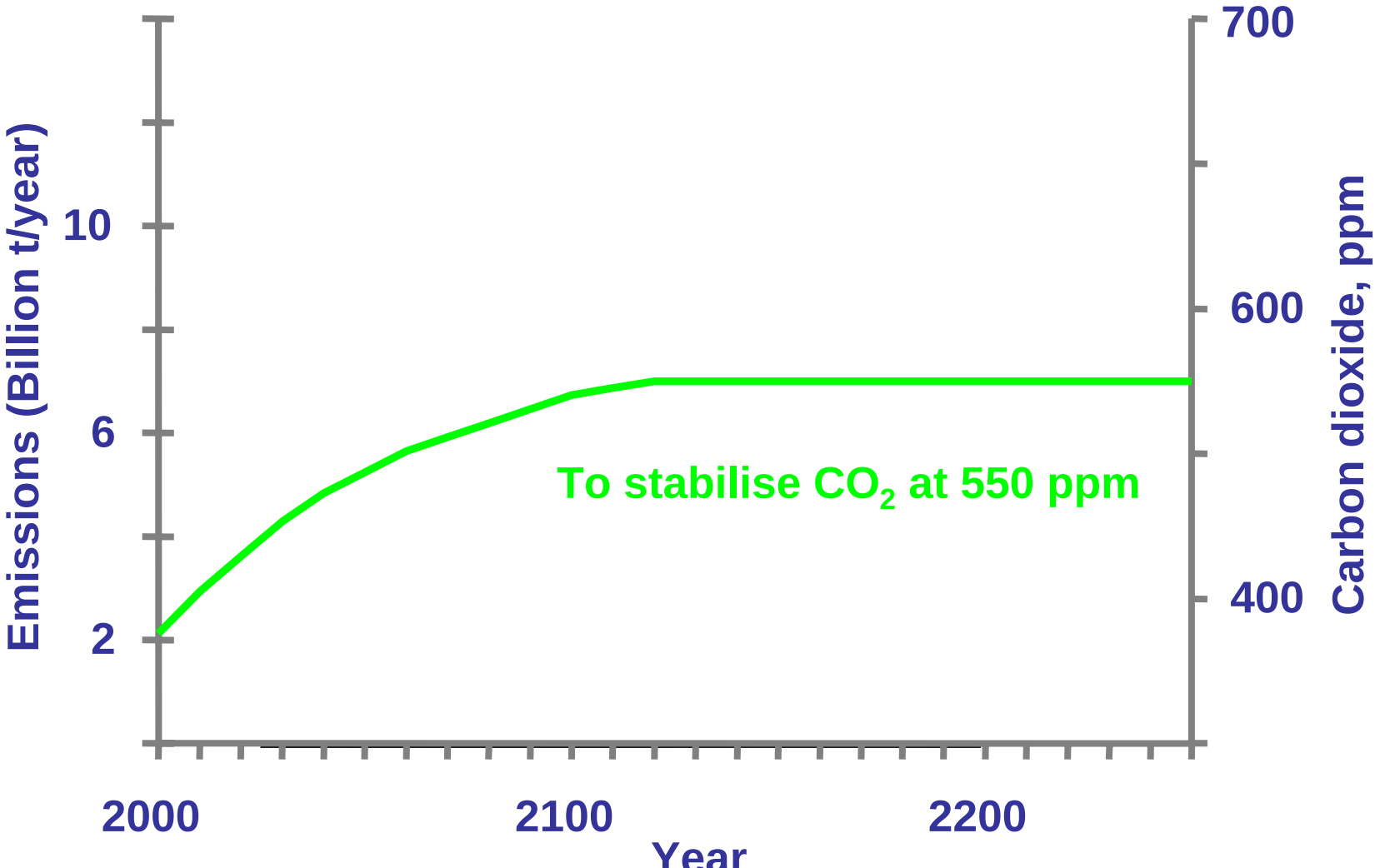
