

# Governance of long-term emissions strategies

Paris Agreement implications for strategies, monitoring  
and assessment

IAEE Europe conference  
Ljubljana 27 August 2019

**Frank Jotzo**

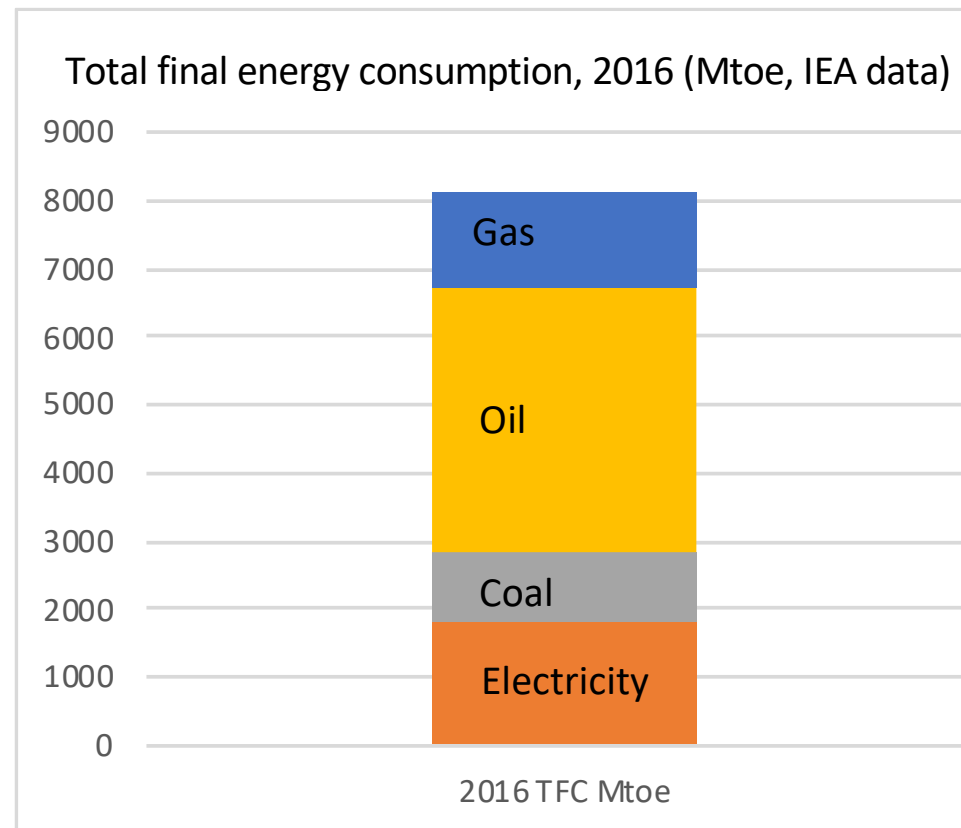
Centre for Climate and Energy Policy

Crawford School of Public Policy

**Australian National University**

# Decarbonisation: fundamental change