

The macroeconomic risks and opportunities of transition to a low-carbon economy for South Africa

Aalia Cassim, Roderick Crompton, Michael Sachs, Julia Taylor, and Imraan Valodia

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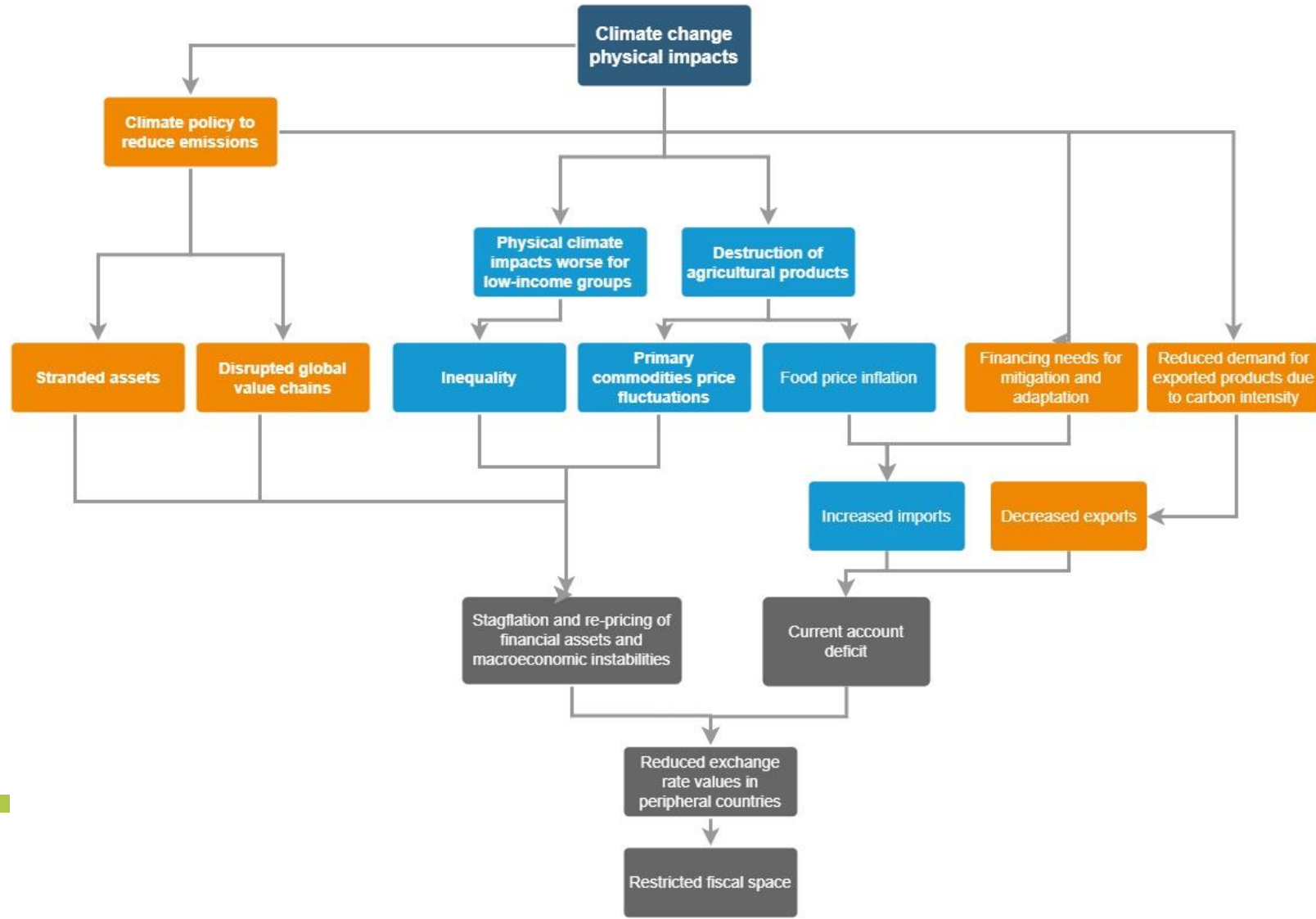
South Africa's urgent need to decarbonise

- Carbon intensive economy - 16th highest in the world for GHG emissions
- Commitment to net-zero by 2050
- The energy sector is the largest contributor to emissions due to coal-fired electricity.
- Decarbonisation is required across sectors (transport and petrochemicals are particularly large emitters) but we focus on electricity in this study.
- Significant macro and socio-economic risks due to the nature of the structure of the economy.
- On the external side, disinvestment from fossil fuel-based power production and the possibility of carbon border tax adjustments are two examples that put South Africa at risk as key trading partners transition to lower carbon economies.
- Domestically, stranded assets, defaults, inequality and policy uncertainty are risks that have to be considered and planned for, particularly in the developing country context.

