



Amy Quinton

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System analysis and simulation modeling for Australia's low carbon energy transition

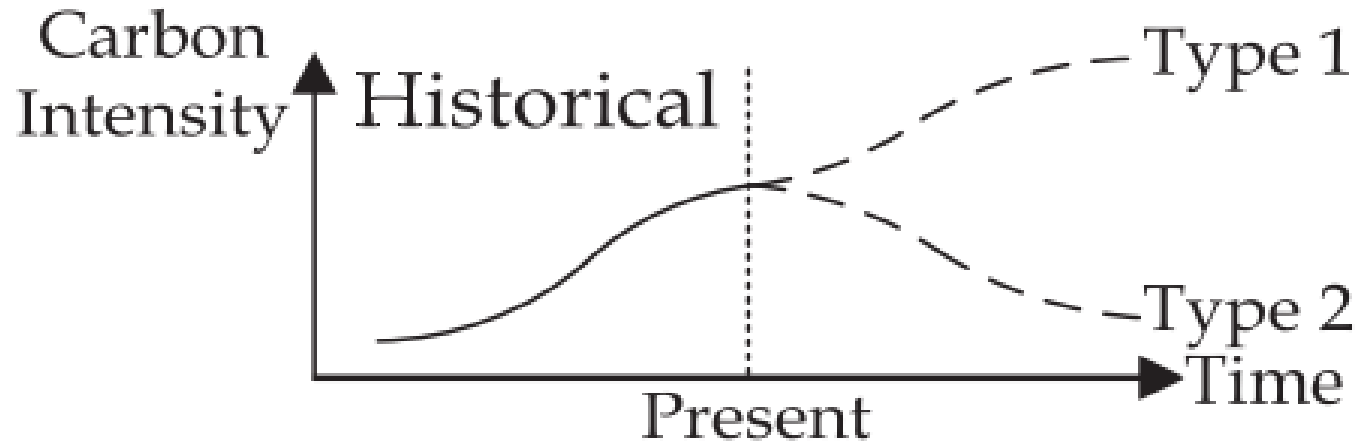
Amy Quinton and Dr Anthony Halog

World Resources Forum, 1-3 June 2015,
Sydney

Outline

- Introduction
- Approach and findings
 - Transition theory analysis of Australia's electricity system
 - System dynamics analysis
- Strategies to support low carbon transition
- Conclusions

Overview



Difference between historical and contemporary transitions (Papachristos, 2014).