in energy systems

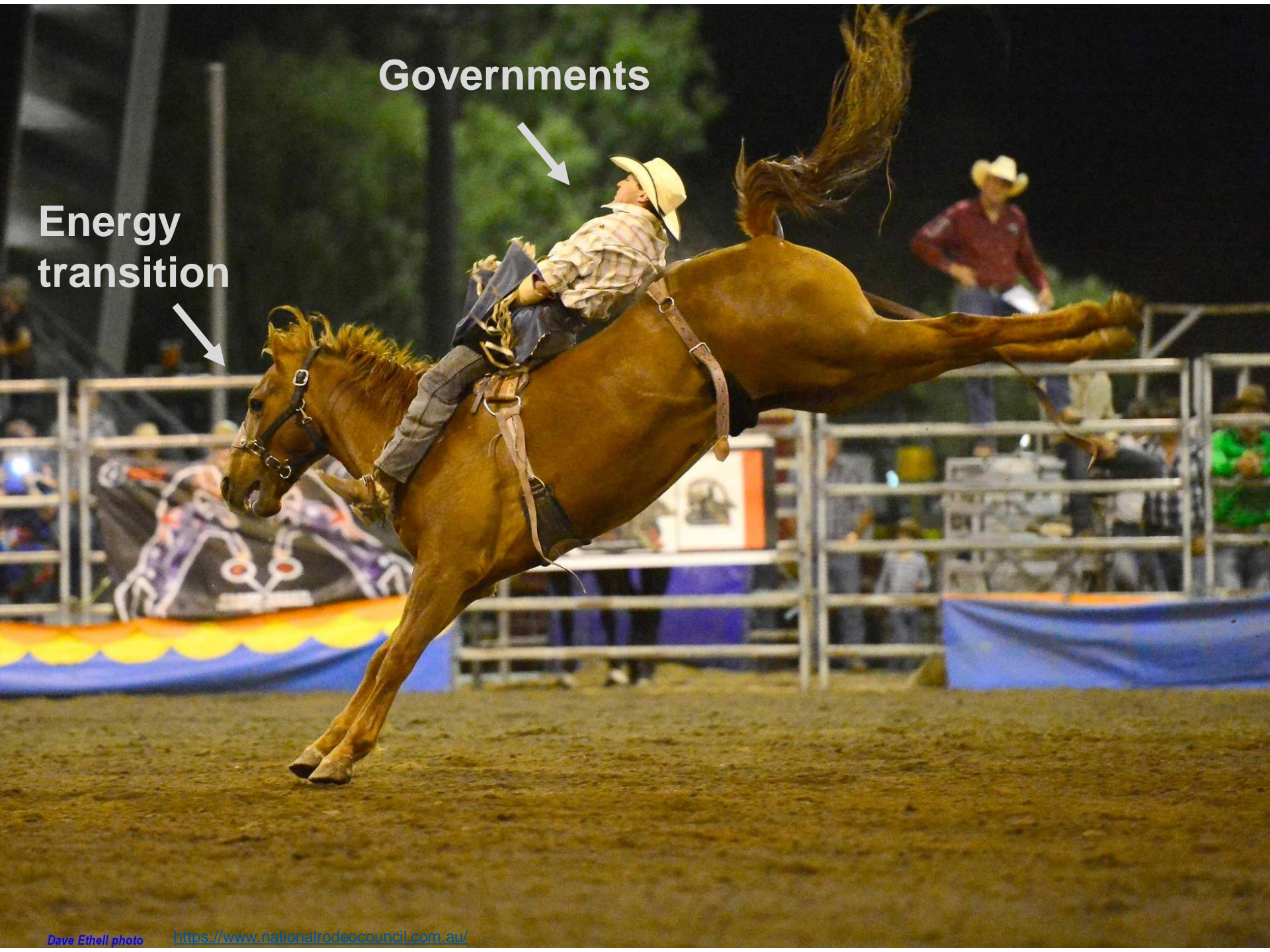
- Decarbonise electricity supply
- Electrify transport, industry, buildings
- Technology is changing, fast



**Governments**

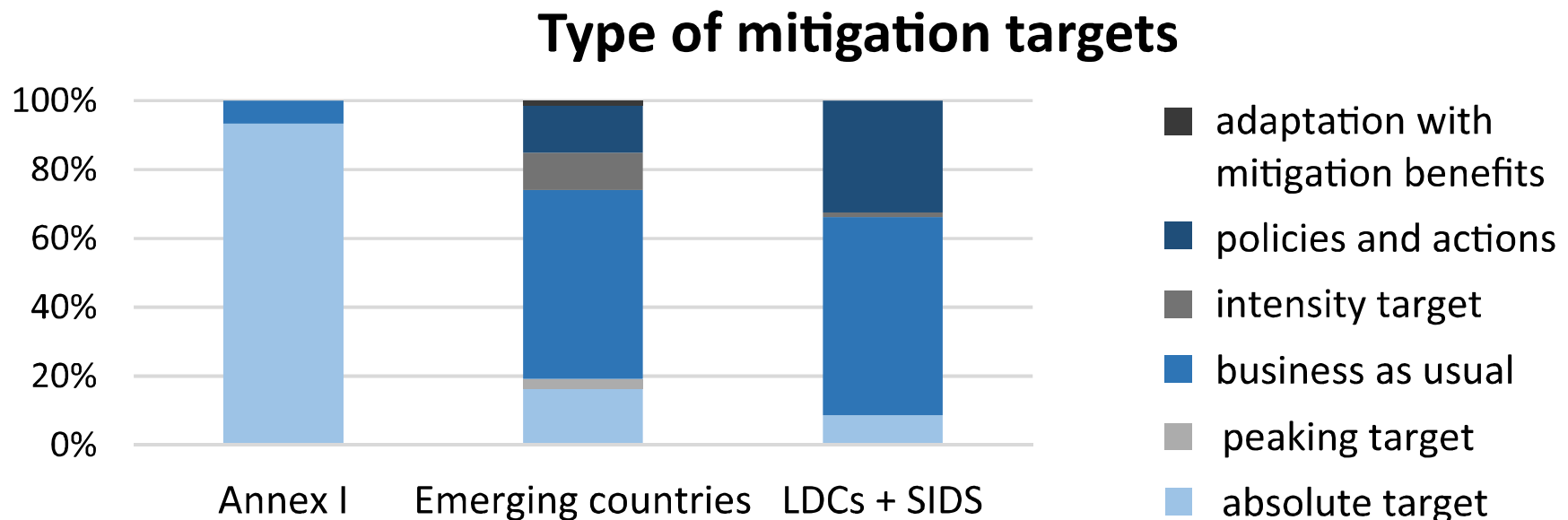


**Energy transition**



# Paris Agreement goals & targets

- PA long term goal “well below 2d”
- Countries’ Nationally Determined Contributions