Macroeconomic risks

- Decarbonisation is internalising into cost structures what had previously been a 'free' service (emission disposal by the environment) = cost raising impacts.
- Physical and transition impacts on growth are uncertain
- Factors that will negatively impact growth
 - Destruction of capital stock
 - Decreased labour factor productivity
 - Destruction of wealth
 - Diversion of resources to adaptation and mitigation
 - Disruption of supply chains
- Developing countries disproportionately impacted
 - Commodity dependence
 - Physical climate impacts in Africa, Asia and South America
- The outcome of the transition depends on the way in which an external shock to a country's competitiveness caused by climate policy is dealt with which relies on the quality and quantity of finance available, the capacity of the state, technological innovation and whether the transition increases potential output and productivity.

Climate policy and physical impacts affect currency value and fiscal space of developing countries



Managing domestic investment in adaptation and mitigation

- Fiscal pressure within developing countries has resulted in external financing of mitigation and adaptation costs
- One approach has the state de-risking global private finance
- This is critiqued to be a new version of the *Washington Consensus*, termed the *Wall Street Consensus* which offers high returns and low risk for private investors (Gabor, 2022)
- Possibility of undermining climate-aligned development
 - Developing countries susceptible to global financial shocks
 - Creates profit for investors rather than debt relief/climate reparations

Opportunities for economic growth

- Digitisation and decentralisation of energy supply
 - Smaller scale energy production is feasible
 - Capacity additions in 'small steps' remove mega-project risk and reduce the risk of large, stranded assets in times of rapid technological change
 - Opportunities for smaller firms and rural areas
 - Opportunities for increased energy efficiency

Mining for the 'green' economy

- Decarbonisation will lead to growth of renewable energy technologies (e.g. solar and wind), energy storage and electric vehicles
- Increased demand for platinum group metals (PGMs), manganese, copper, lithium, cobalt and chrome
- South Africa could provide these minerals and metals but would that perpetuate an exploitative system?
- Opportunities for sustainable mining processes
 - Improved energy efficiency, sorting processes and automation
 - Continuous rehabilitation and percolation leaching reduces waste and environmental degradation
- Issues around job losses and continuation of the MEC or not

State capacity as a constraint to growth

- An investment-centred approach argues for increased productivity due to decarbonisation – Green New Deal
- Is the SA state up for the challenge of coordinating such investment?
 - Lack of internal coordination
 - REI4P implementation interruptions stifled nascent renewable equipment manufacturing

Where to for South Africa?

- South Africa may face decreased growth due to climate impacts on agricultural production and fossil fuel exports (Arnt, Gabriel, Hartley, Strzepek, & Thomas, 2021)
- Uncertainty on job creation
- Job creation and energy poverty are key distributional issues that must be addressed in order to achieve a just transition and a prosperous economy
- Energy supply crisis rather than decarbonisation agenda seems to drive urgency but is this a sustainable model for future climate-infrastructure developments. (Are we planning for the case beyond load-shedding?)
- In the context of South Africa's dual economy, if financing the transition does not take into account broader developmental objectives and a wider range of sectors, the transition is likely to have uneven outcomes.

