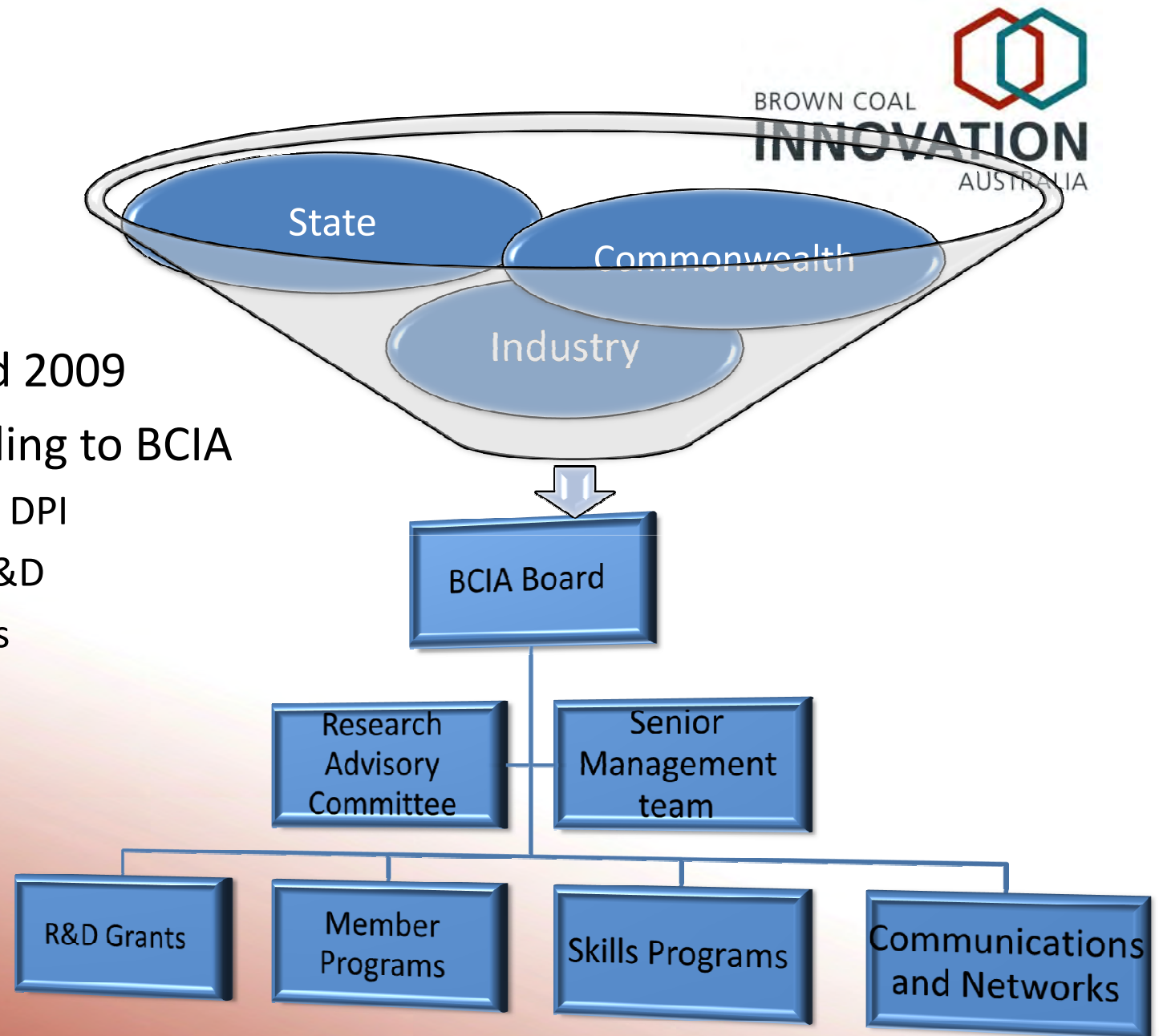


# Australian brown coal R&D - projects and technologies

Dr Phil Gurney  
Friday October 26, 2012

## BCIA

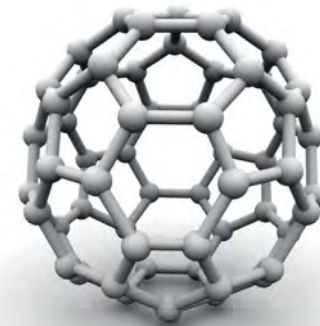
- Established 2009
- \$21M funding to BCIA
  - Victorian DPI
  - ANLEC R&D
  - Members