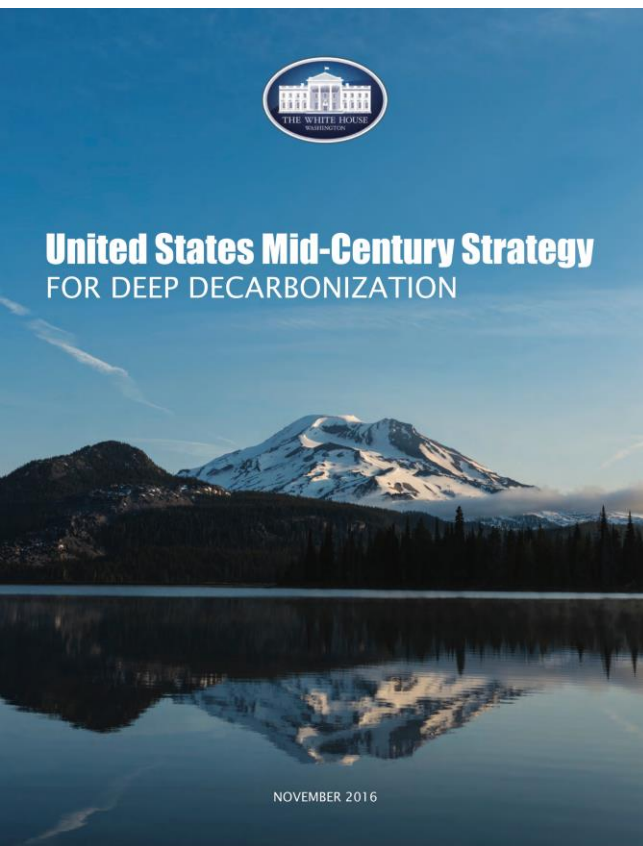
Source: Pauw, Mbeva & van Asselt 2019 PalgraveComms



Parties to the Paris Agreement are invited to: “formulate and communicate long-term low GHG emission development strategies” (Article 4.19)