Key questions for SA macro and broader policy

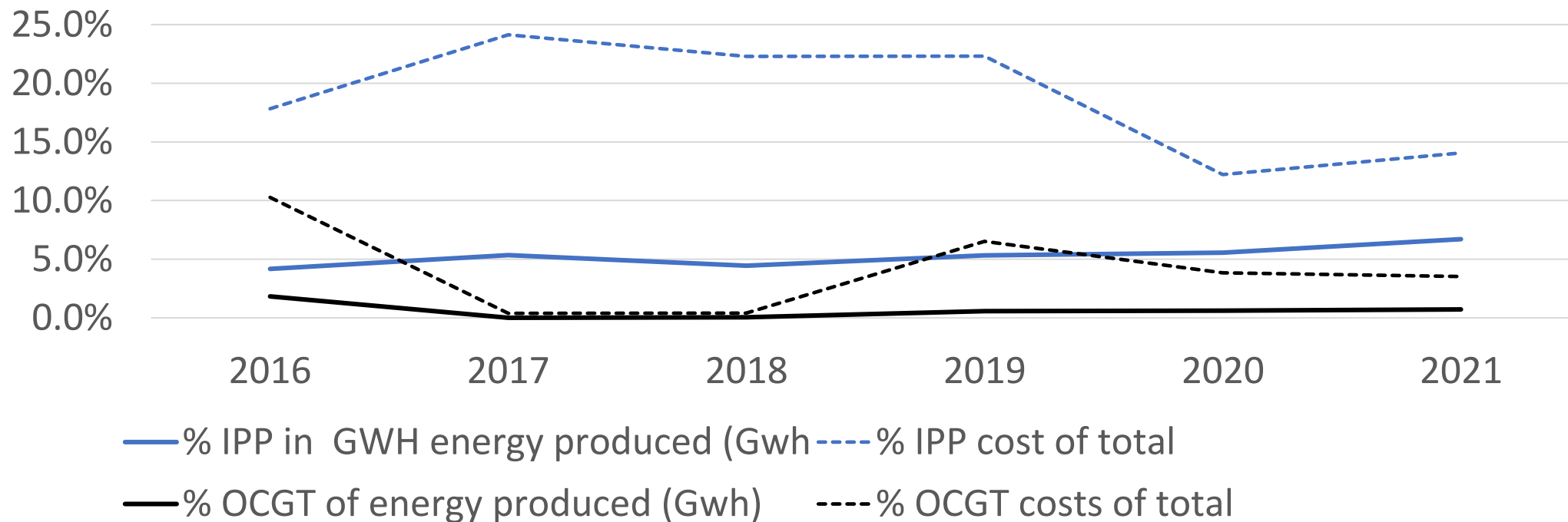
- Can stranded assets be re-purposed to retain some value? Will there be a proper cost/benefit analysis for each stranded asset?
- Beyond the current monetary policy regime, what additional buffers could be put in place to manage exchange rate volatility?
- Will climate transition entrench South Africa's reliance on exports of minerals?
- Is "Dutch disease" a potential risk of growing international demand of PGM and related minerals?
- How does the state mitigate against rising inequality as a result of climate impacts?
- What supportive regulatory reforms may be required in industries that promote growth?
- Will transition plans sufficiently consider affordability of energy as well as energy security?
- How are municipalities and National Treasury prepared for a loss of municipal electricity revenue?
- Will the state continue to de-risk climate-related investments given the competing demands related to financing the transition?
- How can private sector finance in climate-related infrastructure be best managed for public benefit?

Risk-sharing within REI4P

- The first attempts to transition the electricity sector to lower-carbon was through REI4P. Approach taken by the state has been to de-risk investments in renewable energy (aligned to WSC).
- This approach was taken as technology was newer and there was a trust deficit with government. It offered favourable returns and de-risked private investment. Notably, lowest cost technologies were not always selected.
- State increased contingent liabilities in addition to Eskom debt guarantees and customers face higher tariffs. Yet, security of supply remains an issue.
- The power sector has opened up, RE prices are down, risks are minimised so the current model is not suited to the context going forward.
- While local content imposed a cost on the sector, industrial policy gains in renewables sector have been limited.

IPPs were a significant portion of Eskom's energy costs but this trend is shifting