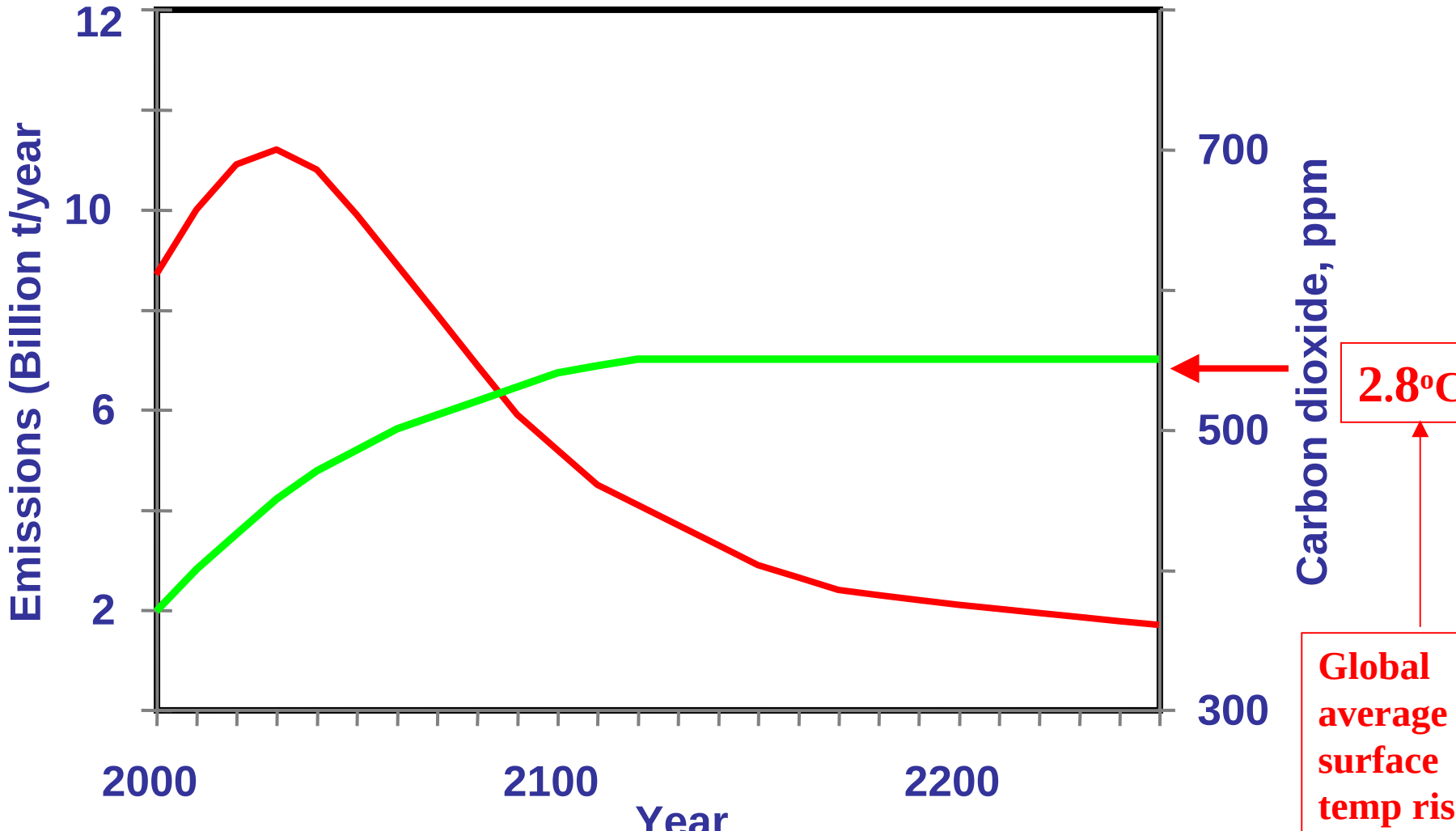
Additional messages