19. All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

# Examples of long-term low-emissions strategies



United States  
Mid-century strategy

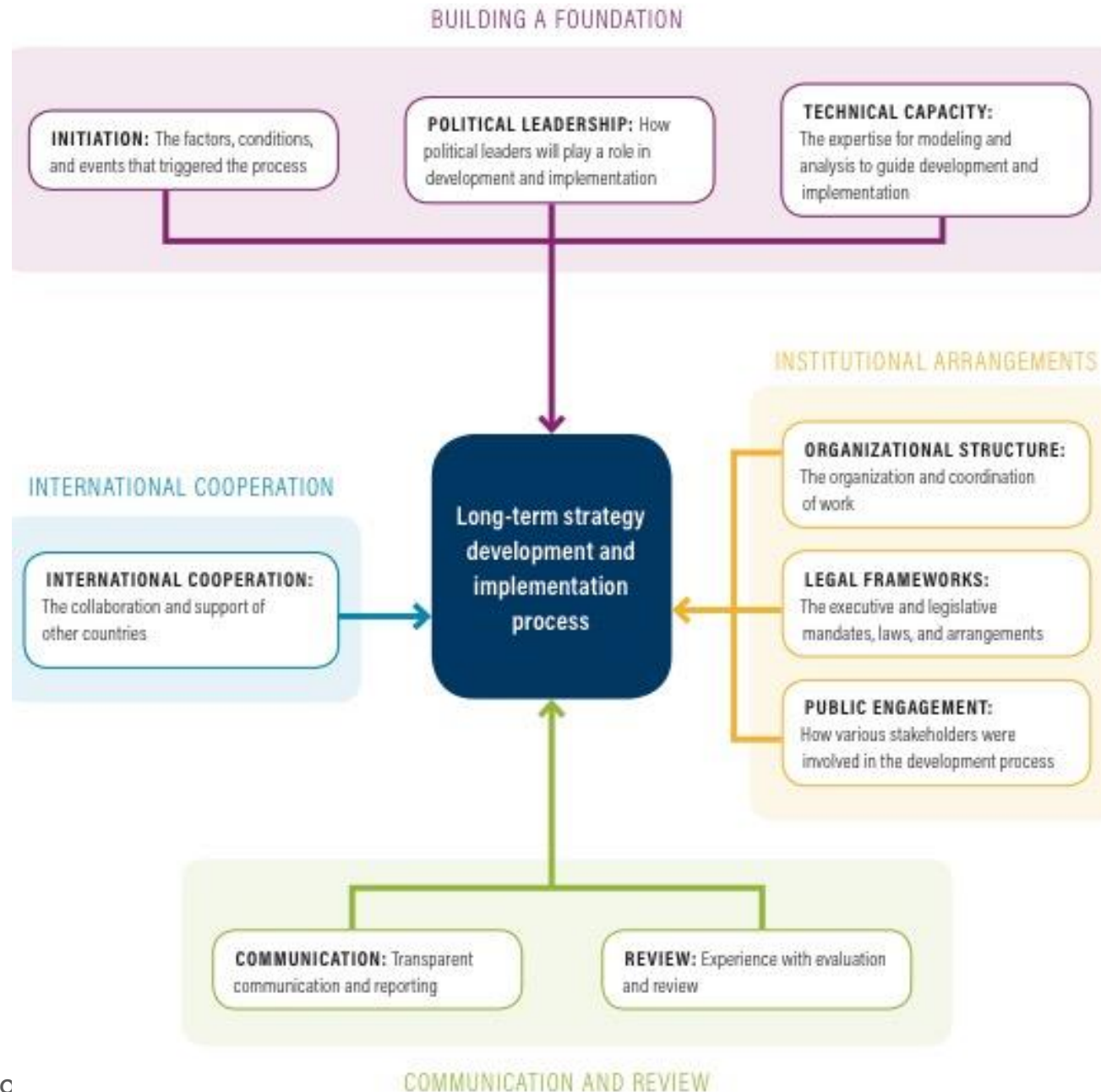


EC Long-term  
strategic vision

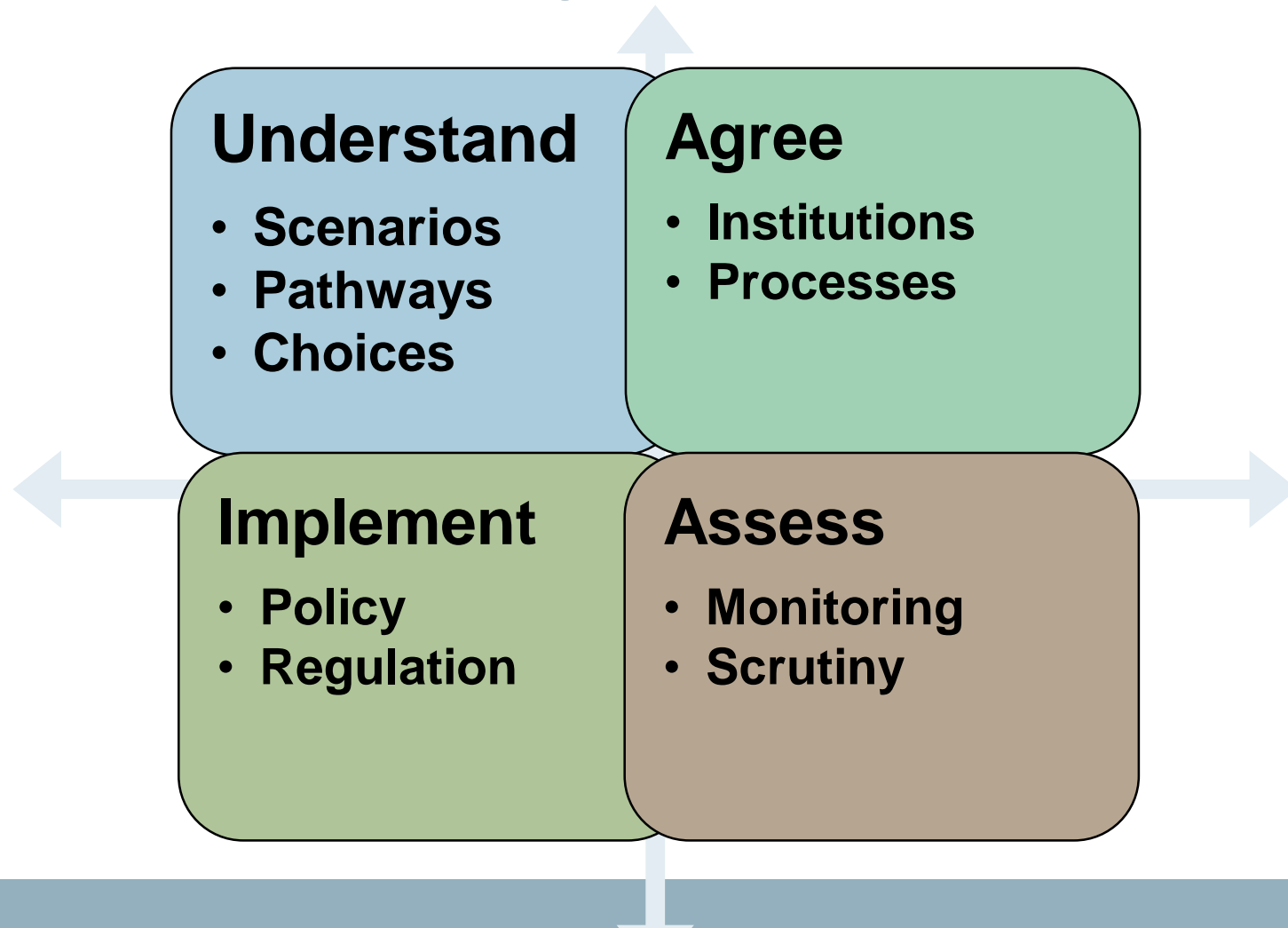


German Coal  
Commission