Transition theory

A. Genus, A.-M. Coles / *Research Policy* 37 (2008) 1436–1445

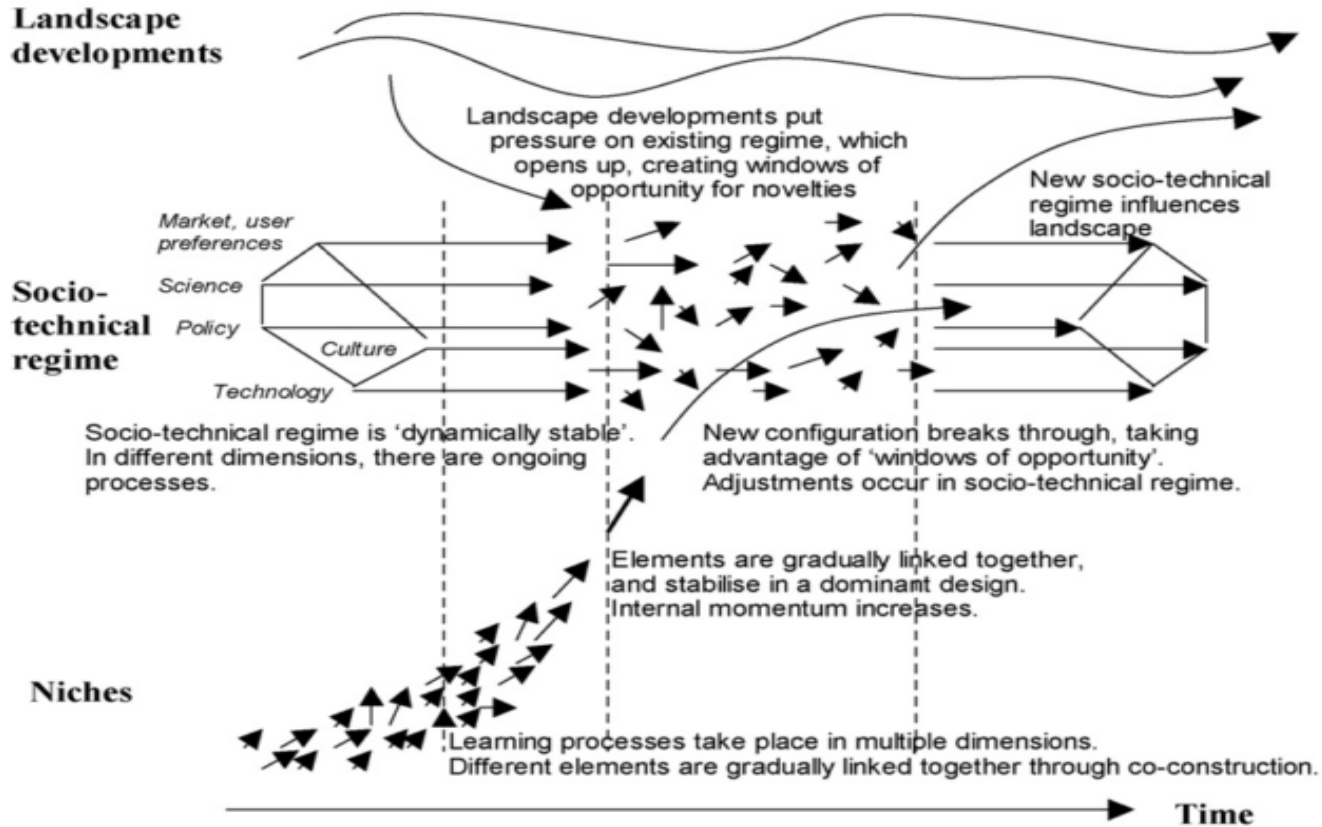
