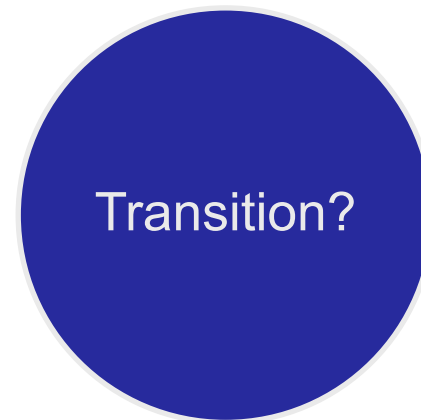


# UNDERSTANDING GREEN HYDROGEN IN SOUTH AFRICA THROUGH A JUST TRANSITION LENS

# BIG PICTURE

- Green hydrogen requires significant renewable energy generation to meet projected demand across global energy and industrial applications.
- The opportunity/proposition: Global South countries with good renewable energy potential like South Africa could use this potential to become significant players with a range of economic benefits (green industrialisation, employment, alternatives for local carbon-intensive players, local economic development).

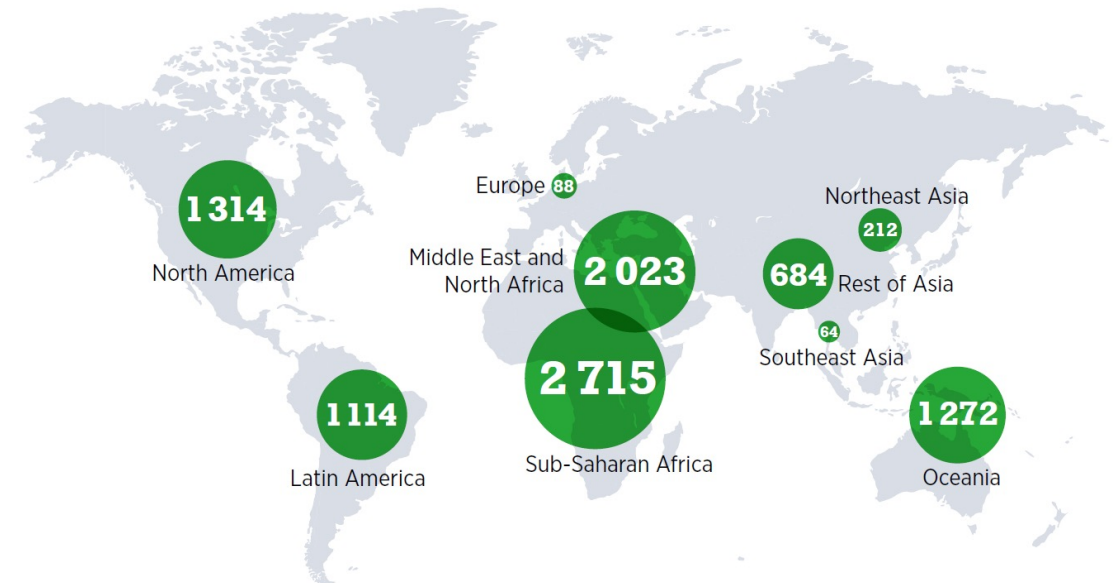


# THE GREEN HYDROGEN IS NOT SEPARATE FROM THE EXISTING GLOBAL ECONOMY

## Power matters

- **JETP IP vision: “Building sustainable and long-term competitive advantage through skills development and localisation.”**
- Green hydrogen is shaped by the shape political economic relationships and entrenched power dynamics, & multiple inequalities between and within countries that constrain and enable decarbonisation and just processes and outcomes within the current carbon-intensive system, and as we transition.
- What can we infer from this fact? **Without specific interventions, various government and private sector actors will not automatically act in a coherent fashion to support a just transition through green hydrogen investment.**

Technical potential for producing green hydrogen under USD 1.5/kg by 2050, in EJ . (Source: IRENA, 2022)