# Possible elements of a long-term strategy process



# Governance of national level low-emissions strategies: what is needed?





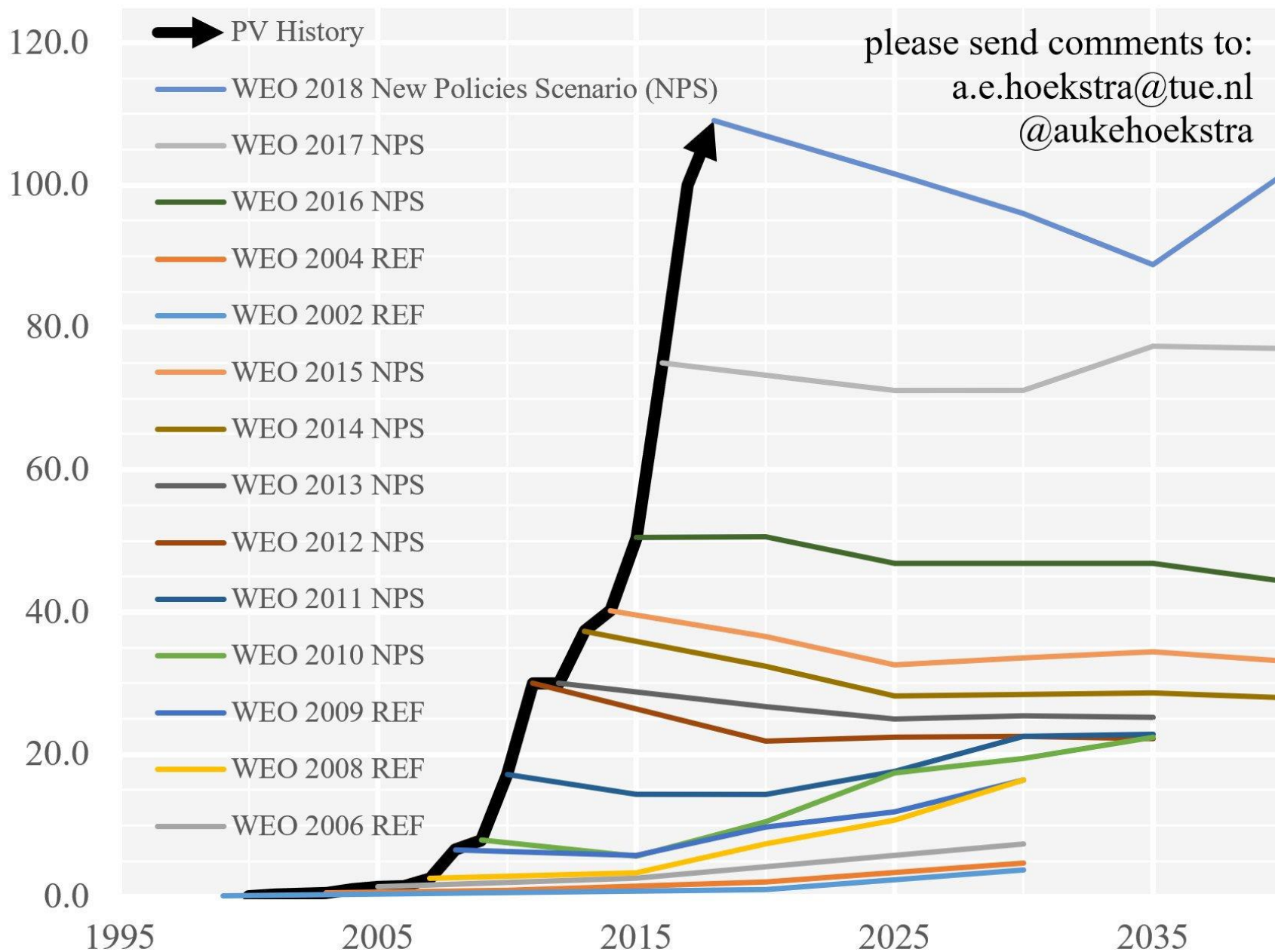
# Understand: scenarios

## Multi-scenario approach

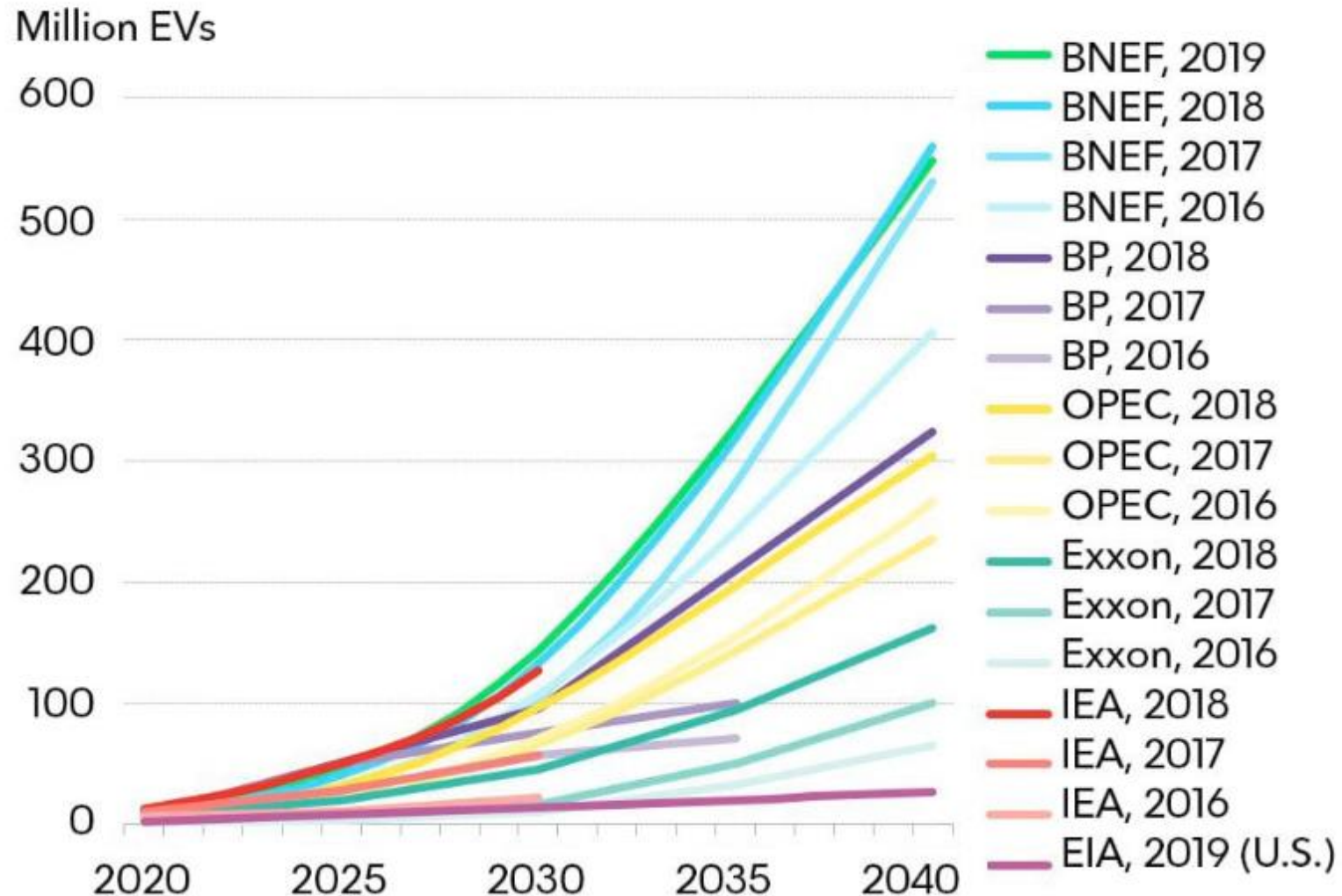
- *Wide* range of scenarios  
... of future technology, economy, society
- (Not just high/low cases, sensitivity analysis)
- Overcome present-bias and narrowness in projections

# Annual PV additions: historic data vs IEA WEO predictions

In GW of added capacity per year - source International Energy Agency - World Energy Outlook