- Significant change can be “small”
- Stabilisation of climate is a huge challenge
- Climate is variable and changing
  - reject concept of stability or stationarity
- Science uncertainties enhance risk
- Vulnerability should be assessed in a:
  - risk framework
  - Integrated framework

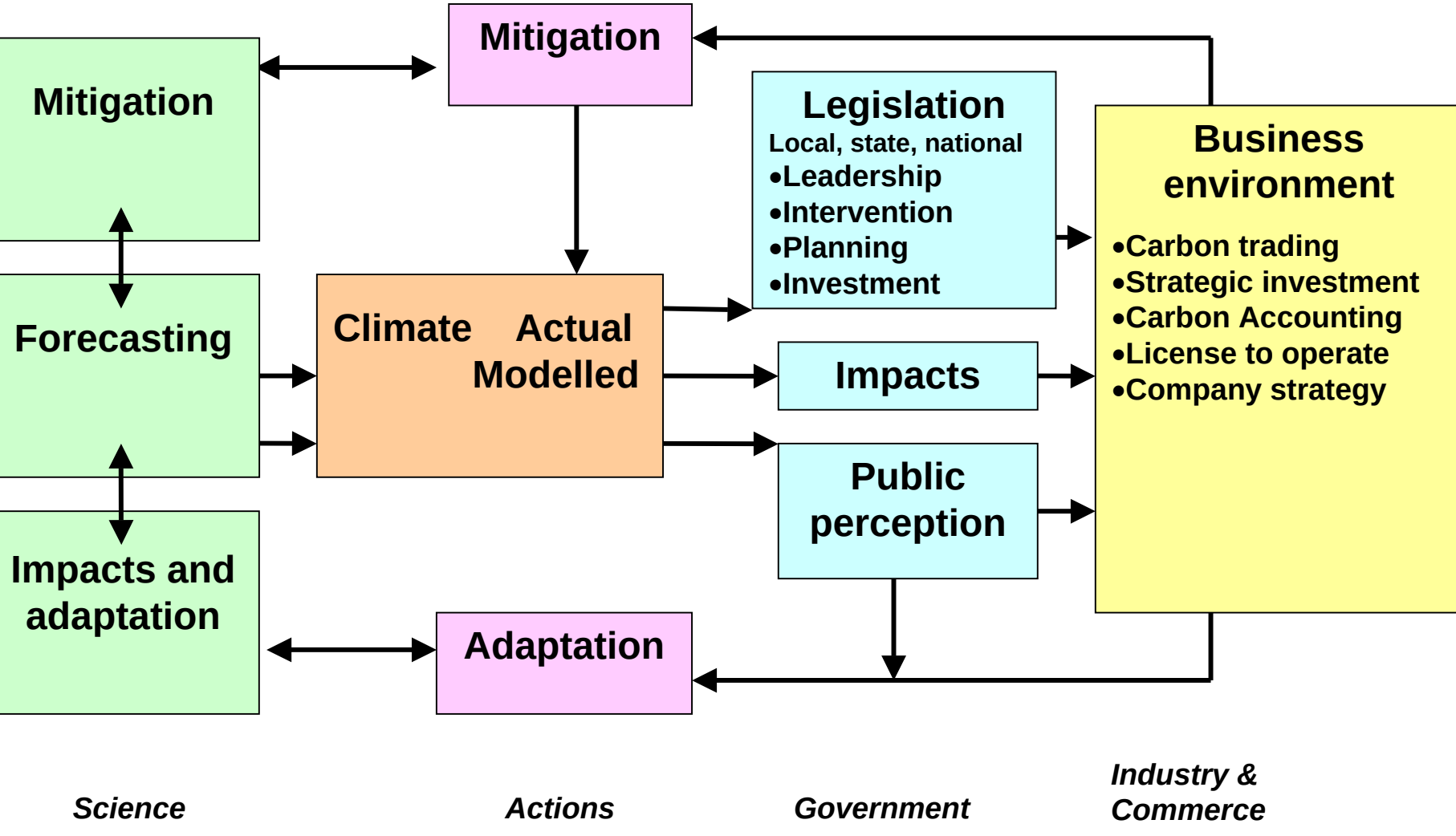
Stabilising CO_2 - and temperature



Stabilising CO_2 - and temperature - requires large emission reductions



Climate science/government/business



Science wild cards

- Slowing of the thermo-haline ocean circulation raises the rate of future change
- Closer to “dangerous” than we think
- Global biosphere becomes a source
- Current warming rates slower than in future due to the twentieth-century masking aerosols

