

# Green hydrogen for industry and the challenges for an entrepreneurial-regulatory state

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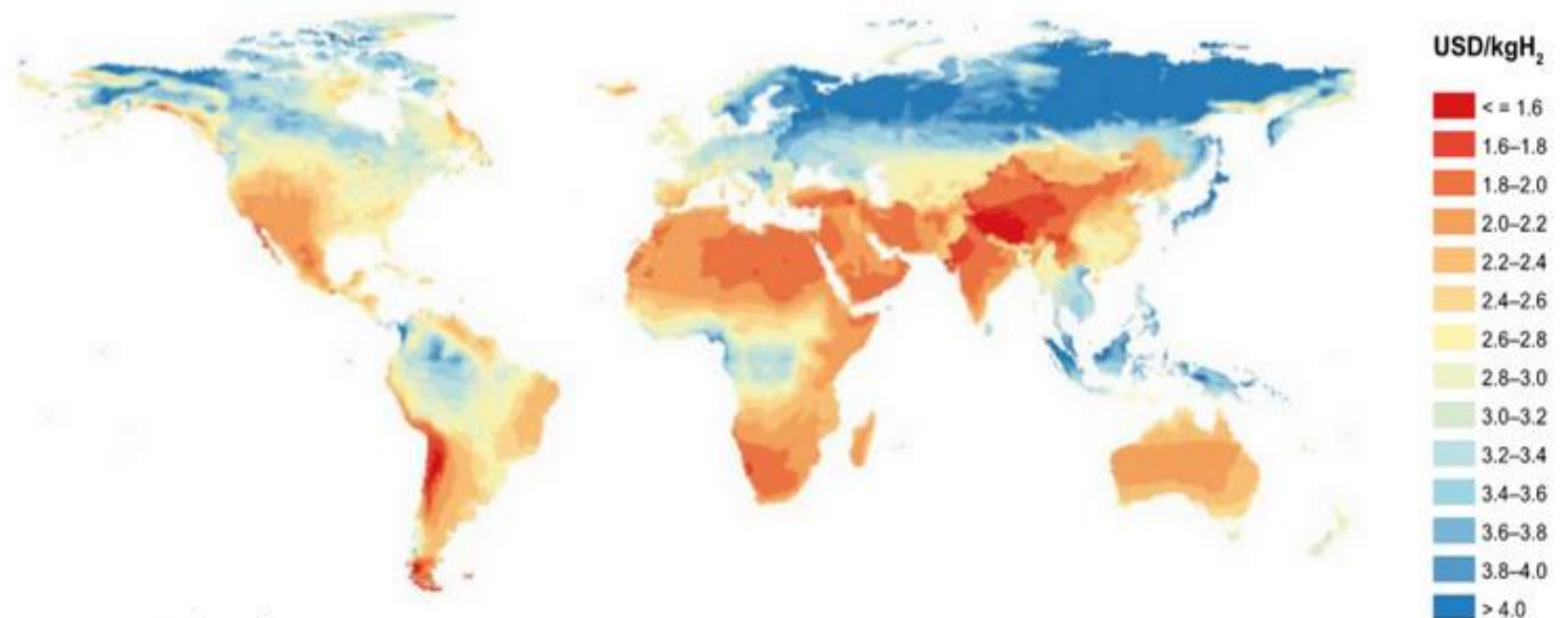
TIPS FORUM 2022

TOWARDS A JUST TRANSITION - THE ROLE OF INDUSTRIAL POLICY

# Green Hydrogen for Industrialisation?

- South Africa is one of the very lowest cost locations for renewable energy generation through solar and wind
- .....the base for low-cost green hydrogen
- Realising this potential will place South Africa in low cost position in key industries
- Requires transformative industrial policy and regulation
- Changes at the international level are going to accelerate and we need to act NOW

