

# CARBON CAPTURE AND STORAGE

Roundtable Discussion – The Opportunity to Develop Carbon Capture and Storage is Now

**Dr Kelly Thambimuthu** – CEO

Centre for Low Emission Technology



# Technology maturity of CCS Power Plants

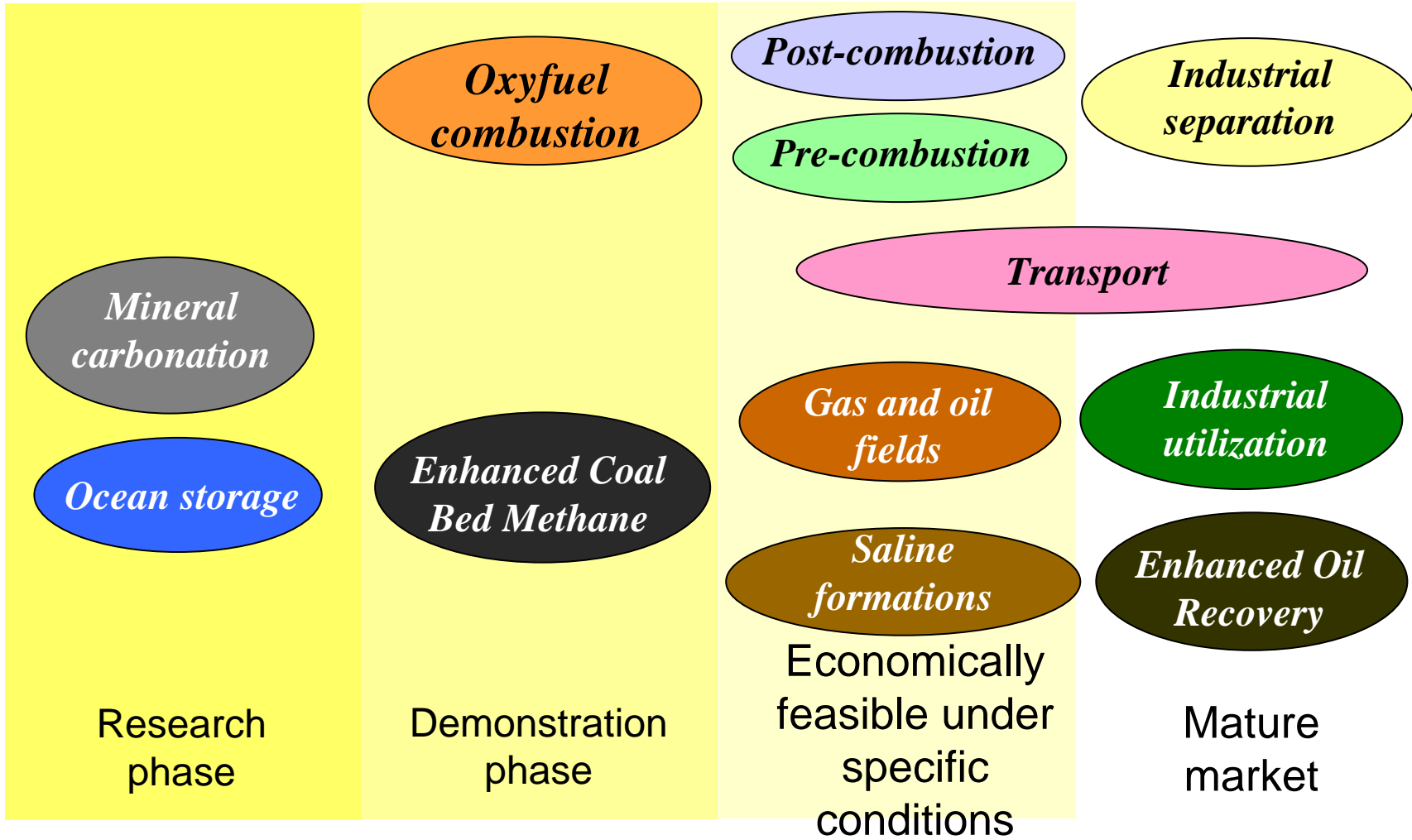
*Kelly Thambimuthu,  
Chief Executive Officer,  
Centre for Low Emission Technology,  
Queensland, Australia.*