“…we are closer to dangerous anthropogenic interference than is generally realized…”

James Hansen

US Science Advisor, Scientific American, 2004

Energy challenges

Meeting current ("Kyoto") reductions targets

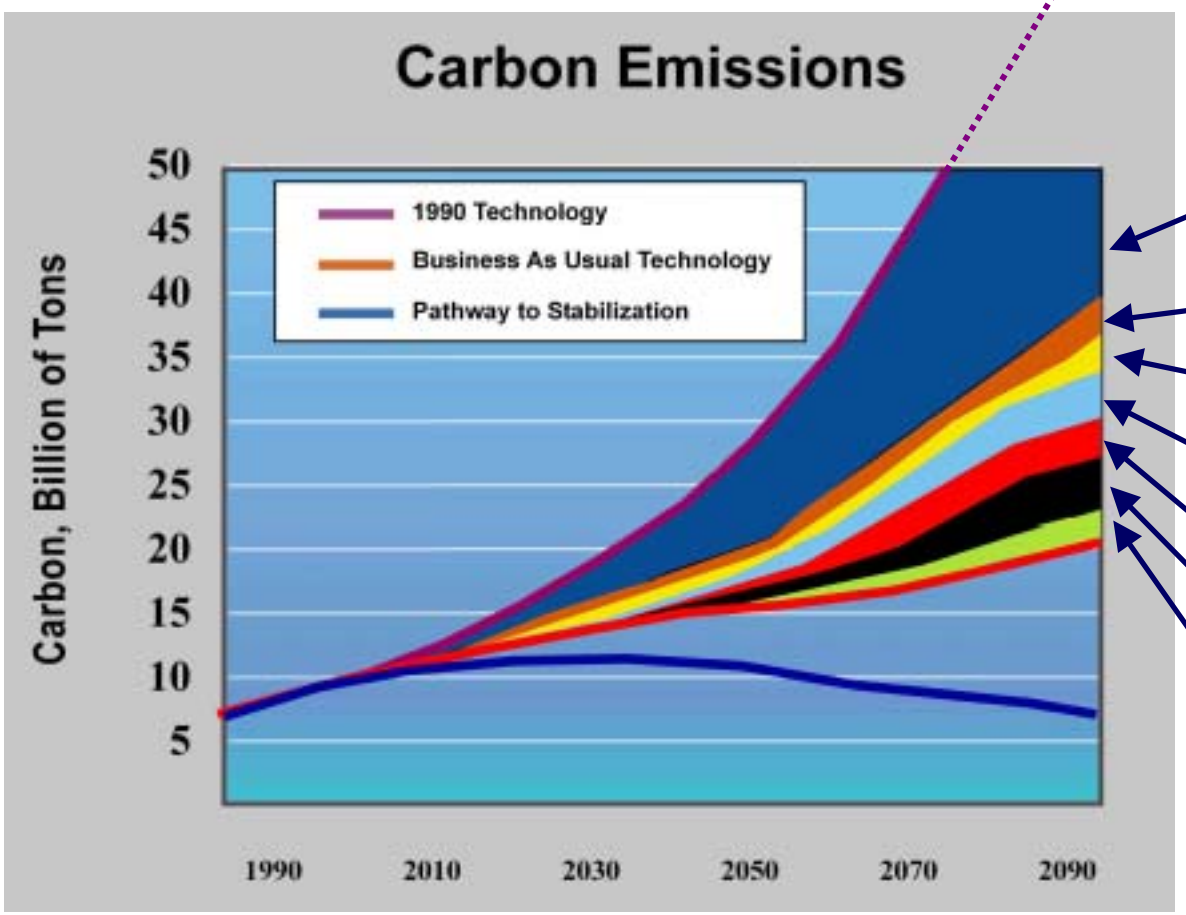
Recognising the likelihood of reductions required may exceed 50% in the next ~50 years

Recognising the risk that "dangerous" may be more demanding and translate into greater reductions

Provision of the amenity/demands for energy use in a Framework that increasingly expects economic, social, environmental and inter-generational outcomes