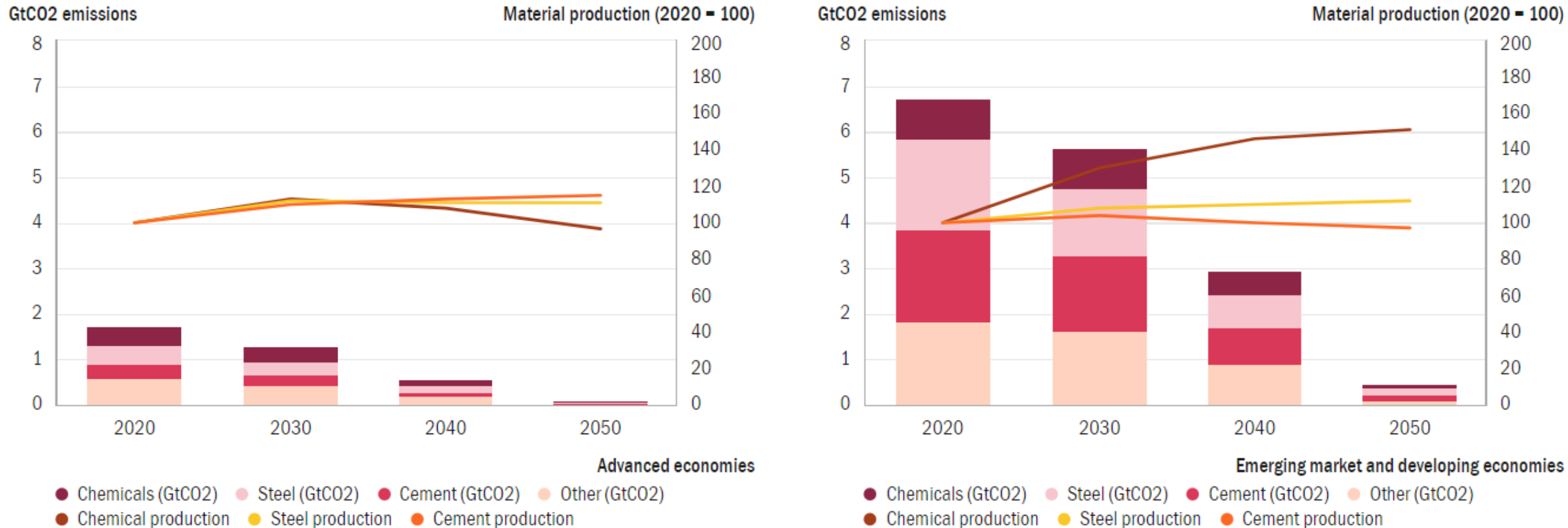
Figure 2: Hydrogen costs from hybrid solar PV and onshore wind systems in the long term



Source: IEA (2019)

