

---

# THE ROLE OF PHASE-DOWN FINANCE IN ACHIEVING GLOBAL DECARBONISATION GOALS

A CONCEPT-PIECE, GROUNDED IN THE EXPERIENCE OF THE SOUTH AFRICAN POWER SECTOR

Emily Tyler, Celeste Renaud,  
Grové Steyn, Adam Roff  
February, 2022

---

# PROBLEM STATEMENT AND OBJECTIVE OF THIS CONCEPT-PIECE

**Problem statement:** The financing needs of the global low carbon transition are large and will require innovative responses and bespoke instruments from the financial sector. Thus far, much of the focus has been on two key areas: divesting from fossil fuel assets and financing new green infrastructure. Whilst these are important, there is another area of finance which remains relatively underexplored, but which will be imperative to enabling and accelerating the transition: actively financing the accelerated but managed phase down of fossil fuel and other high-emitting activities.

**Contribution of this concept piece:** To emphasise and explore a critical gap in financing in a rapidly decarbonising world – the need for bespoke financing solutions for fossil fuel assets that need to be phased down and out in order to achieve climate goals. In this piece, we propose **‘Phase Down Finance’** as a distinct type of finance, which enables fossil fuel and other high-emitting assets to be actively financed conditional on their adherence to an accelerated, managed and Paris-aligned<sup>1</sup> phase down trajectory.

The concept piece recognises that:

- Financial divestment from fossil fuels and emissions intensive firms does not always result in emissions reductions in the real world,
- Context is critical: within some jurisdictions, emitting entities have systemic importance with large socio-economic consequences if they collapse;
- Directly engaging with and supporting large and highly emitting entities to decarbonize can be far more effective in accelerating the transition than supporting incremental green infrastructure investments, particularly in contexts where lock-in effects are significant;
- Finance can play a critical role in incentivising entities to pursue faster decarbonisation plans.

The contribution of this piece is therefore to argue for and delineate Phase Down Finance as a critical financing component of the just transition – especially in an emerging economy context. We ground the discussion in the context of the South African coal intensive power sector, but it might equally apply to other capital and carbon intensive sectors, particularly in emerging economies.



---

## A BRIEF OVERVIEW

The concept-piece covers the following aspects of Phase Down Finance:

1. What is Phase Down Finance?
2. What are the particular phase down challenges of emerging economies?
3. How does Phase Down Finance differ from Green Finance and Divestment?
4. What might Phase Down Finance look like in the power sector?
5. Concessional (domestic and international) and commercial Phase Down finance sources.
6. Phase Down Finance in the context of South Africa's power sector transition.