Business-As-Usual Gap

Extraordinary improvement is built in to business as usual



Energy Efficiency & Reduced Demand

Solar

Wind

Advanced Nuclear

Advanced Gas

Advanced Coal

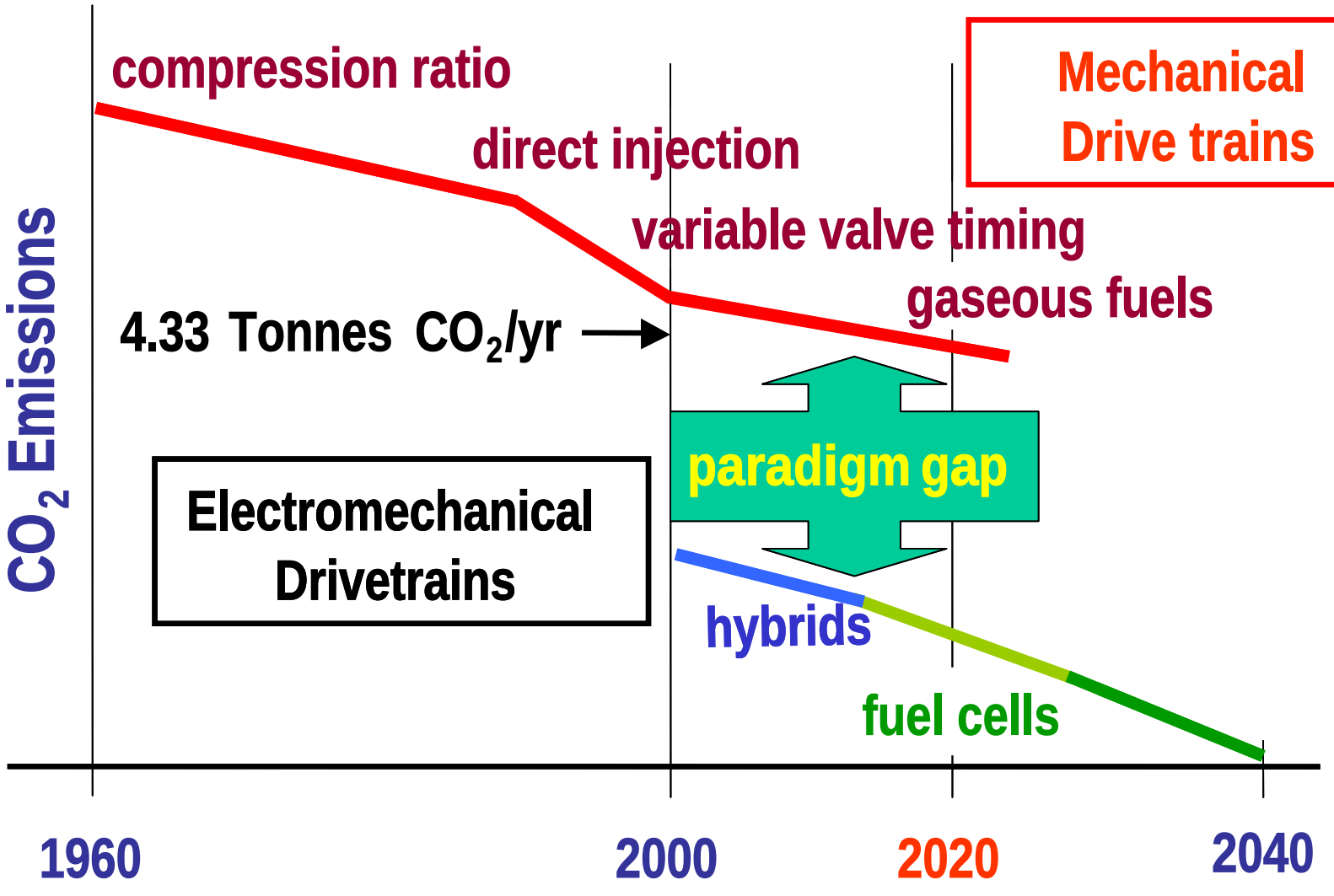
Conventional Biomass

Adapted from Battelle

Portfolio of options

- Improved end-use efficiency
- Higher efficiency combustion technologies
- New automotive technologies
- Decentralized power generation
- Affordable renewable technologies
- Capture and sequestration of carbon dioxide from power plants