*&*

*Chairman,  
IEA Greenhouse Gas Programme*

*Carbon Capture and Storage Conference,  
Sydney, October 2007*

# Technology maturity of low emission plants

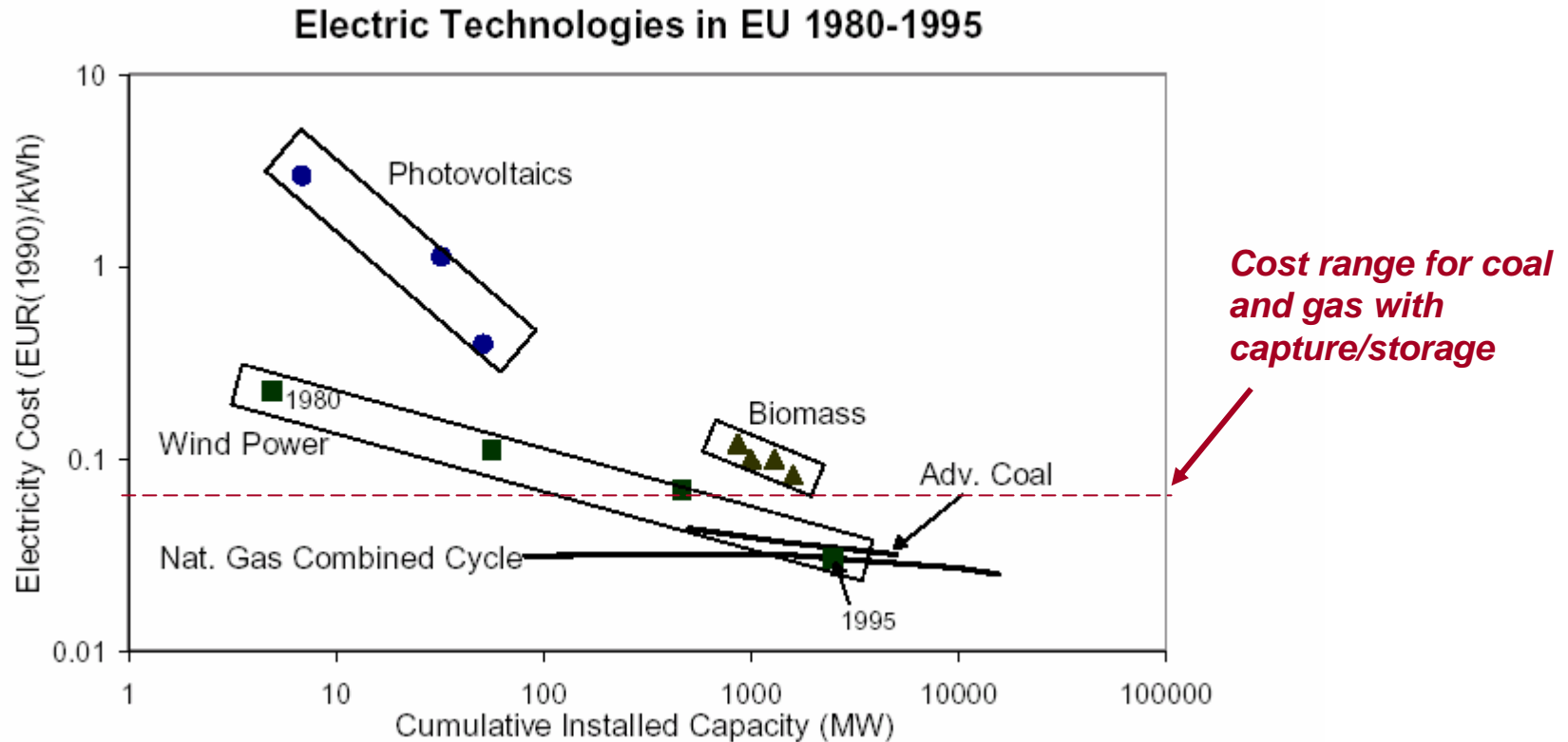


Derived from the IPCC SAR on CO2 Capture and Storage

# Technology maturity - capture in power plants

- **Power generation with post combustion capture**
  - SC/USC pulverised coal and NGCC power plants are reliable and proven
  - Scale up of solvent capture units/integration with power cycle is unproven.
- **Power generation with pre-combustion capture**
  - IGCC for coal (1 GWe) is near commercial and proving reliability, better experience with 3 GWe of IGCC capacity on oil and petcoke. No experience to date with reforming/POX/ATR based natural gas power plants
  - Solvent capture units for CO<sub>2</sub> available at scale, integration and power block hydrogen utilisation issues
- **Power generation with oxy-fuel combustion**
  - No proven experience of operation of pulverised coal power plants in an oxyfuel combustion mode – the issue is “*confidence building*”
  - Large scale air separation units for O<sub>2</sub> production proven and reliable.
  - Some development issues with tail end CO<sub>2</sub> purification
  - CO<sub>2</sub> or hybrid turbines do not exist for oxy-fuel combined cycles

# Experience in the cost of energy technologies



***New energy technologies are on a steep learning curve – in need of policy incentives to drive R&D and to support early deployment and commercialisation to achieve cost reductions***