# TRANSITION CONSIDERATIONS

- **South Africa's Low-Emission Development Strategy 2050 (LEDS)** states: “We thus commit to ultimately moving towards a goal of net-zero carbon emissions by 2050, which will require various interventions to reduce greenhouse gas emissions” (p.21).
- **South Africa has submitted a revised Nationally Determined Contribution (NDC) to the UNFCCC at COP26.**
- **The Hydrogen Society Roadmap (HSRM) will serve as a national coordinating framework:** “Ensure that Gender, Equality and Social Inclusion (GESI) are at the core of the transition to a low carbon economy to tackle the triple challenges of poverty, inequality and unemployment.”

## HYDROGEN SOCIETY ROADMAP FOR SOUTH AFRICA 2021

DEPARTMENT OF SCIENCE AND INNOVATION



# THE GREEN HYDROGEN IS NOT SEPARATE FROM THE EXISTING GLOBAL ECONOMY

## Just transition potential in JETP IP: Environment

- GH2 potential to remove 10–15% of South Africa's carbon emissions.
- Support global decarbonisation.
- Increase water availability (desalination).

## Just transition potential in JETP IP: Economy

- Protecting and growing major downstream industrial sectors: iron and steel, cement, and construction services.
- Fuel-cell electric vehicles (FCEVs) and the development of a green hydrogen economy could, in time, increase the demand for Platinum Group Metals (PGMs)
- South Africa could benefit economically from an increase in the demand for manganese and other precursor minerals, which are available in the region.
- Skills development.

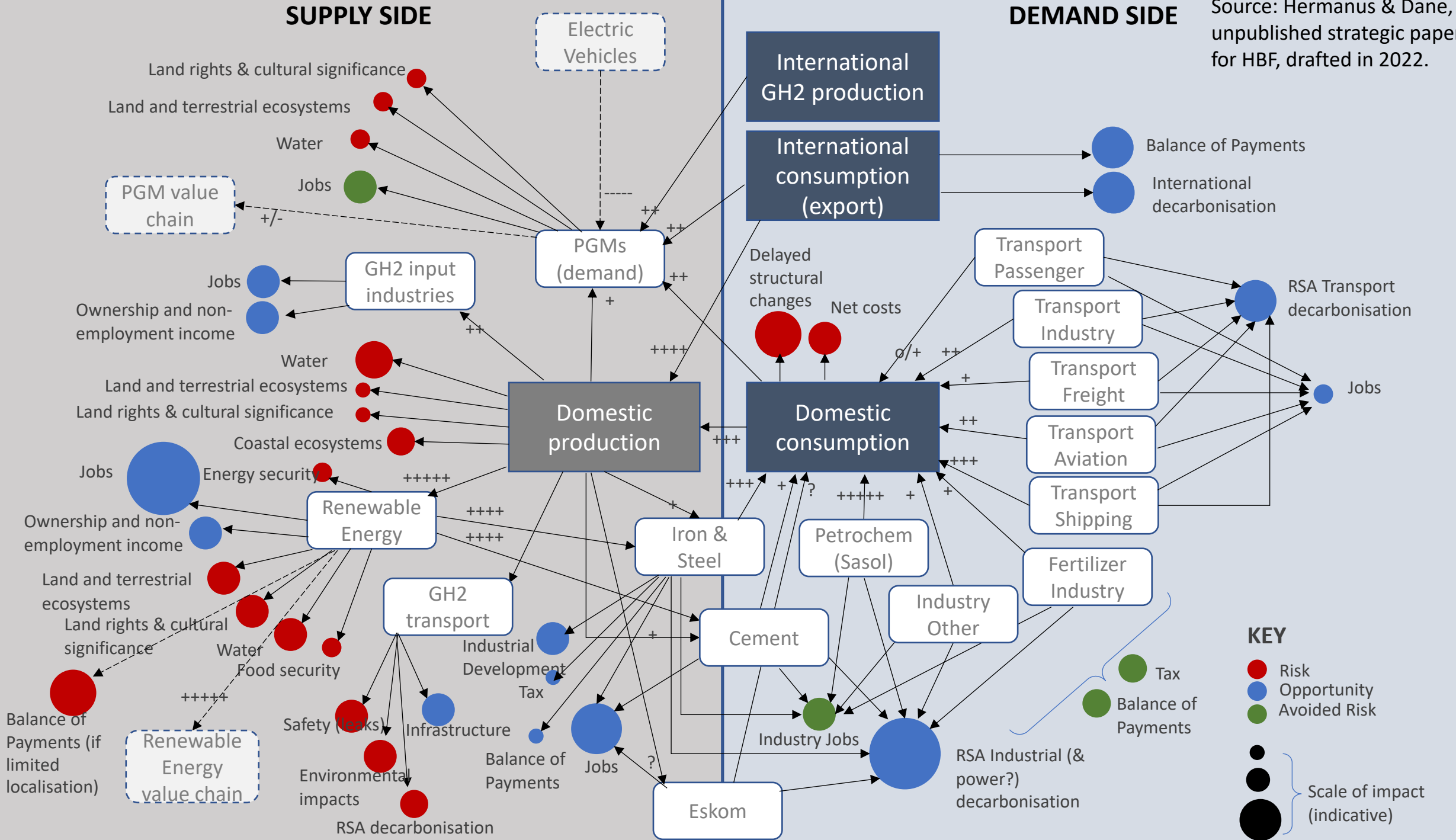
**But...to manage risk, minimise costs (financial and non-financial), and maximise and equitably allocate benefits, we need to account systematically for impacts, as we understand them better over time, drawing on local and global expertise and local embedded knowledge, notably from impacted communities.**

