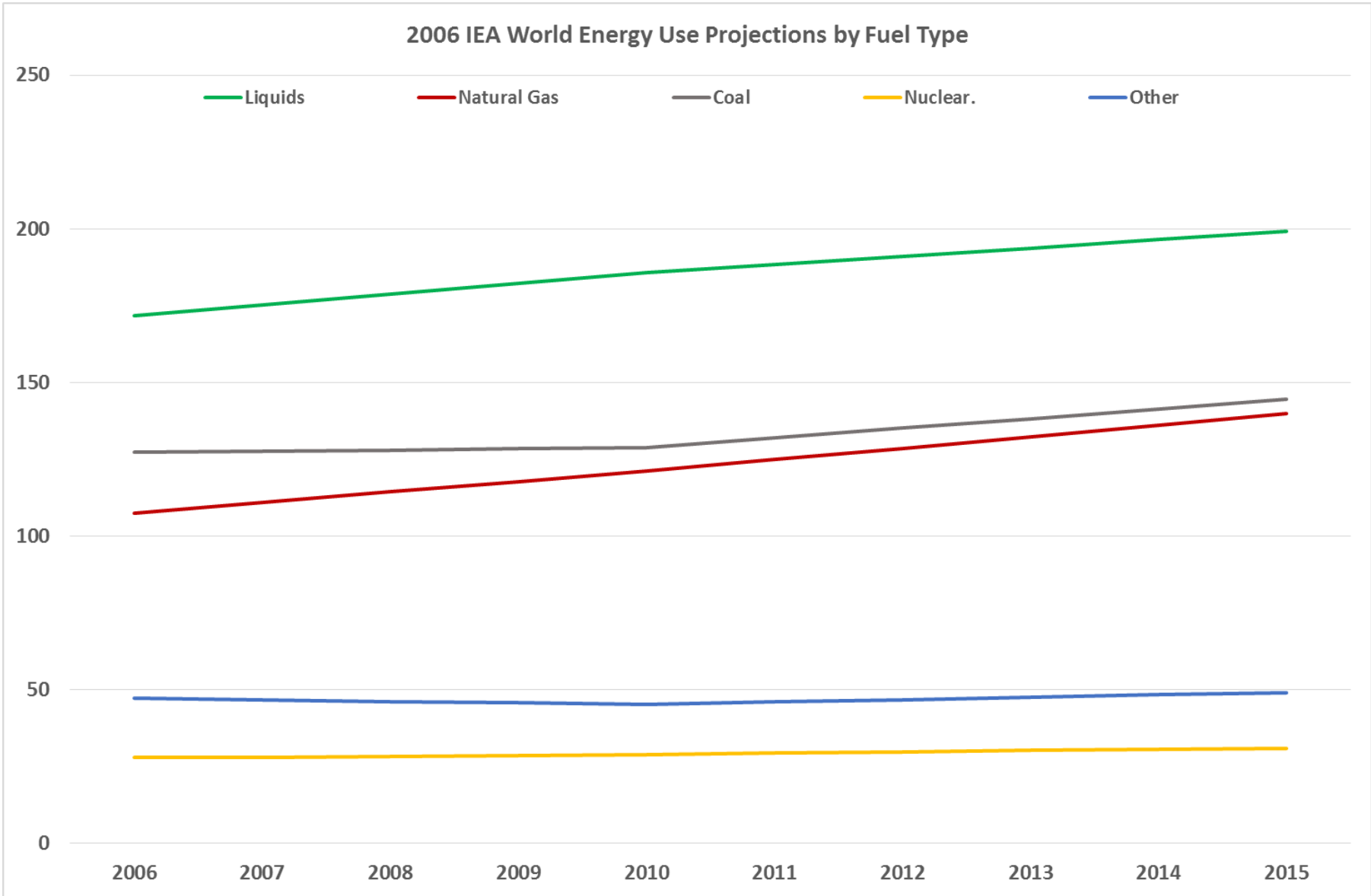
How did we end up here?