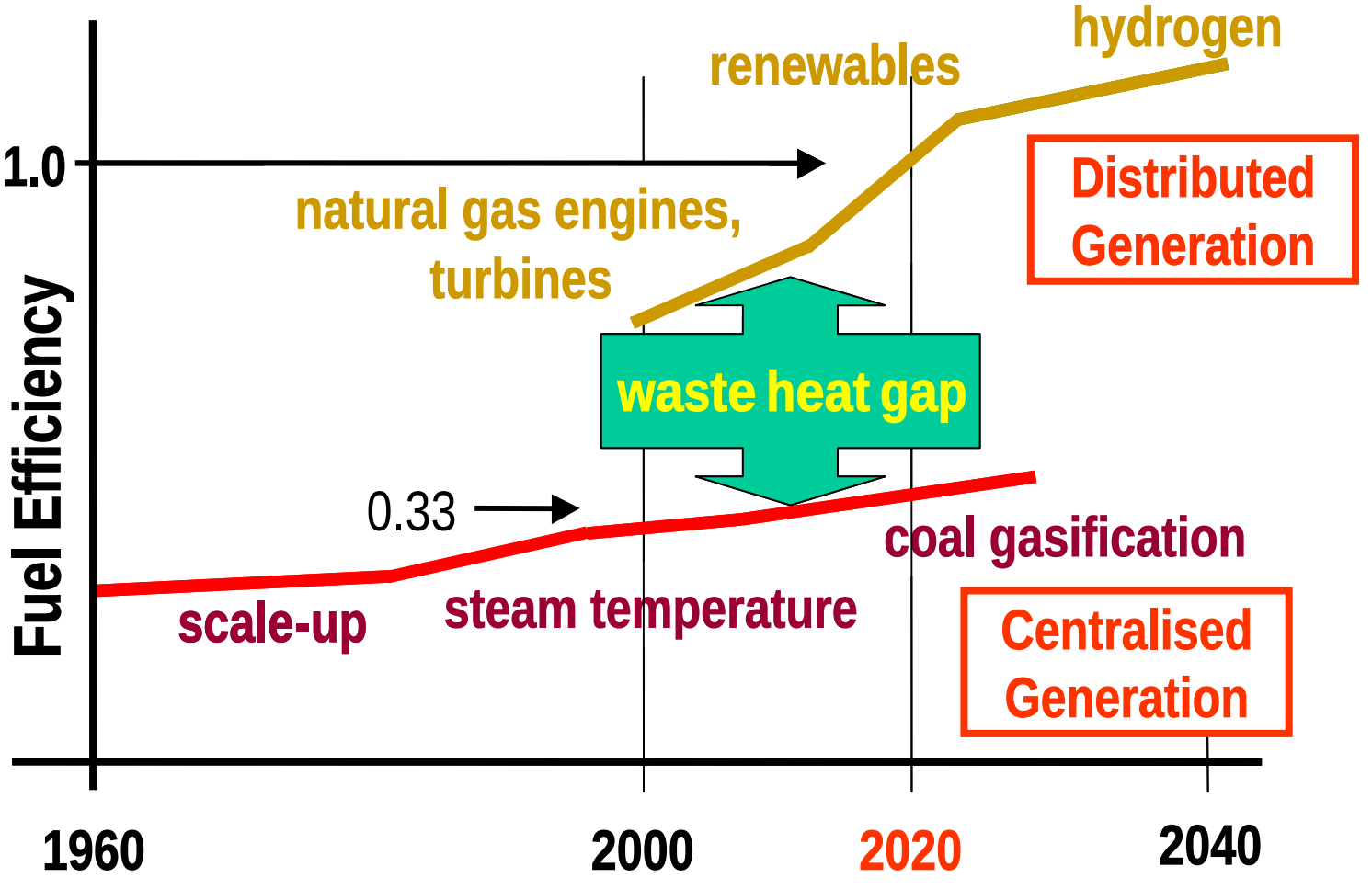
New Generation Transport

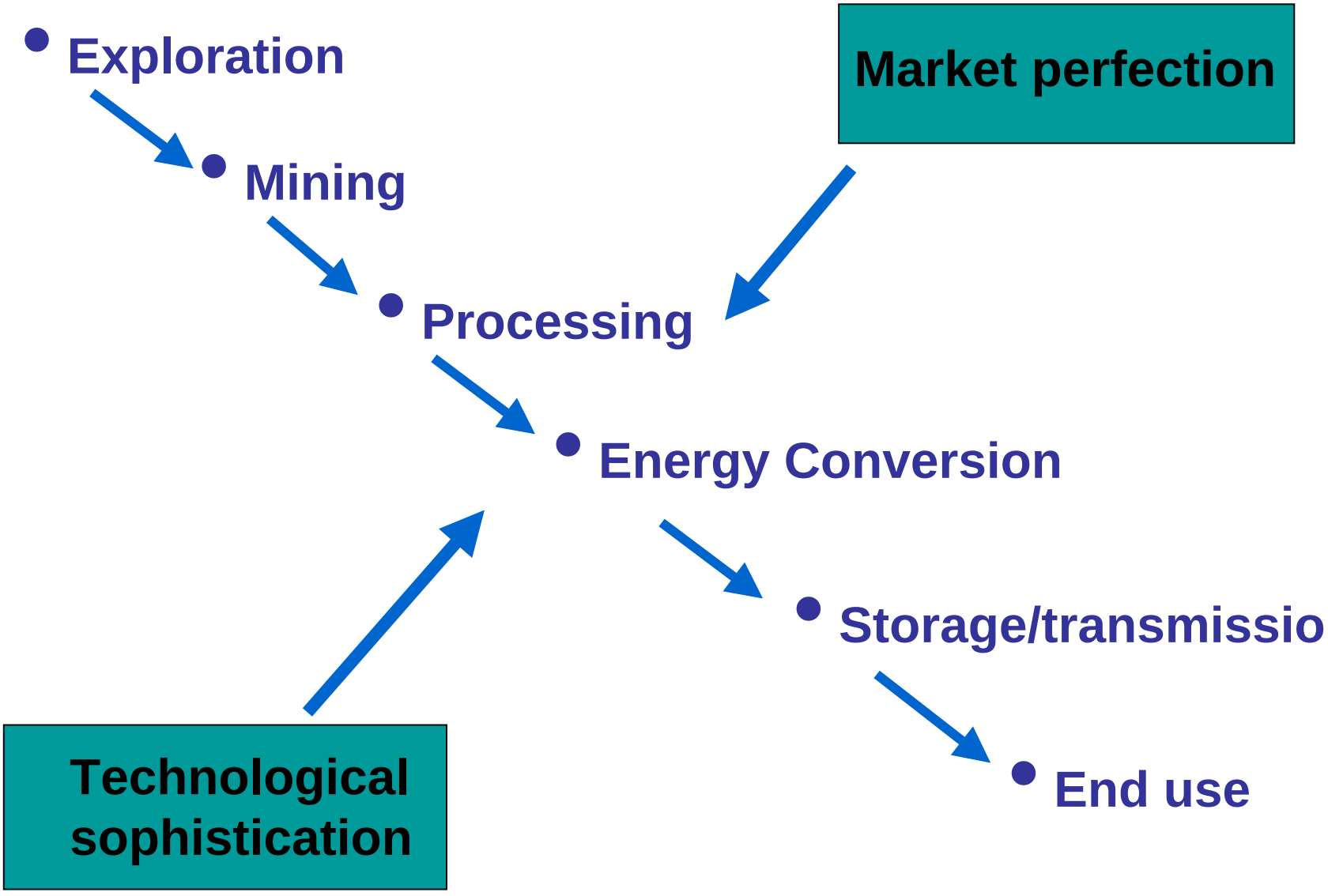


The ECOmmodore is the first hybrid-electric vehicle developed by an Australian automotive manufacturer and is unique in the world.