# Key industries *have to* pivot to green energy, the question is how.....

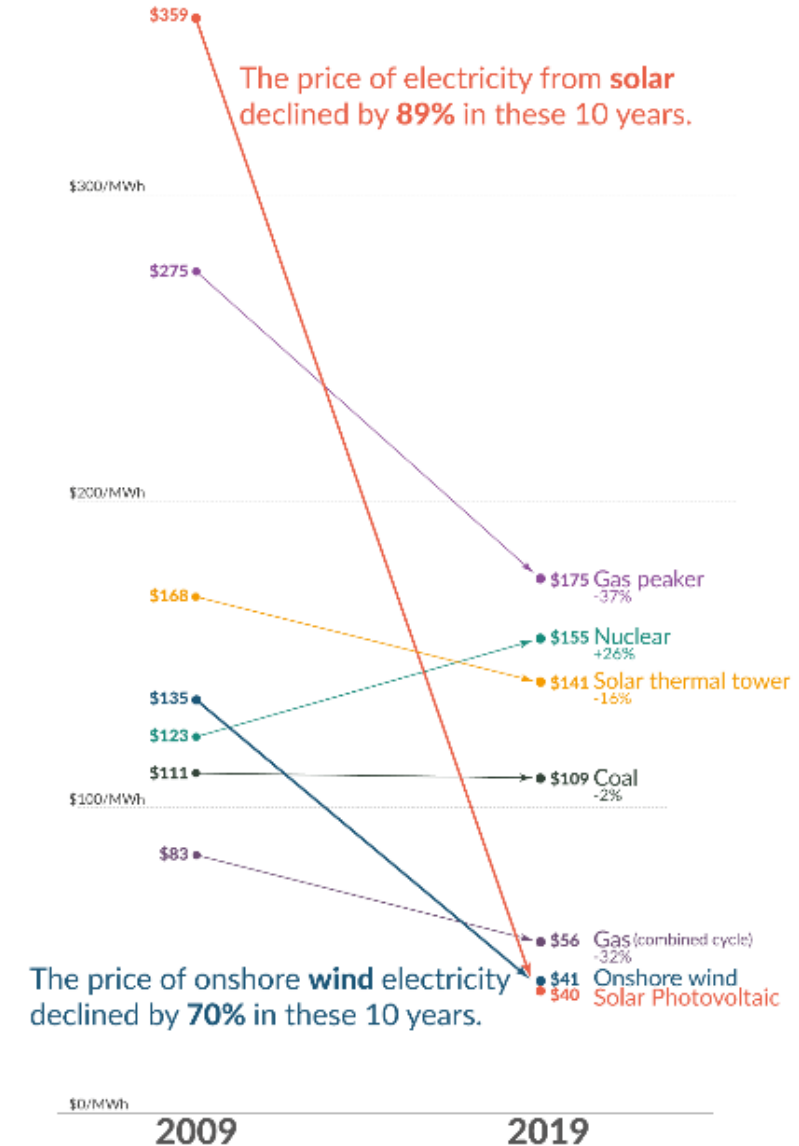
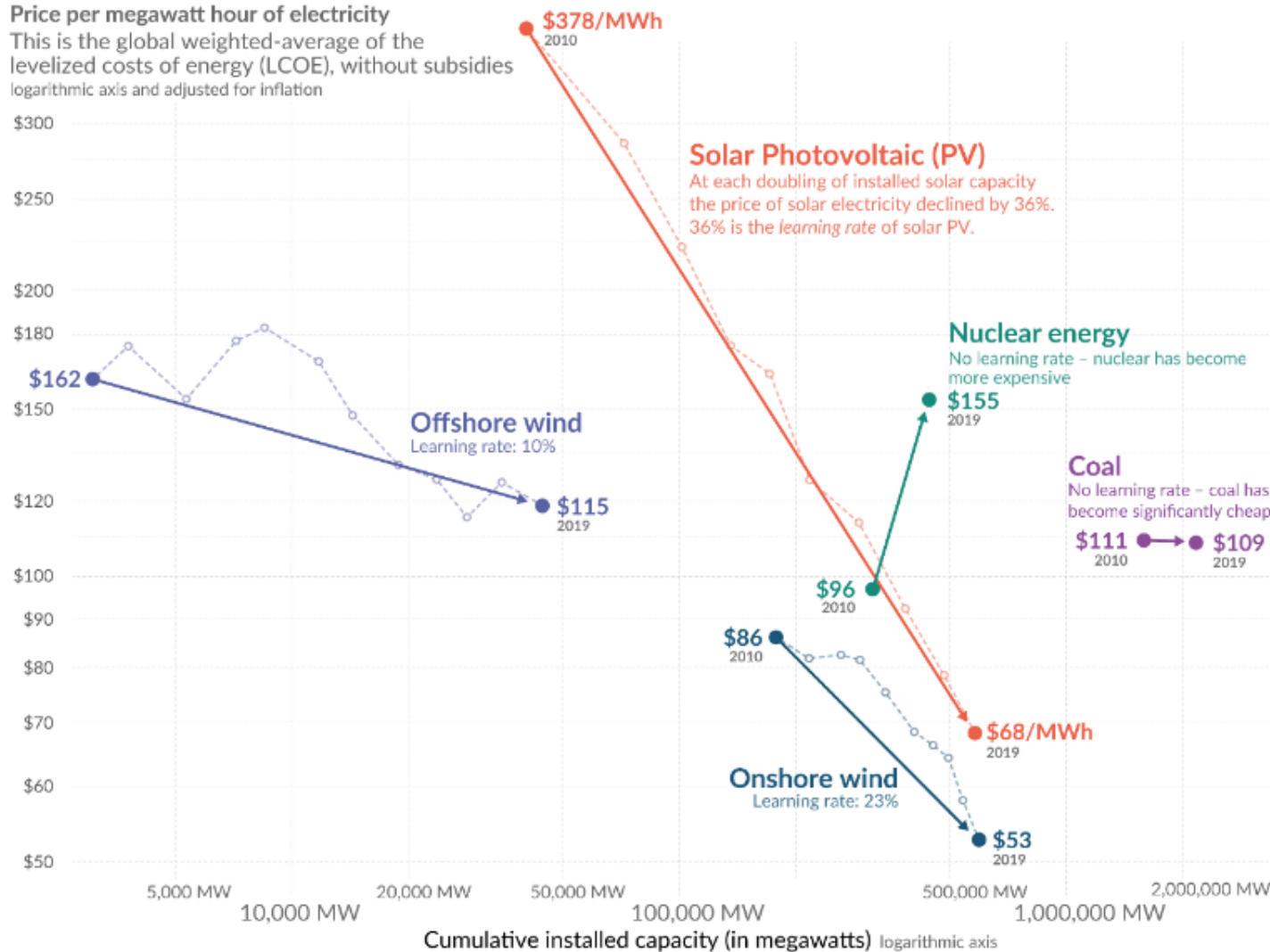
## Emissions reductions required by key industries for 1.5° target