2006

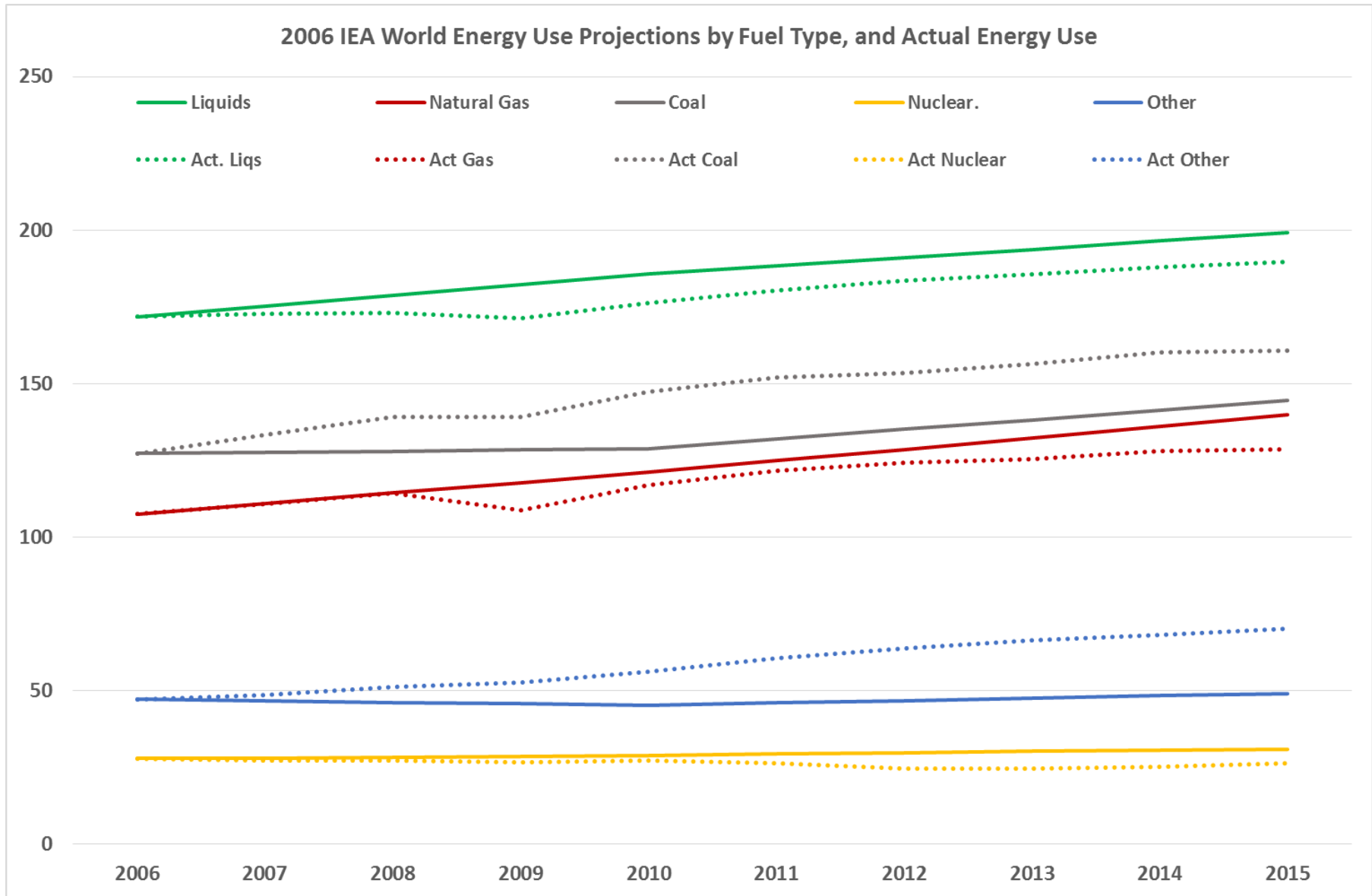
- “The US is destined to become a key LNG (import) Market” (*BG Group presentation*)
- “North America emerges as a major importer of LNG” (*IEA, IEEJ & others*)
- “Natural Gas prices will remain high in the US for the foreseeable future” (*EIA*)
- “Renewables will increase share slightly, driven by large scale hydro-electric projects...non-OECD (*EIA*)



