

13 September 2004

# Carbon Sequestration Leadership Forum

**\* Need for Breakthroughs\***



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Australian Government

# My role as Chief Scientist

- o To advise the Australian Government on science issues
  - Research, education, industry, health, environment ...



But it is up to the Prime Minister or the Ministers to make the decisions

# Possible routes

- Reducing energy consumption
- Switching to less carbon intensive fuels
- Increase renewable energy sources
- Carbon capture and sequestration

"Sequestration is difficult, but if we don't have sequestration then I see very little hope for the world. I don't see any other approach."

- Lord Oxburgh, Chairman of Shell, June 2004

# Public awareness

- An obvious challenge is getting the public onside for CCS
- More work is needed to convince the public about the impact of climate change and the options available

GM foods  
containing  
animal genes

Nutritious GM foods &  
Industrial applications

Health and  
medical uses

# Pathways for action

- Changing nature of research
- Critical mass
- Collaboration
- Excellence

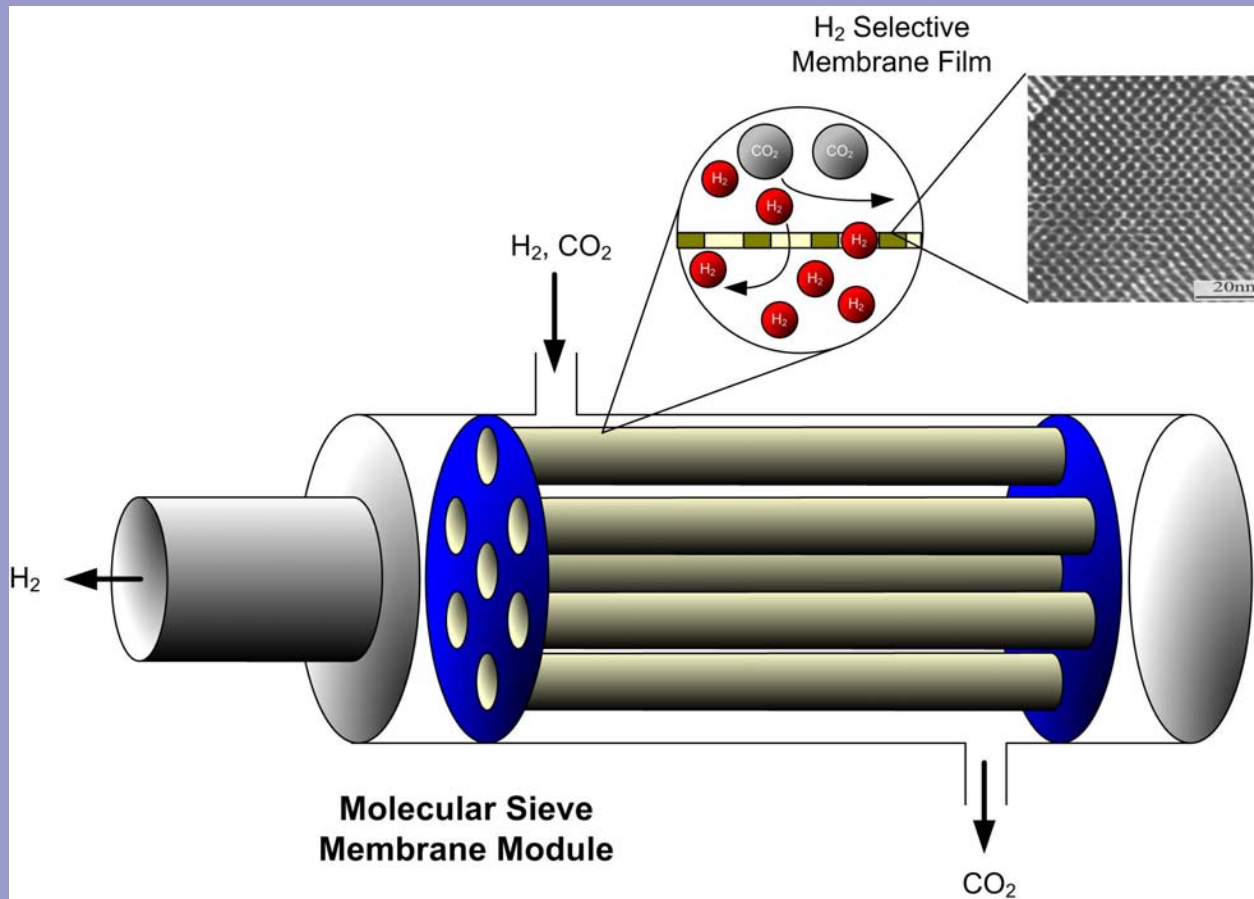
# Clear forces collaboration

- Innovation demands effective interaction of science base and the business sector
- Networking and collaboration produce more opportunities, especially cross cutting opportunities