**We also need to account for diverse interests and the distribution of power and agency in driving those interests.**

**SUPPLY SIDE**

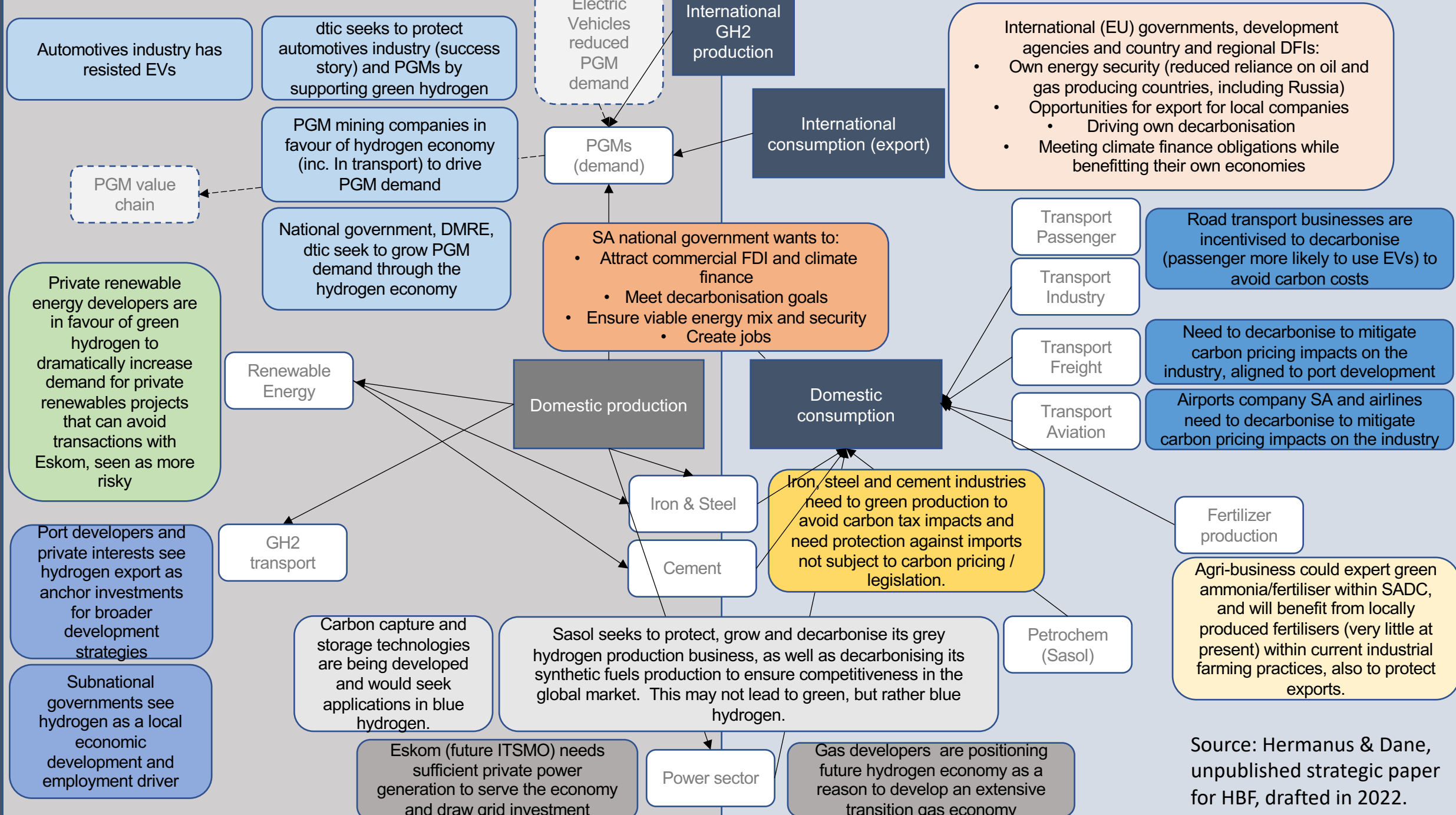
**DEMAND SIDE**

Source: Hermanus & Dane, unpublished strategic paper for HBF, drafted in 2022.



SUPPLY SIDE

DEMAND SIDE



Source: Hermanus & Dane, unpublished strategic paper for HBF, drafted in 2022.