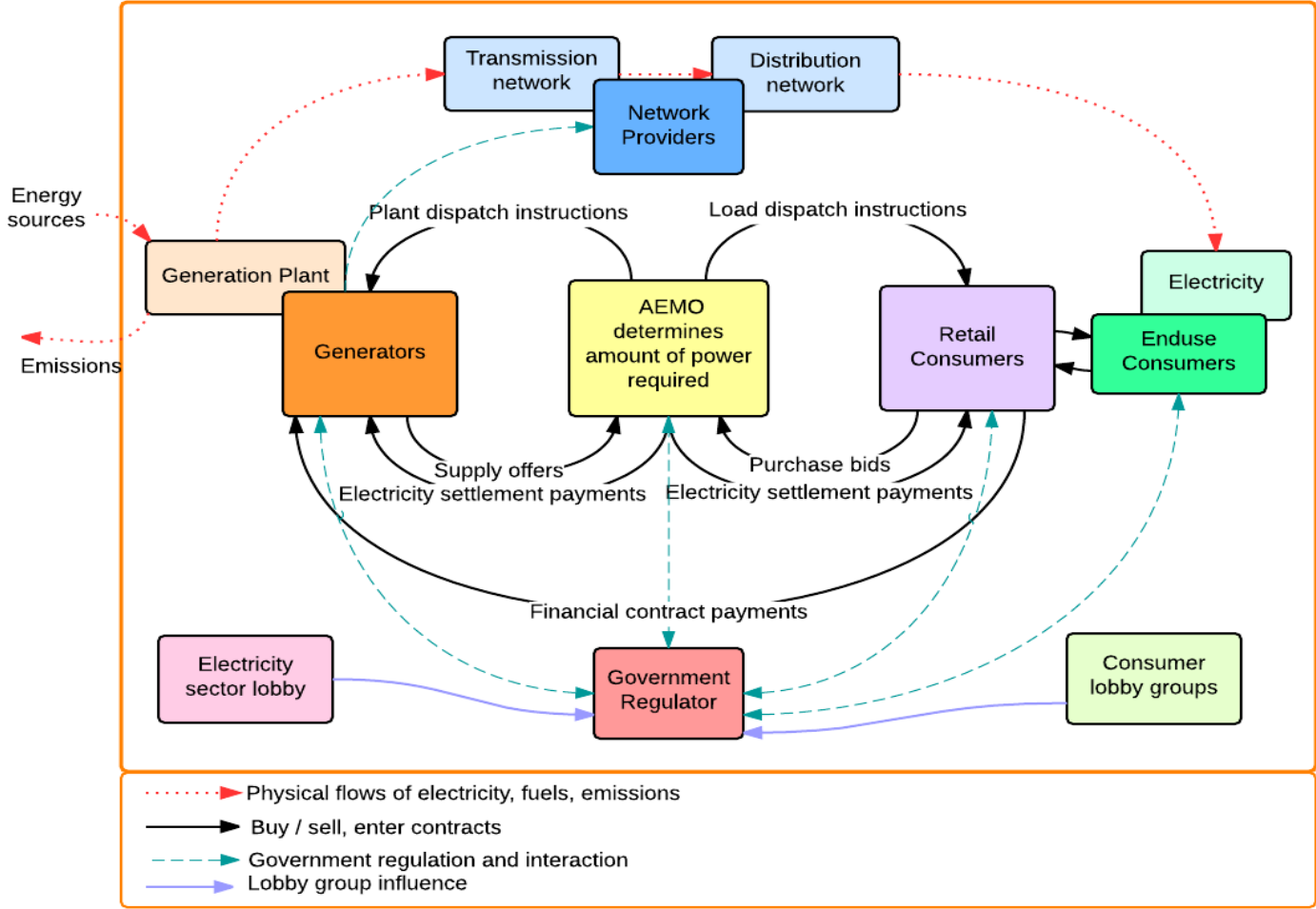
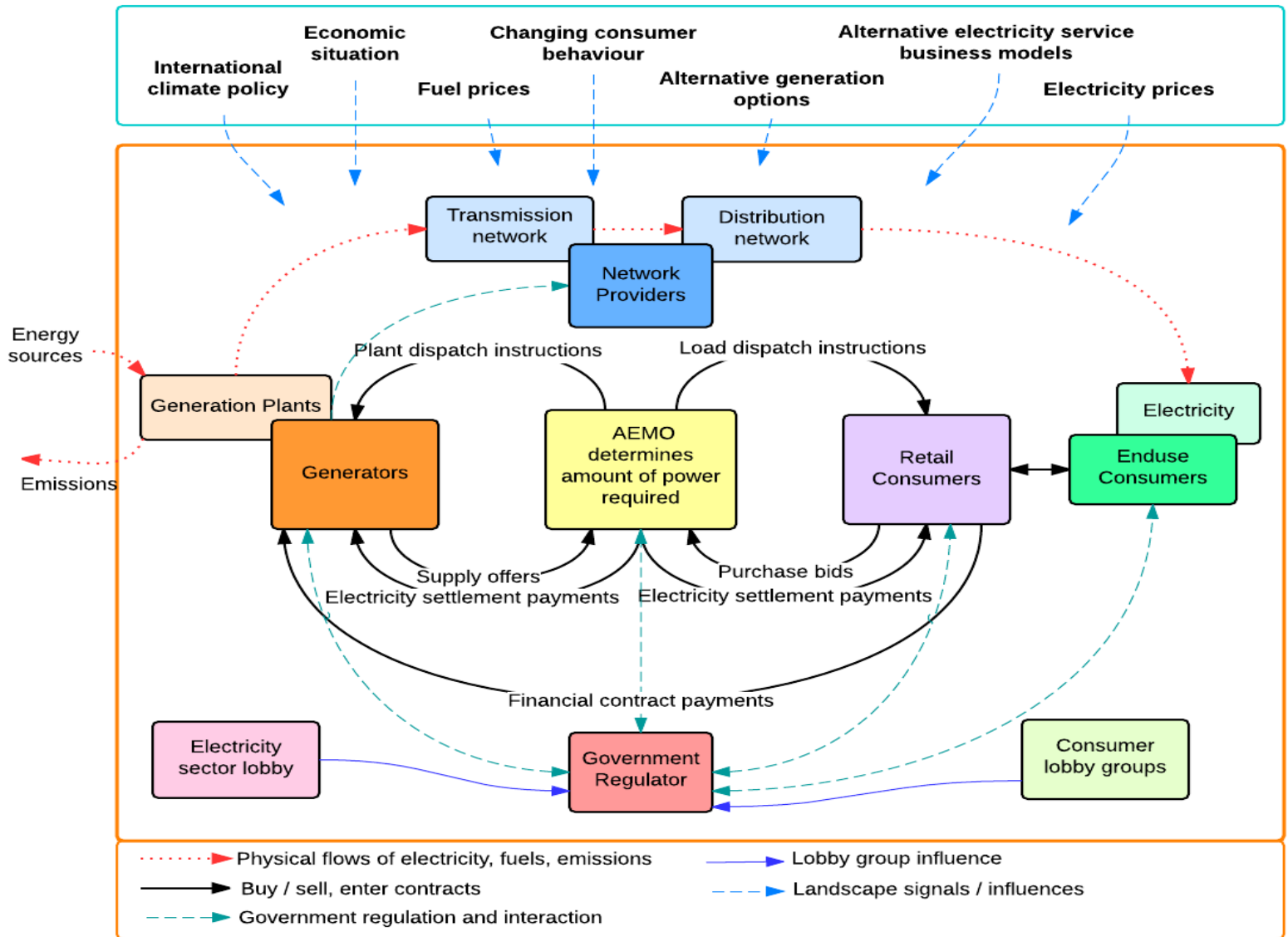