# Cross cutting opportunities



# Breakthrough technology (1)



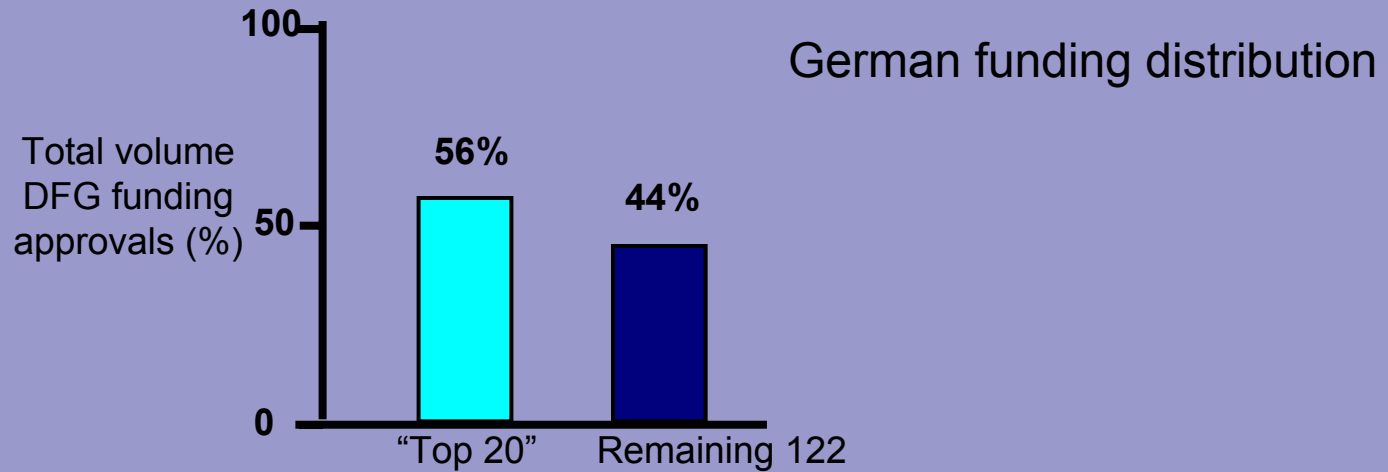
**Nanomembranes developed by the University of Queensland are used to separate  $CO_2$  AND  $H_2$**



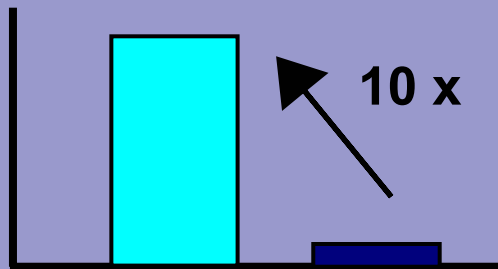
# Breakthrough technology (2)

- Smart dust
  - a complete sensor/communication system that can be integrated into a cubic millimetre package
  - able to detect everything from light to vibrations

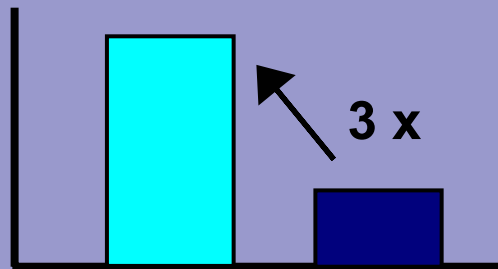
# Focus on excellence



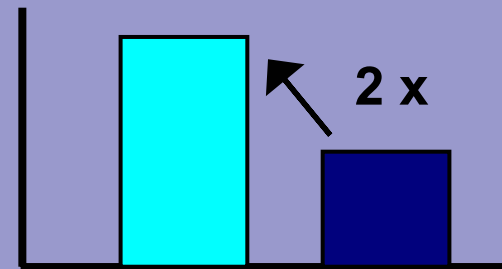
“Top 20” VS “61 – 80”



No. visiting researchers (AvH) per professor



Amount of 3<sup>rd</sup> party funding &  
No. EU projects (relative to  
no. professors)



No. publications per professor

# Conclusions

- Technology/economics, environment and community all interact on the path to sustainability - CCS will require attention to all of these
- **Breakthroughs are needed! And how do we collaborate to achieve them?**