Note: Emission reductions necessary in 2020-2050 for industry sectors to be compatible with a 50% likelihood of limiting global warming to 1.5°C above pre-industrial levels.

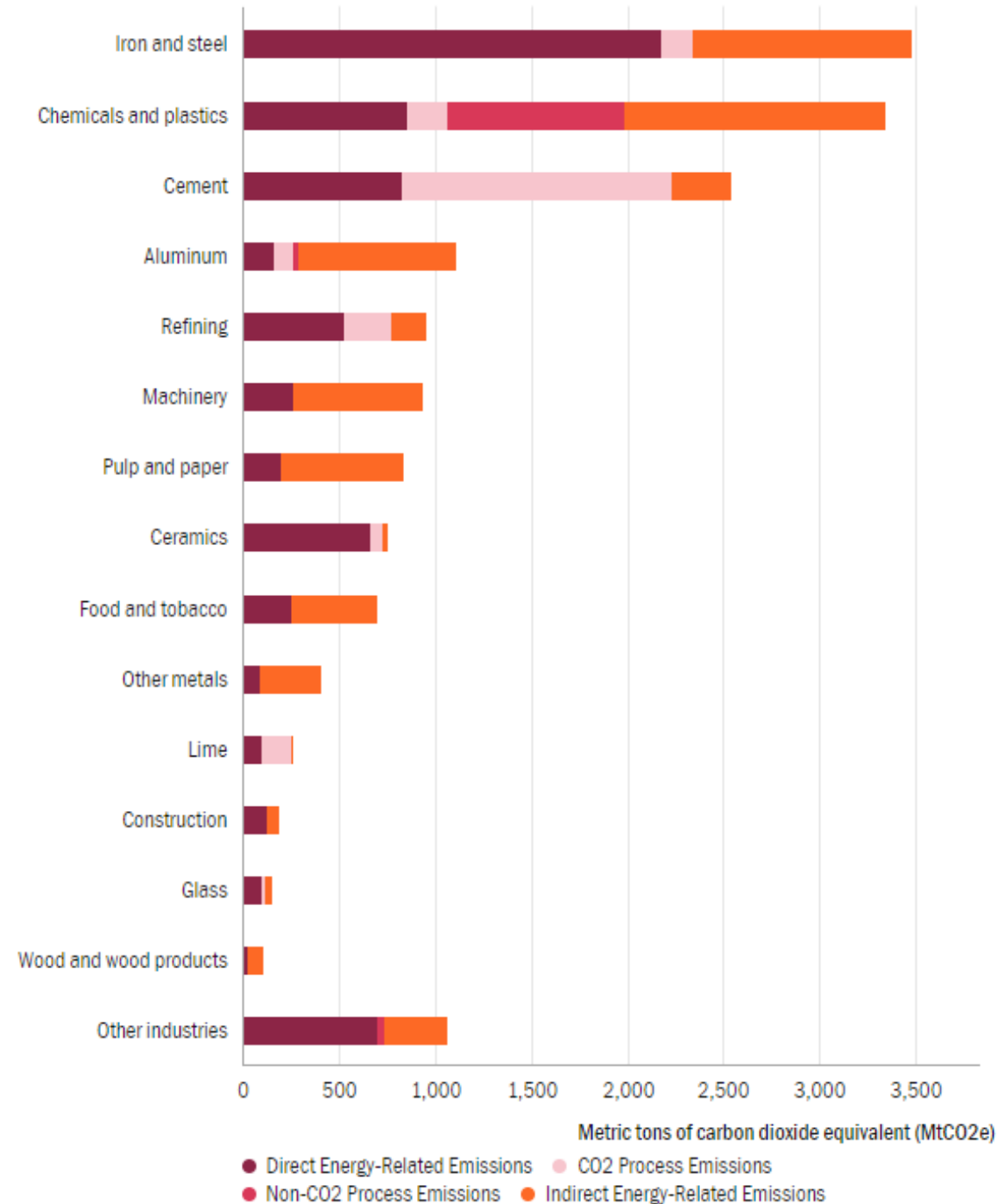
**Renewable energy technologies have steep learning returns, increasing returns, *unlocked by industrial policy* and operate in a necessarily *highly regulated* space**