May 200

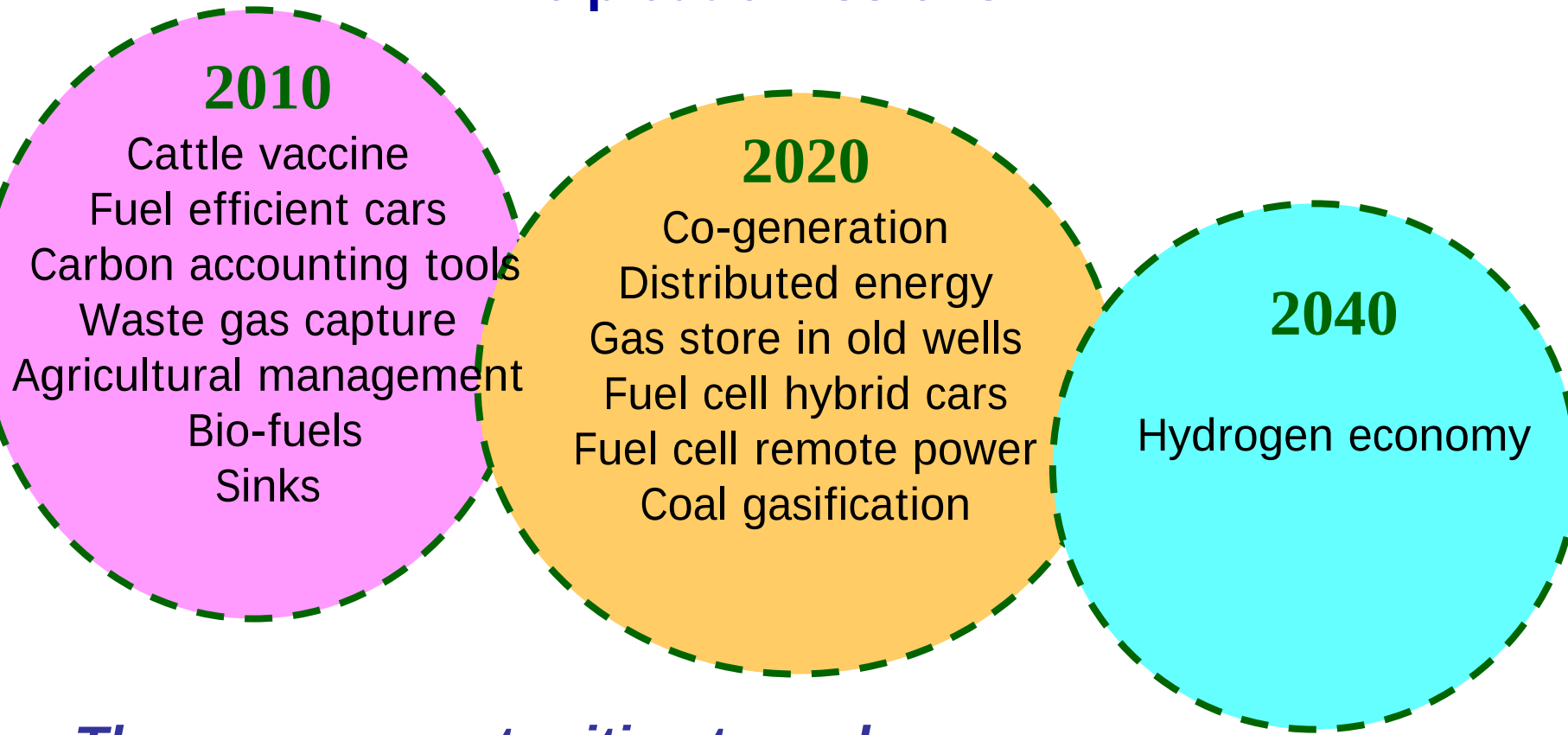
Distributed Generation - The Technology Gap




Exploration
Mining
Processing
Energy Conversion
Storage/transmissio
End use
Market perfection
Technological sophistication

Technologies forming portfolio of responses

Technologies come on line at different times to help cut emissions



There are opportunities to make money, cut costs, create jobs