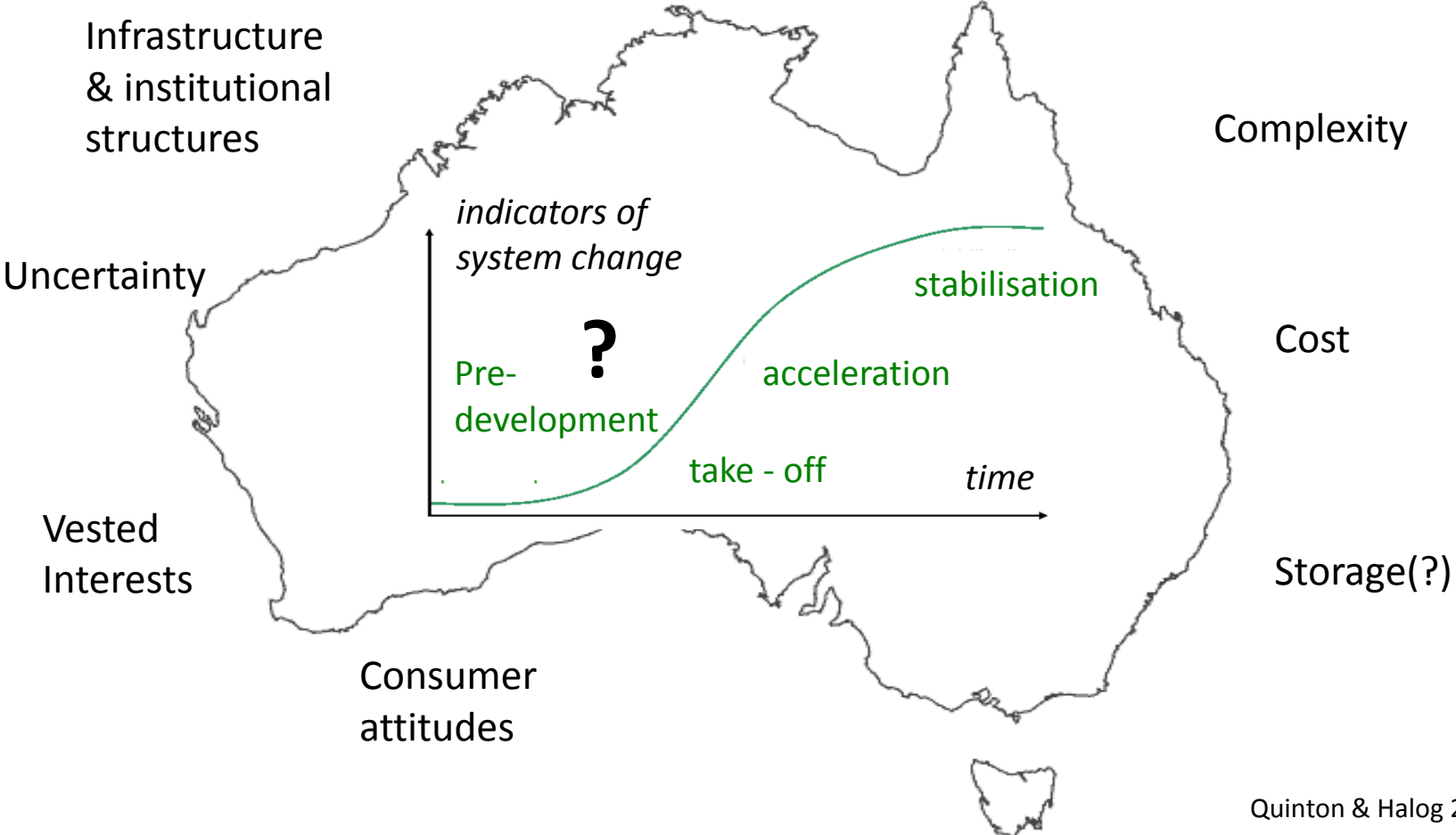
Fig. 2. A dynamic multi-level perspective on system innovations. Adapted from Geels (2004).