**Non-renewables bound by the extraction of limited, geographically concentrated fossil fuels**



# Global industry emissions:

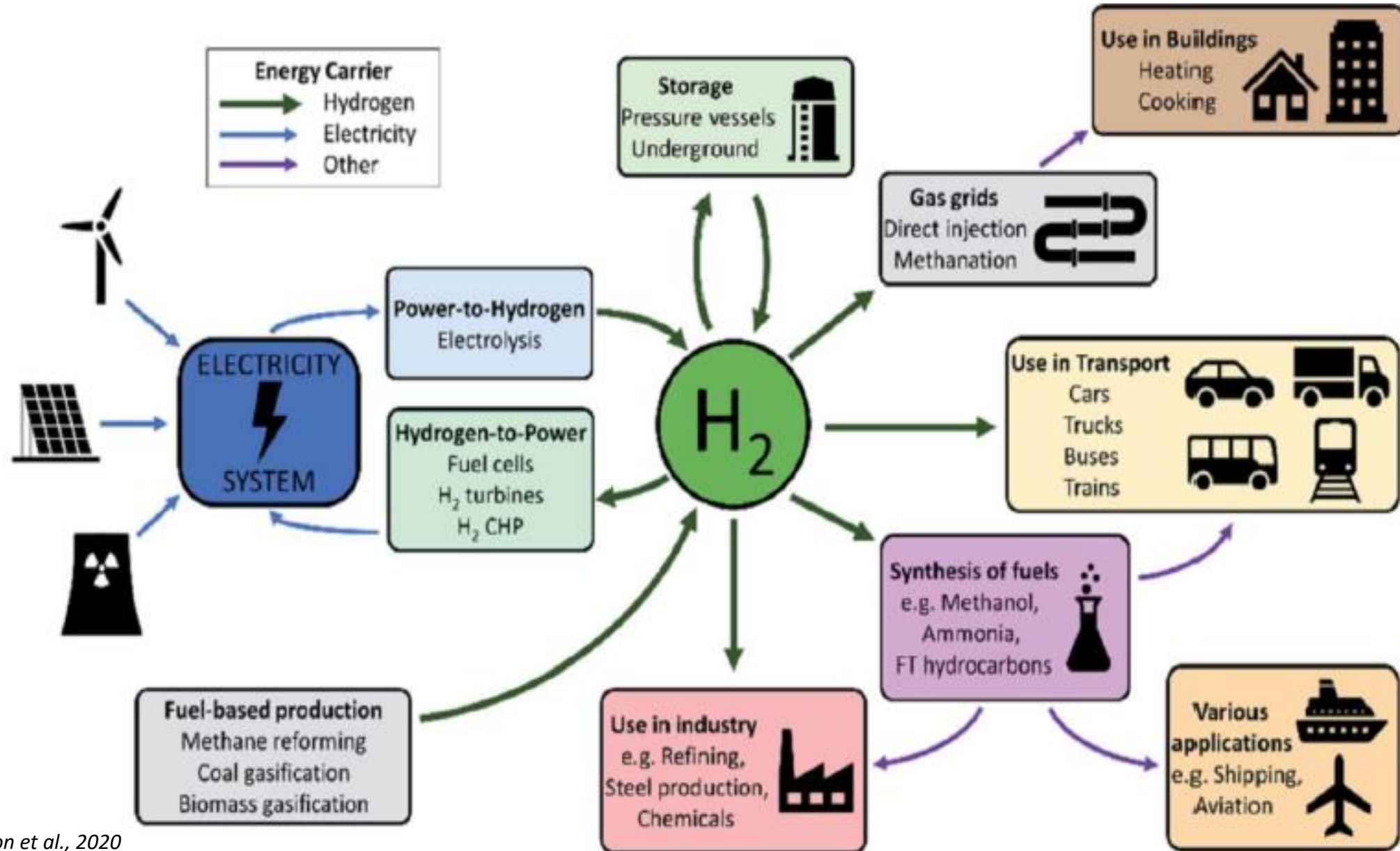
- Key industries are those on which South Africa's manufacturing is based
- South Africa has potential for these industries to pivot to green H2 and lead demand for energy investments
- Historic low cost-base from mineral endowments can switch to low cost-base of green H2
- This is a *growth and reindustrialisation* strategy - rapid, large-scale mobilisation of investment
- Requires coordination of tools and regulations with enforceable conditions on large firms and government
- Broad structural transformation to address concentration in key industries for diversification