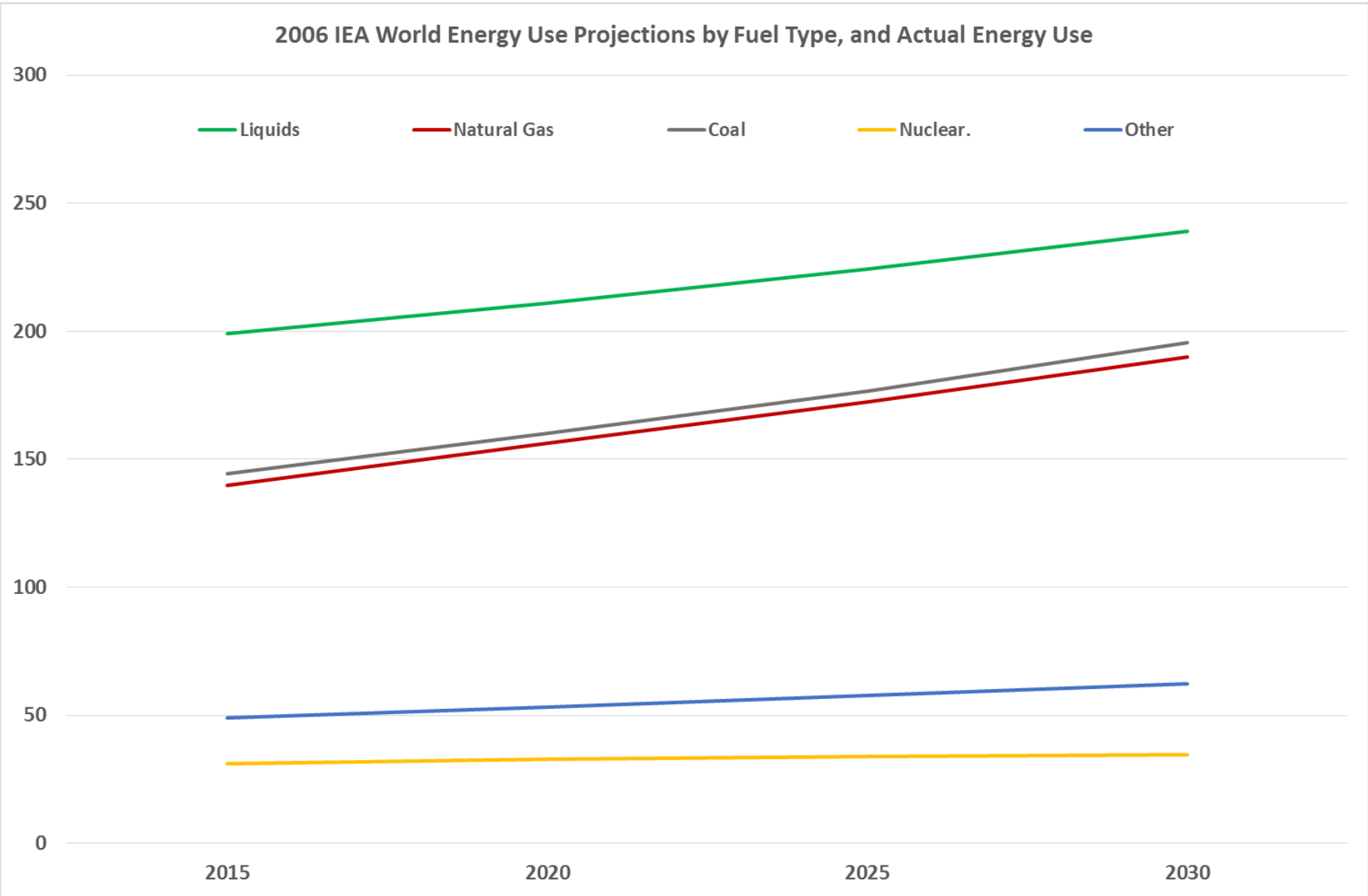
Energy use projections from 2006



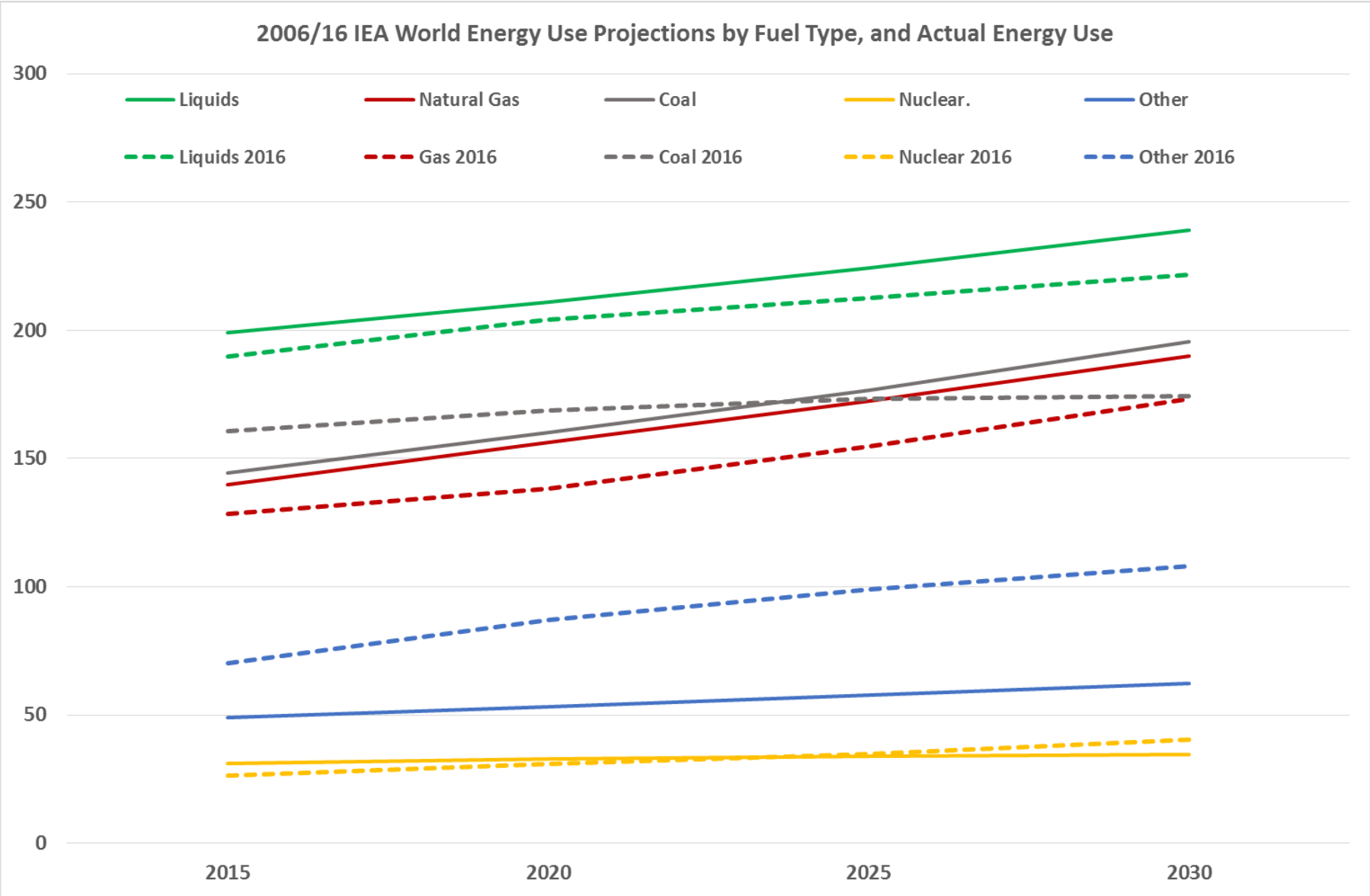
Energy Projections – how did they do?



Comparison of Future predictions (to 2030)



Comparison of future predictions



BP 2016 energy outlook:

- Energy demand grows more slowly than GDP due to increases in efficiency
- Renewables are the fastest growing fuel (6.6% p.a). Increasing from 5% in 2015 to 16% by 2035. This is a significant increase from last year's predictions
 - Supported by falling prices, but limited by intermittency
- Oil price recovery is anticipated, and oil demand continues to grow
 - Transport fuel remains dominated by oil
 - Asia dependence on oil imports increases significantly
- Demand for natural gas grows strongly (but lower than last year's predictions)
 - LNG trade continues to grow faster than gas growth, increasing LNG share of trade
- Coal demand growth slows sharply

Other outlooks (IEA, MIT, IEEJ)

- General consensus with the role of emerging markets as drivers of energy consumption growth
 - Gas fastest growing fossil fuel, modest growth in oil
- IEA WEO 2015: Renewables will become the largest power source by 2030 (30+%)
- More recent discussions on the “Green”/ “Cheap” squeeze...

Past and present game changers:

- Shale gas and oil development
 - Continued success in the US, can it be emulated in Australia?

The green, cheap squeeze on gas...

- Gas is not as green as renewables
- Gas is not as cheap as coal
 - Countries could move to a mix of renewables and coal for power generation
- Coal fired power generation emits twice as much CO₂ as gas fired generation, and is not as flexible
- Gas is the ideal partner for renewables to maintain stability (intermittent use), and minimise emissions
- Gas needs to be positively promoted as the partner for renewables
 - How do we get over the current moratoria on fracking?

Power storage for renewables may be a game changer

- Demand for oil and gas grows slower than anticipated
 - Further price pressure, prices remain low for the long term

Existing and future projects will need to be robust to continued low prices

- Continued focus on costs
- Portfolio rationalisation and focus on core strengths

Recognition of limitations of viability by many companies

- LNG projects shelved
- Marginal oil field developments cancelled/abandoned
- Cost reduction

Re-emergence of end of life transactions

- Large organisations are looking to divest ageing assets
- Small, lower cost, operators are taking on assets that large organisation can no longer make money from
- Is this transferable into development opportunities?

Opportunities for new players and new ideas

- Opportunities to produce and trade small scale gas in domestic markets
- New International LNG markets on a smaller scale (FSRU's in new areas)
- LNG buyers looking for smaller and shorter term contracts
- Small scale (F)LNG



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