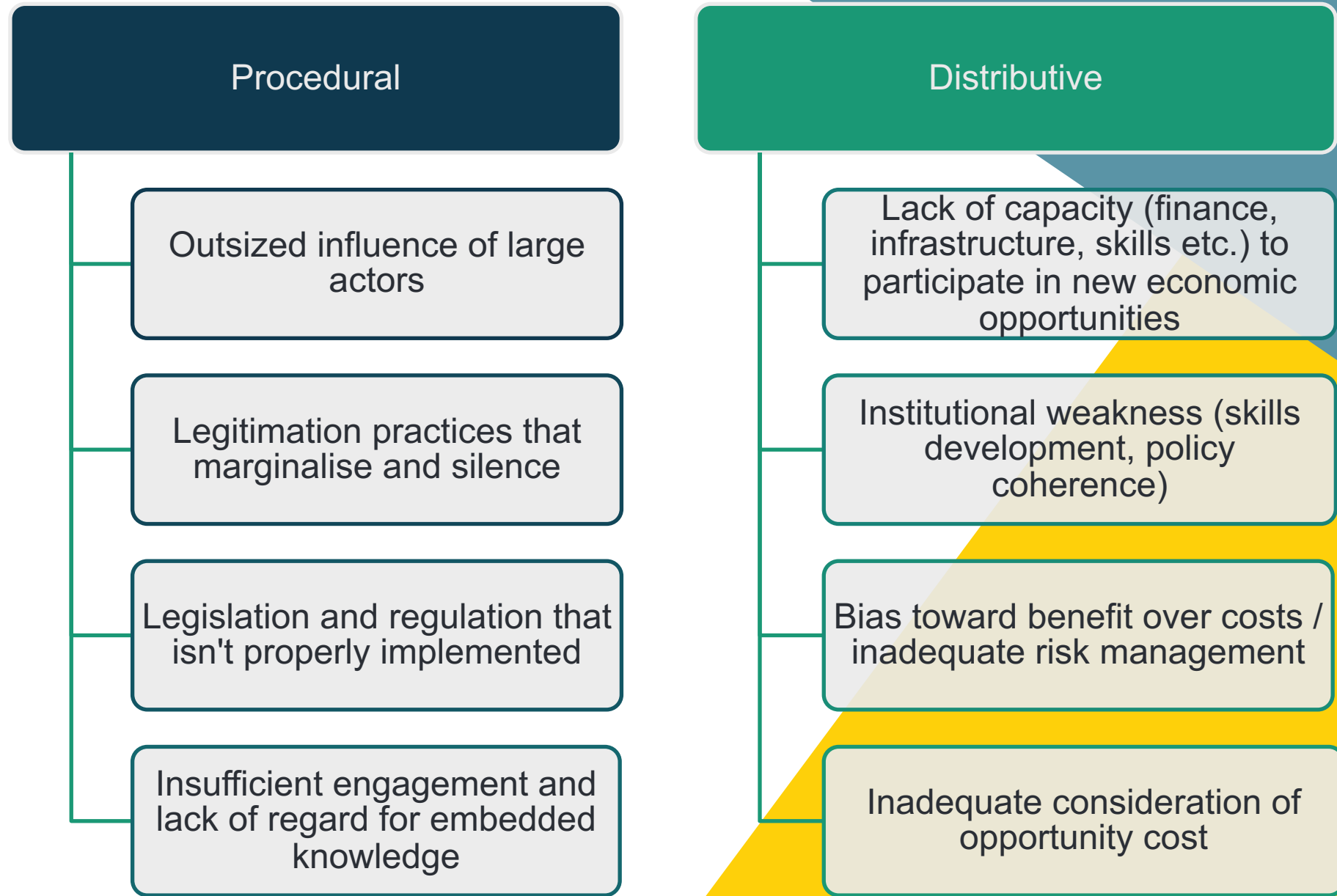
# RISK TO 'TRANSITION' POTENTIAL

- Regarding decarbonisation, it must be considered that, in line with global climate policy, green hydrogen is not a silver bullet for achieving international net zero ambitions. It is important to not lose sight of the need for profound structural changes to the global economy. These changes must result in both a fairer distribution of consumption allocations between and within countries.
  - To support decarbonisation, green hydrogen must be appropriately used, alongside solutions related to circular economy, behaviour change and reconfigured global supply chains.
  - To support decarbonisation, green hydrogen development used to advance growth of grey hydrogen without clear and implementable transition steps.



# SELECTED RISKS TO 'JUST' POTENTIAL

- There are significant weaknesses in the starting conditions that might make some of these benefits unlikely, and some risks much worse than anticipated.



# EXAMPLES OF JUST TRANSITION SAFE-GUARDS

- **LOCALISATION:** Green hydrogen policies need to be shaped so that Global South producer countries do not just remain exporters of raw hydrogen; but, rather, benefit from value creation along the full value chain of production and trade.
  - Green hydrogen roadmaps as part of national energy strategies and integrated with other industrial and development planning.
  - Use policy and planning intervention points to ensure alignment and complementarity between local economic development and infrastructure development.
- **RISK MANAGEMENT:** Green hydrogen production must be based on strong social and sustainability standards and criteria, including respect for human rights and the precautionary principle regarding the environment and local communities. There need to be strong feedback mechanisms for affected communities. We need to learn from failures in our mining sector and in the renewable energy industry.
- **BENEFIT SHARING:** Focus on sharing of core benefit rather than CSI-type add-ons or ‘co-benefits’.
  - Ensure that projects use BBBEE ownership in project development to change the ownership structure of the green hydrogen economy projects and supply chain development. Insist on reporting on jobs that provides information about what kind of jobs.
  - Implement steps that have been identified to prepare the TVET system.

# THANK YOU

LAUREN HERMANUS  
lauren@howweadapt.com

---