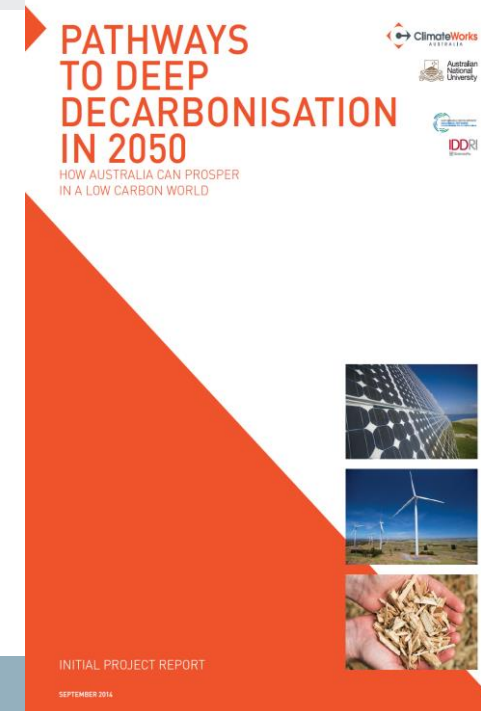
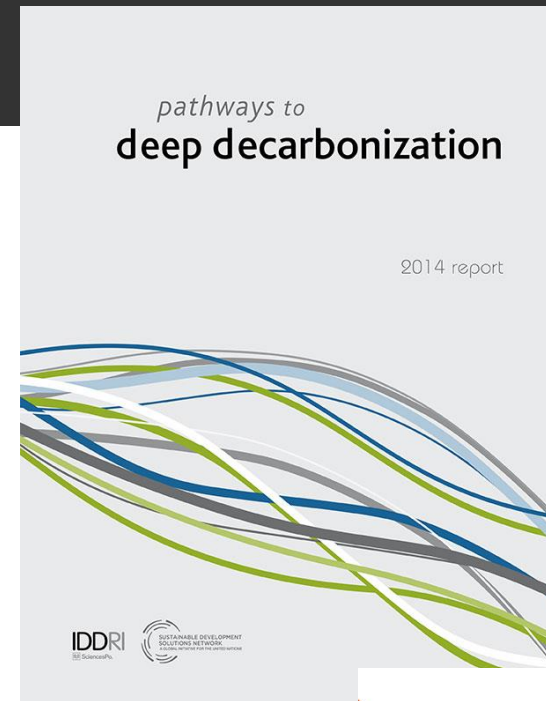
# EV Outlooks then and now



Source: BloombergNEF, organization websites. Note: BNEF's 2019 outlook includes passenger and commercial EVs. Some values for other outlooks are BNEF estimates based on organization charts, reports and/or data (estimates assume linear growth between known data points). Outlook assumptions and methodologies vary. See organization publications for more.

# Understand: pathways

- Emissions pathways
- Policy pathways
- Governance pathways
  
- Sector-by-sector,  
bottom-up analysis
  - IPCC AR6



# Understand: options & choices



- Opportunities? New energy industries, co-benefits
- Pressure points? Incl social change
- Engage players beyond the energy sector

# Agree: Institutions & processes

## Beyond the Ministries

- UK Committee on Climate Change, (Australia's Climate Change Authority)
- Germany's Commission on growth, structural change and employment ('Coal Commission')
- Regional transition authorities



# Agree: Institutions & processes

## Energy transition “too big for technocrats”?

- social change, not just technical & economic
- risk of inefficiency / rent seeking
- large amounts of money at stake

# Implement: policies & regulation

What frameworks can facilitate the transition?

- Predictably policy with clear objectives – avoid policy uncertainty
- Regulation – reform when needed, eg for integration of decentralized energy resources
- Public investment – clear objectives, retain options re technological change





# Assess: monitoring

## Regular assessment of progress

- Economic indicators of energy transition, eg affordability and competitiveness
- Physical indicators, incl international comparison
- Data dashboard, online data tools

# Monitoring of Germany's Energiewende

- Government assessments
- Independent expert commission reports
- Think tanks



Prof. Dr. Andreas Löschel (Chair)  
 Prof. Dr. Georg Erdmann  
 Prof. Dr. Frithjof Staib  
 Dr. Hans-Joachim Ziesing

## Status of the German Energy Transition

Commission on the Monitoring Process  
 Prof. Dr. Andreas Löschel (Chair)  
 Prof. Dr. Georg Erdmann  
 Prof. Dr. Frithjof Staib  
 Dr. Hans-Joachim Ziesing

### Status of the German Energy Transition

Dimension	Indicator	Target attainment
Mitigating climate change	Reduction in greenhouse gas emissions (leading indicator or overarching target)	●
Phase-out of nuclear power	Operational nuclear power plants (leading indicator or overarching target)	●
Renewable energy	Increase in the share of renewable energy in gross final energy consumption (leading indicator)	●
	Increase in the share of renewable energy in gross electricity consumption	●
	Increase in the share of renewable energy in heat consumption	●
	Increase in the share of renewable energy in transport	●
Energy efficiency	Reduction of primary energy consumption (leading indicator)	●
	Final energy productivity	●
	Reduction in demand for heat in building sector	●
	Reduction in final energy consumption in transport	●

Target attainment: ● likely ● uncertain ● unlikely Source: Löschel et al. (2019) 4

Security of supply	Expansion of transmission grids (leading indicator)	●
	Redispatch measures	●
	System Average Interruption Duration Index – SAIDI electricity and SAIDI gas	●
Affordability	End-user spending on electricity in terms of GDP (leading indicator)	●
	End-user spending on heating services	●
	End-user spending in road traffic	●
	Industrial electricity unit costs in the international comparison	●
	Residential electricity costs	●
Public acceptance	General approval of the goals of the energy transition (leading indicator)	●
	Approval of the implementation of the energy transition	●
	Approval on the basis of the personal impact	●