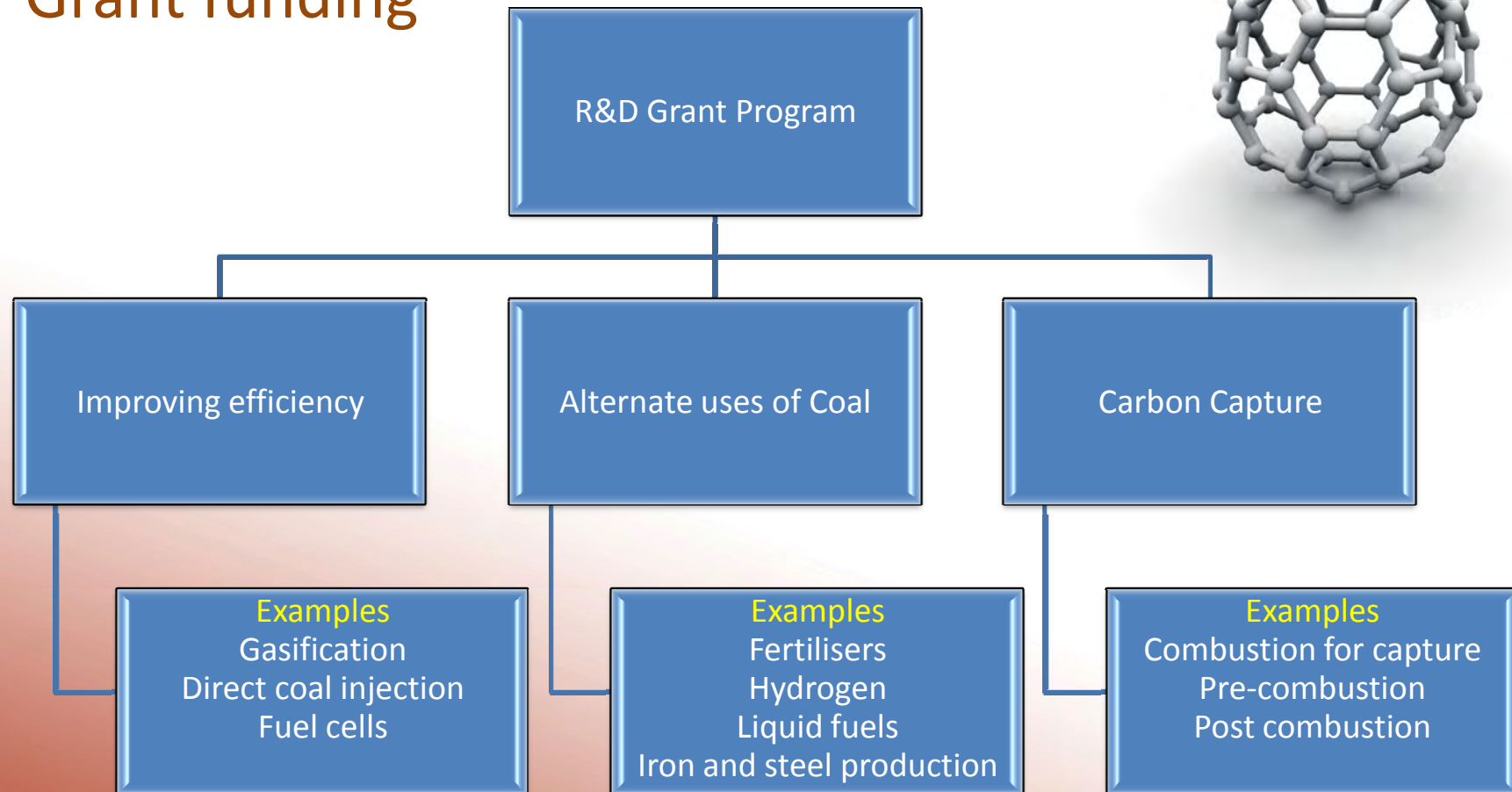
## BCIA R&D focus areas

- Early stage and pilot R&D
  - issues and technologies 5-20 years out
  - Primarily cost reduction and practicalities, rather than breakthroughs
- Currently funding “above ground” activities
  - Energy efficiency
  - CO2 capture
  - Alternate uses of coal (CTX etc)
- Not currently funding “below ground”
  - CO2 site exploration, transport or storage

