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# APOGCE Panel Session Managing Carbon

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- ▶ Improve energy efficiency
- ▶ Capture and store carbon
- ▶ Adopt technologies that emit less carbon
- ▶ Convert to technologies that emit no carbon
  
- ▶ Oil industry has opportunities in all of these areas
  - But what is the willingness?
  
- ▶ Industry's response will be driven by
  - Cost to reduce emissions
  - Government regulation

- ▶ First we need to know how much it will cost?
  - Need to articulate carbon reduction targets as a clear framework/investment strategy, not as an aspirational target
  - Need costs that are based on what we can deliver, not what is desired by the economists and strategists
  - Costings and cost comparisons vary wildly based on
    - ◆ What's included (where are the battery limits)
    - ◆ Funding arrangements, tax concessions
    - ◆ Assumed scale
    - ◆ Assumed Government support
- ▶ Future costs remain very unclear

- ▶ The ways in which governments legislate for change will affect the final outcome more than the development of new technologies
  - Gradual imposition of carbon tax will lead to gradual change
  - Regulated targets such as MRET will lead to step change
- ▶ Coordinated regulations worldwide are required to realise benefits of volume and scale

- ▶ Capital constraints favour gas
  - Proven technology
  - Relatively low cost
- ▶ Gradual ETS will favour gas
  - Capital intensive nature of clean coal and renewables require high cost for carbon and certainty in market direction
- ▶ More renewables will favour gas
  - Intermittent generating characteristics of most renewables favours a peaking type generation such as gas

- ▶ Very little evidence of a change by our industry so far
  - New projects today are essentially the same as projects from 10 years ago
  - In general, only projects with very long time horizons are considering energy efficiency opportunities (there are a small number of exceptions)
  - Many energy efficiency opportunities are available in existing assets but don't fly in a resource constrained environment
- ▶ We still need a change in thinking by industry to realise a reduction in carbon emissions