Target attainment: ● likely ● uncertain ● unlikely

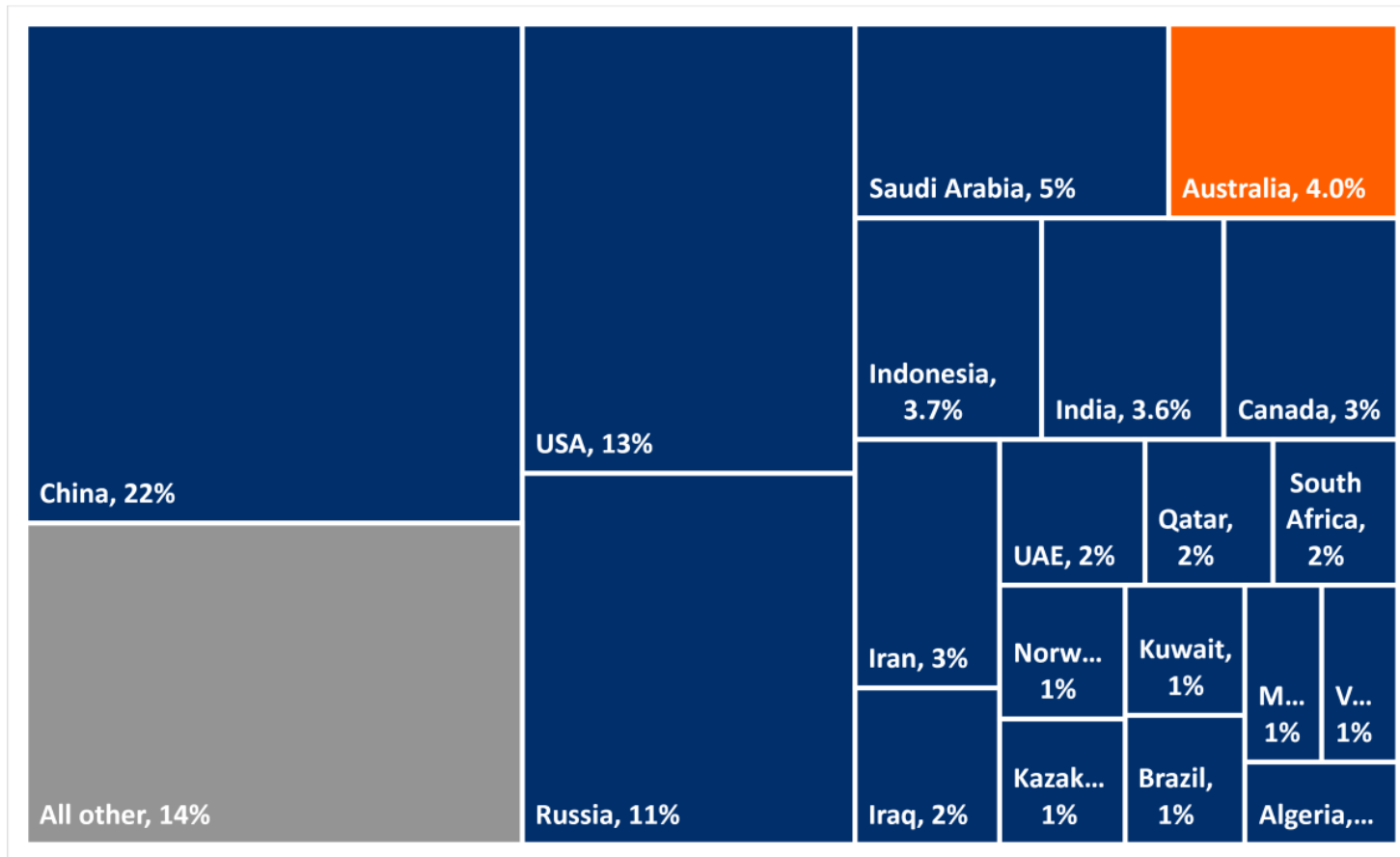
# Assess: analysis & scrutiny

Critical assessment of direction, speed and nature of transition

- What progress being made on the avowed goals? Going backwards?
- Economic impacts? Costs? Distribution?
- Is politics dealing appropriately with vested interests?

# Recognize political and economic importance of fossil fuel production & exports

Figure 7: World's biggest fossil fuel mining countries, by CO2 potential



# A central role for energy economists

- Impartial analysis
- Efficiency, consumer costs, public expenditure
- A common framework for assessment of national energy transition?





Australian  
National  
University



[frank.jotzo@anu.edu.au](mailto:frank.jotzo@anu.edu.au)  
[@frankjotzo](https://twitter.com/frankjotzo)  
[ccep.crawford.anu.edu.au](http://ccep.crawford.anu.edu.au)



2018  
Impact  
Factor  
4.797