Australian electricity production socio-technical system

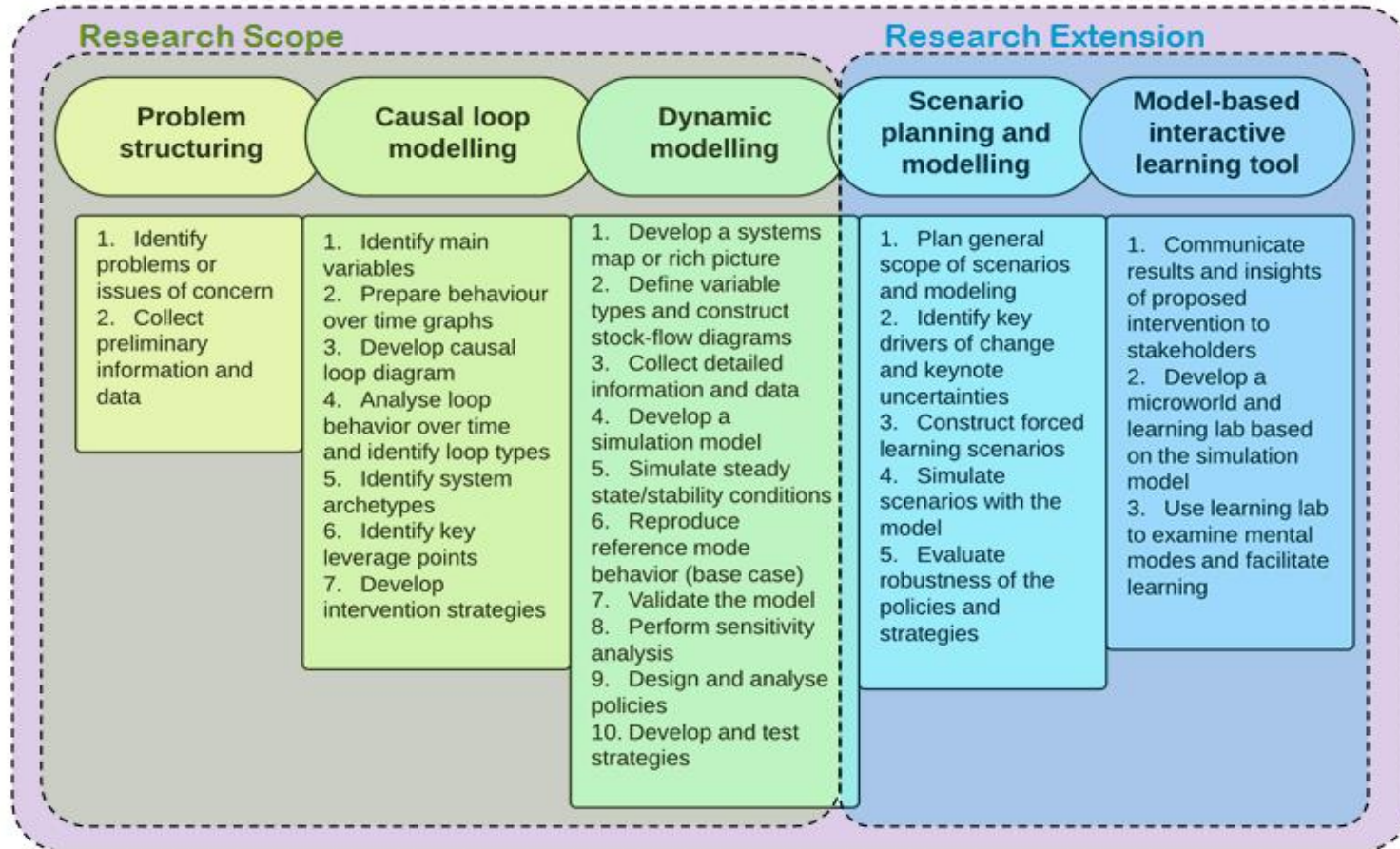




