On the emergence of the energy transition

Kraan, O.D.E.

Propositions belonging to the dissertation: "On the Emergence of the Energy Transition"

Oscar Kraan

I. A reliance on technology alone for the future supply of the remaining demand for hydrocarbon fuels ultimately leads to a bet on solar fuels. (Chapter 3)

II. Total Primary Energy is a misleading metric that potentially misdirects low-carbon investments based on statistical artefacts. (Chapter 4)

III. Insights from simulation models incorporating realistic actor behaviours can improve climate change policy development. (Chapter 6)

IV. Fully liberalised electricity markets will fail to meet deep decarbonisation targets even with strong carbon pricing. (Chapter 7)

V. *Axelrod's* KISS principle makes modelling the art of leaving things out.
R. Axelrod, The Complexity of Cooperation: Agent-Based Models of Competition and Collaboration, Princeton University Press 1997

VI. The success of the energy transition will rely on the scrutiny of carbon accounting.
K. W. Steininger et al. Multiple carbon accounting to support just and effective climate policies, Nature Climate Change 6 (2016)

VII. In contrast to *Edmonds*' anti-simplistic approach and deliberating *Pindyck's* critique; complex models bring most insights through their simplicity.
B. Edmonds, S. Moss, From KISS to KIDS–an 'anti-simplistic' modelling approach, International workshop on multi-agent systems and agent-based simulation, Springer Berlin 2004
R. S. Pindyck, The Use and Misuse of Models for Climate Policy, Review of Environmental Economics and Policy 11 (1) (2017).

VIII. Policies to reduce the plastic soup and/or stimulate a circular economy should be designed consistent with climate change policy.
R.Stafford, P. J. S. Jones, Viewpoint – Ocean plastic pollution: A convenient but distracting truth?, Marine Policy (2019)

IX. The energy transition will only succeed when it is inclusive.

X. A dance emerges from the complex interactions of irrational decisions.

XI. One cannot count the things that really count in life.