# Where are we now? An honest appraisal....

- The narrative is of mitigating harm, not of creating high growth & employment
- Debate remains framed in oppositional terms (coal or renewables) rather than collective transformation to maximise shared benefits under high growth
- Initiatives and plans, but implementation?
- The fragmentation of the state is not being dealt with in practice, only on paper:
  - Business demonstrating longer-term view than government, forcing the pace of change, government lagging
  - Lack of coordination evident in Hydrogen Valley recommendations to by-pass the grid (even while increases costs)
  - Initiatives seeking to carve-out space, avoiding the state
- The state must rebuild credibility if investment is to flow: requires actions not words

# Green hydrogen paradigm: a cross-sectoral perspective requiring an 'Entrepreneurial-Regulatory State'



# Is regulatory framework fit-for-purpose of green transition?

- Demonstrably not; needs to lead, not follow (EIB); not receiving attention required
- Major failures, lessons need to be learned fast & applied to reshaping economy & markets for transition
  - Transmission grid investments need to lead for renewable generation through to green energy for industry including hydrogen
  - Renewable energy investments happened in spite of, not because of, energy policy and regulation
- South Africa record?
  - SA had among cheapest electricity in the world (for large industry)
  - Implemented 'best practice' regulation – independent institutions, price-caps, rules for facilities access etc.
- Outcomes?
  - Under-investment, long-term power shortages, 'load-shedding'
  - Skewed pricing, and massive price hikes
  - Economy remains skewed to resource-based, capital-intensive industries
- Result of regulatory patchwork and dominant paradigm focused on getting static prices right not shaping dynamic decisions, with enforceable commitments



# An Entrepreneurial-State for the green transition?

- Industry base means South Africa has a great opportunity to pivot; requires:
  - financing for transmission reflecting shared, dynamic benefits
  - credible commitment to enable investments; industrial policy to build linkages and capabilities
- Dynamic, not static, incentive structure to create markets and enable investments
- Prioritise measuring system effects and spill-overs
- Benefits from green industrialization → growth plan
- Effective and responsive: credibility and flexibility?
  - Transparent, effective administrative not adversarial decision-making, to share benefits; power to obtain information
  - NB this is the path that competition policy is taking internationally for digital platforms
- Integrated energy regulation for industry
  - Focus on unlocking mass renewable energy for green hydrogen
  - Electricity for house-holds is a by-product of growth plan
- Coalition-building? working with industry leaders (e.g. platinum, Sasol, AMSA etc)