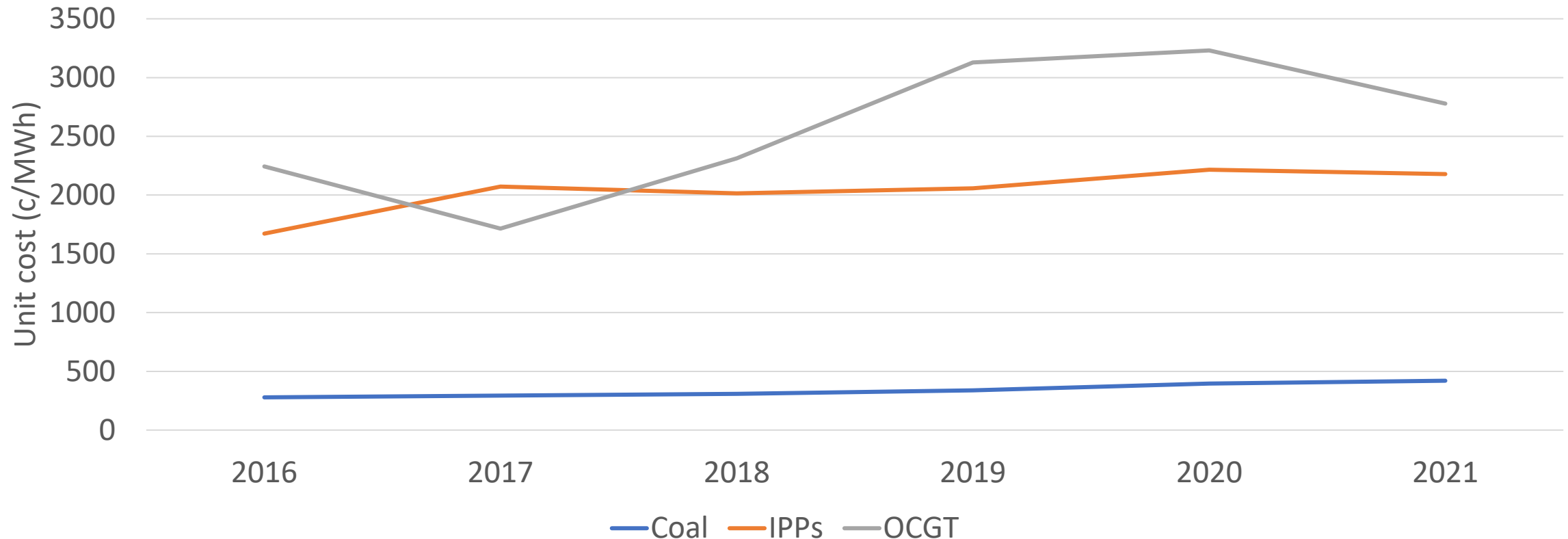
IPP and OCGT costs and power produced by share of total



Source: Eskom integrated annual reports 2015-2021 *OCGT = open-cycle gas turbines

OCGT cost is higher than IPPs

Comparison of unit cost by energy type



Source: Eskom integrated annual reports 2015-2021 *OCGT = open-cycle gas turbines

Key considerations for future roll-out of RE

- Given the substantial decline in price and the maturity of the sector, should the private sector shoulder more of the risk? Is there an appetite to take on the risk?
- Move towards corporate PPAs directly with IPPs (example of 18 projects)
- How do we reconcile a competitive electricity sector with social policy entangled within REI4P while private IPPs (not guaranteed by Eskom) do not have similar obligations?
- Decentralization directs revenue away from municipalities who are already financially constrained- what are the implications of this for the fiscus?

Questions for energy security

- Although access to electricity in South Africa is at 84.7%, there are over 820 000 households that do not have access to electricity and many more that have a connection but cannot afford the electricity prices (Stats SA, 2018).
- Energy poverty is defined as a lack of access to energy or the inability to afford energy and calculated by assessing the proportion of household income spent on energy. The rate of energy poverty in South Africa was 58% in 2015 (Ye & Koch, 2021).
- The cost of electricity in South Africa has increased significantly over the past two years, with a 15.6% increase in 2021 and an increase of 9.6% in 2022 (BusinessTech, 2022) and expected to increase further.
- Private entities and affluent consumers are able to defect from the grid, taking the revenue from their tariffs out of the system and leaving the burden of payment for urgent grid maintenance and capacity expansion to those who cannot afford private energy generation
- Price increases hit low and middle-income households the hardest

Conclusion

- We need a new path for the South African economy that supports increased productivity, decent work and livelihoods
- We urgently need to build state capacity to coordinate a just transition, particularly its ability to ensure private investment results in public benefit
- Climate policy must include social policy as it relates to employment, livelihoods and access to basic services to prevent worsening inequality
- Further research is required into appropriate macroeconomic policy and industrial policy options



THANK YOU