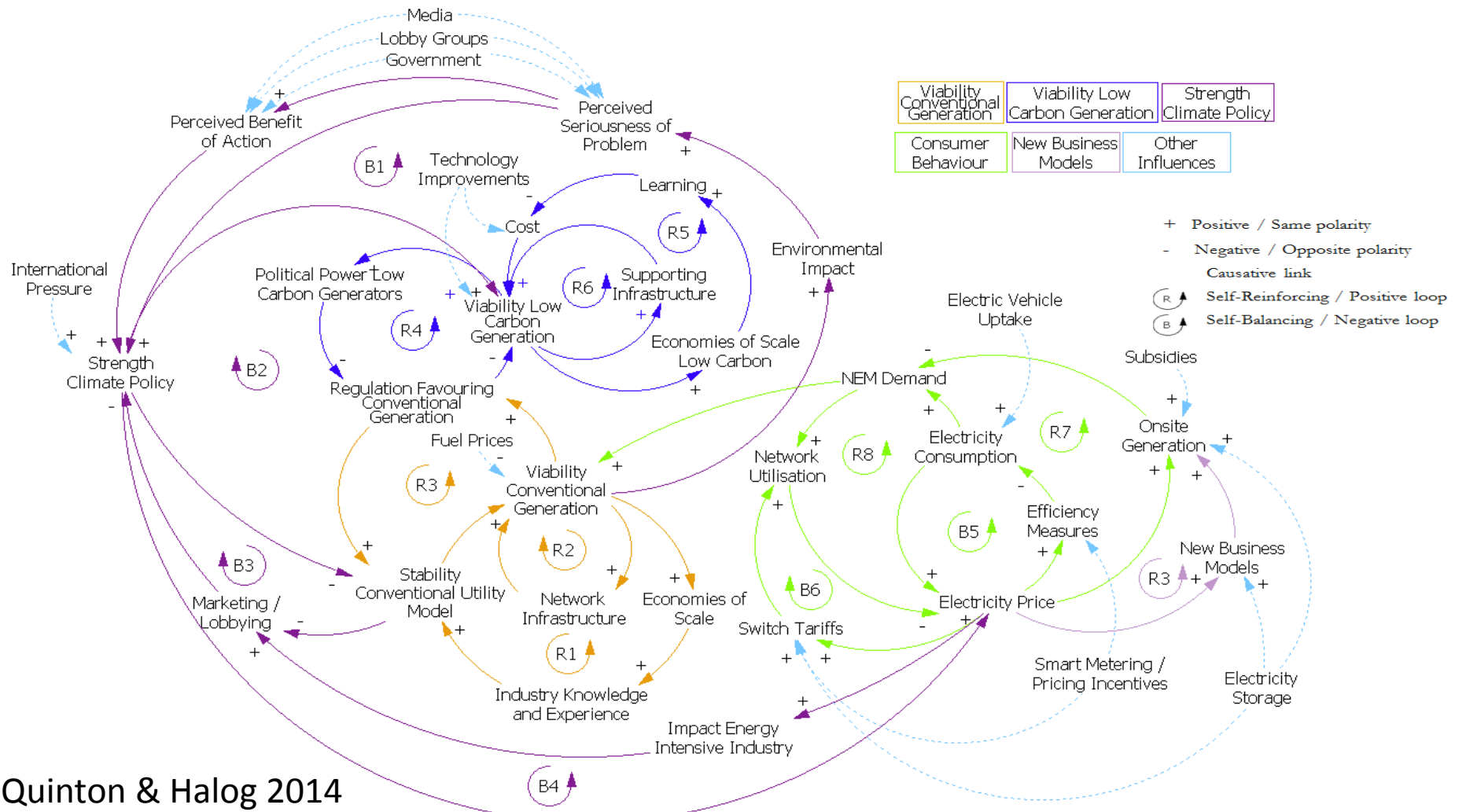
Barriers to change?