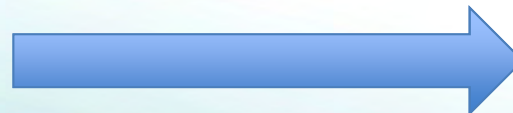
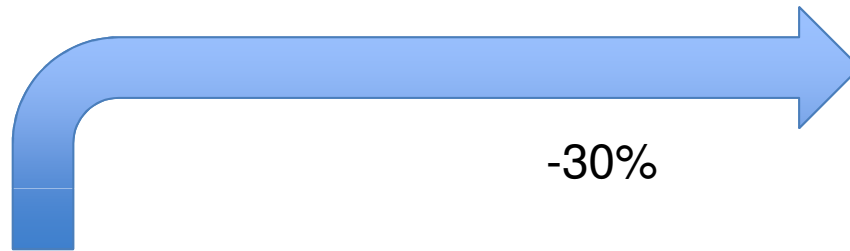




## Grant funding



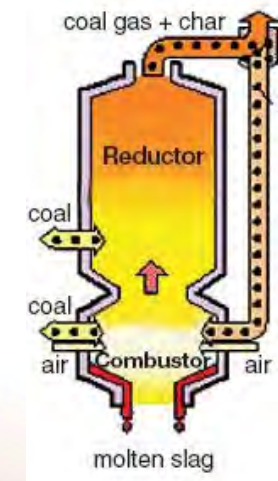
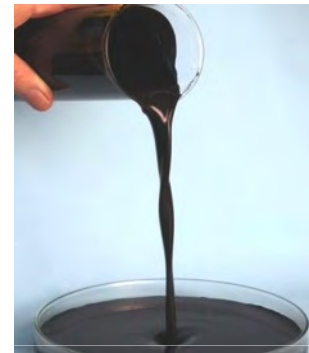
## Research highlights : Energy efficiency



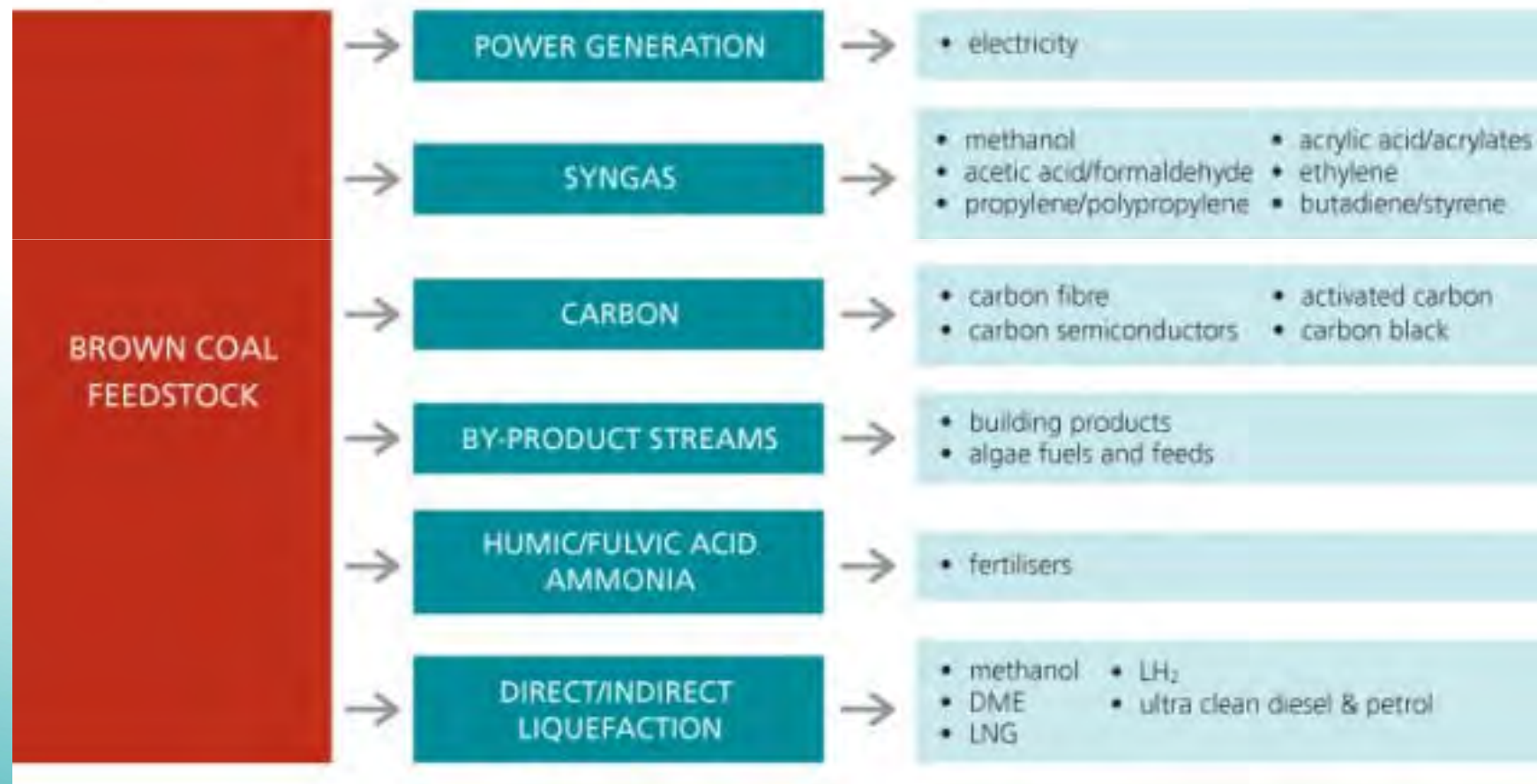


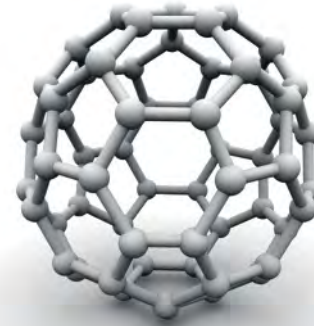
## 2011/12 Research Program

- Coal + Water in a Diesel Engine
  - 50% lower emissions than today
- Coal Gasification
  - State of the art for Products and Power
  - Conditions for use of MHI gasifier on Latrobe Valley coals



## Research Highlights – Alternate uses of Coal

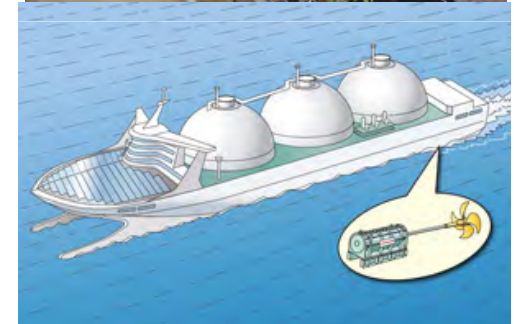




## 2011/12 Research Program

### Alternate Uses of Coal

- Coal derivatives to improve soil carbon
- Improved handling of lignite-based products
- Hydrogen supply chain development
- Carbon materials from Victorian brown coal for CO<sub>2</sub> capture
- Catalytic steam gasification and assessment of Dimethyl Ether
- Blast furnace coke from lignite





## Research highlights : Cutting CO<sub>2</sub> capture costs





## 2011/12 Research Program

### Improving CO<sub>2</sub> capture

- **Pilot-Scale Oxy-Fuel Combustion of Victorian Brown Coal\***  
*(Monash University and partners)*
- **Chemical looping for fuels production and CO<sub>2</sub> capture**  
*(Monash University, TRUenergy, CSIRO)*
- **Low cost flue gas treatment and CO<sub>2</sub> removal\*** *(Loy Yang Power, CSIRO)*
- **Solvent-Based Carbon Capture Technology** *(CO<sub>2</sub>CRC, GDF Suez International Power, Process Group)*
- **Reducing cost of CO<sub>2</sub> absorber columns\*** *(Process Group, WES, CO<sub>2</sub>CRC)*

\* ANLEC brown coal node projects



## BCIA membership activities



## Member focused programs

- Members access to programs in:
  - Commissioned reports *specifically for members*
    - Reports developed for members in specified focus areas
  - Linkages and networks
    - Seminars, conferences, international linkage programs
  - Communications
    - Results, benefits of brown coal
  - Skills *programs*
    - PhD sponsorships
    - Research Fellows
    - Community skills programs





## Skills for a future workforce



## BCIA Investments in Research Skills

- Budget of over \$2M for next four years
- Research Fellows
  - Alan Chaffee
  - Klaus Hein
- Research scholarships
  - 5 students 2010-
    - Further students on BCIA funded projects
  - 2+ new studentships per year
- Networks and linkages



## Matching Skills to Workforce requirements

- Defining future workforce needs
- Developing future skills scenarios
- Linking to international initiatives
- Building community understanding of future Brown Coal industry.









## Communications highlights

- Journalist briefings - A trusted source of information on brown coal activities
- Regular (bi-monthly) newsletter “Perspectives on Brown Coal” and a variety of fact sheets available
- Seminars, workshops, conferences, community consultation events
- Building linkages with organisations with similar aims in US, Japan, Europe, participation of overseas research teams in BCIA programs



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