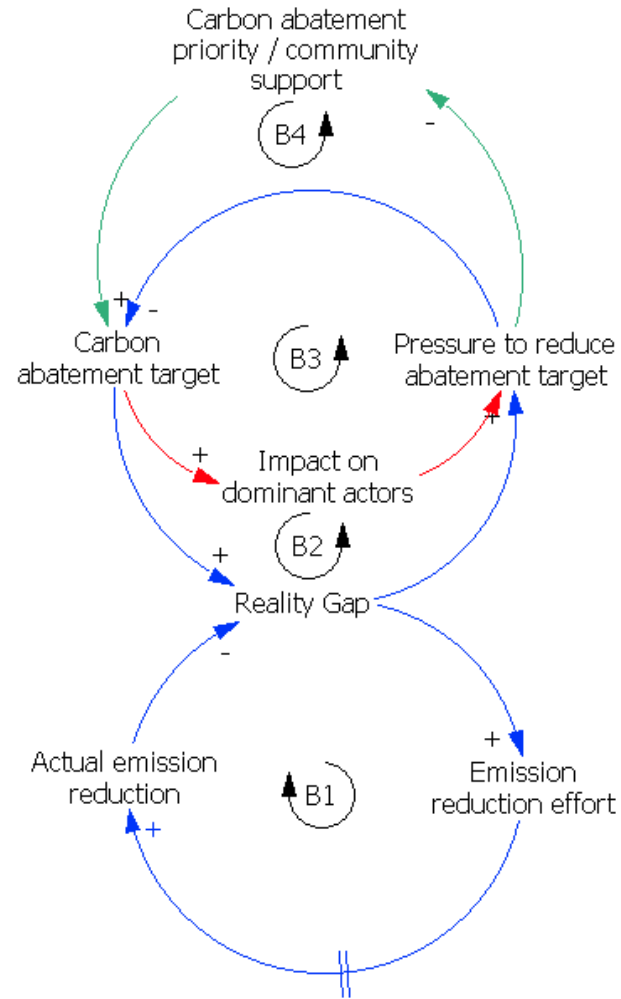
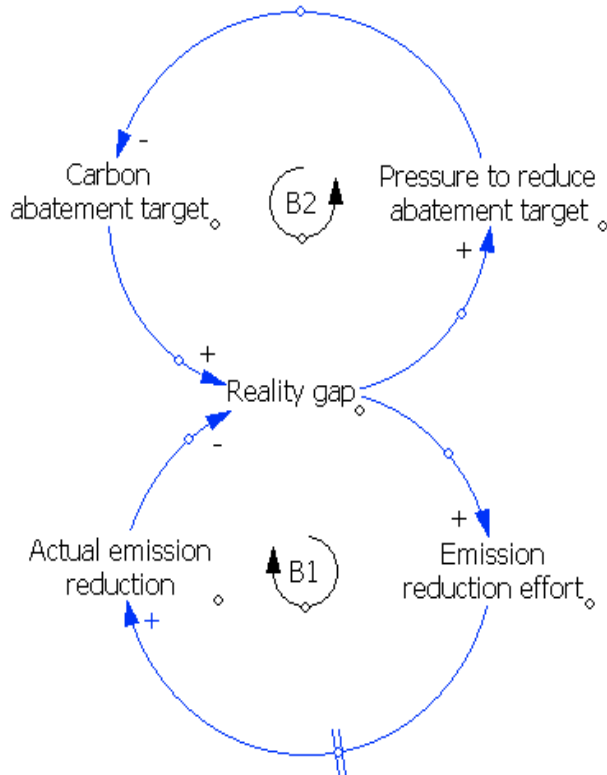
System thinking and modeling methodology



Causal loop diagram of Australia's socio-technical electricity system including emerging changes and uncertainties (simplified)



System archetypes - eroding goals



Quinton & Halog 2014

Leverage and Strategies

- Sustainability at an operational level – reassessing priorities
- Addressing procrastination
- Addressing eroding goals
- Promoting a national conversation
- Electricity's role in the broader low carbon transition?

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