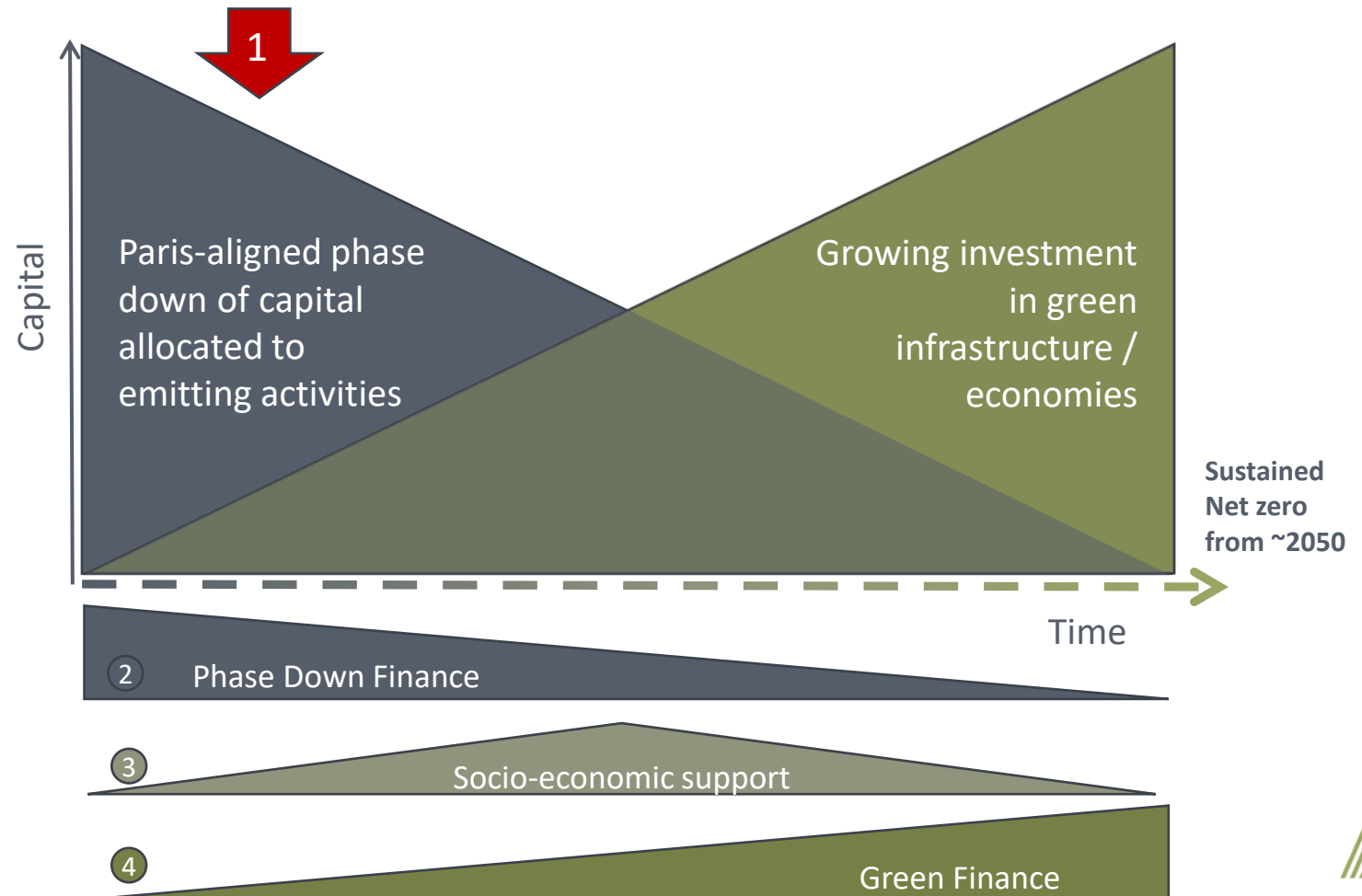


# PHASE DOWN FINANCE HAS AN IMPORTANT ROLE IN MEETING THE FINANCING NEEDS OF THE TRANSITION

Phase Down Finance exists within a broader landscape of financing needs for the global low carbon transition – including green finance and socio-economic transition support – but has thus far remained relatively underexplored. This is despite its potential to accelerate transitions at low cost.

- 1 Divestment** reduces and/or removes access to finance by emitting entities. It is an important pressure in the financial system.
- 2 Phase Down Finance** enables emitting activities that are critical to an economy to continue providing services whilst being phased down according to a Paris-Aligned trajectory.
- 3 Socio-Economic Support** includes financial support mechanisms that target those who will be negatively impacted during the transition period (e.g. coal workers, communities).
- 4 Green Finance** supports the financing of (largely green infrastructure) projects which are critical building blocks of the transition to a new, low carbon economy.

*These different categories of finance could be combined in single financing mechanisms*



# PHASE DOWN FINANCE IS BEING CONSIDERED BY A NUMBER OF ORGANISATIONS GLOBALLY

- Thinking on coal phase down finance is springing up across the world, at institutions including the [Rocky Mountain Institute](#) and the [Sierra Club](#) (USA), [Prudential](#) (South-East Asia), [Blueprint Institute](#) (Australia), the [International Energy Agency](#) (2021).
- Alternatives to divestment more generally are being explored by [Ninety One](#), [Climate Bonds Initiative](#), [Imperial College](#), [Oxford Sustainable Finance Group](#) and others.
- Transition finance is also starting to be explored in the academic space, e.g. [Caldecott](#) (2020) and [Winkler, Tyler, Keen & Marquard](#) (2021)
- Meridian Economics has developed its own Phase Down Finance proposal called the [Just Transition Transaction](#).



## Landscape of existing financial mechanisms for the coal transition:

### Primary mechanism type

■ Refinancing   
 ■ Managed transition vehicle   
 ■ Compensation   
 ■ Broad transition support

#### Ratepayer-Backed Bond Securitization

Refinancing regulated utility coal-fired assets using bonds backed by surcharges on ratepayers' energy bills

Status: Implementation

#### German Coal Phaseout

Competitive auctions to compensate coal plant owners for the early retirement of plants, implemented alongside policy and financial support for the just transition

Status: Implementation

#### EU Just Transition Mechanism (JTM)

Three-part fund that supports the just transition, including economic diversification, infrastructure assets, and repurposing of assets in EU member states

Status: Capitalization

#### Engie Energía

Monetizing emissions reductions from coal plant retirement and guaranteeing the carbon revenues, while also financing wind energy

Organizations: IDB Invest, Climate Investment Funds, Engie Energía

Status: Implementation

#### Just Transition Transaction (JTT)

Blended debt facility to refinance Eskom, the state-owned utility, to support coal plant decommissioning and restore its access to capital markets

Status: In development and seeking capitalization



#### Coal to Zero (C20)

Equity fund to acquire coal mines and retire them by 2040, with a portion of resources left in the ground, and some returns earmarked to support the just transition of workers

Organizations: Ausenco, Trafigura, Resource Capital Funds

Geography: TBD

Status: In development and seeking capitalization



#### Accelerating Coal Transition (ACT) Investment Program

Concessional financing to support reclaiming and repurposing of coal assets, the just transition, and the governance of the coal transition

Organization: Climate Investment Funds

Geography: Global

Status: To be launched

#### Energy Transition Mechanism (ETM)

Blended finance facility to acquire coal power assets and retire them earlier than the plant's previously expected lifetime, while providing enough time to build up renewables and support a just transition. Coal plant operators use funds from their asset sale to invest in the transition, while a complementary clean energy facility would support renewable energy deployment.

Organization: Asian Development Bank  
Status: Feasibility studies

Source: Rocky Mountain Institute. 2021. *Financing the Coal Transition: Pragmatic Solutions to Accelerate an Equitable, Clean Energy Future.*



---

# EMERGING ECONOMIES SUCH AS SOUTH AFRICA HAVE PARTICULAR PHASE DOWN CHALLENGES

1) Legacy emitting sectors are often of **systemic importance** in emerging economies: Simply enforcing divestment policies may have the result that emerging economies will be starved of capital, thereby posing a fundamental threat to the ongoing development of the entire economy.

2) Issues of **moral hazard**: Phasing down emitting assets requires responsible and accountable stewardship to ensure acceptable social and environmental outcomes. This might not occur in if the emitting assets end up in the wrong hands where there is less accountability or financial capacity to fulfil these obligations (i.e. in unlisted entities, etc).

3) Legacy emitting sectors are often characterised by high levels of **path dependence**. Irrespective of whether changing techno economics of competing technologies might suggest that transitioning to cleaner technologies will be commercially viable (or not) there are numerous factors (discussed overleaf) that ensure that legacy technology-based systems are subject to strong path dependence or 'lock-in' effects:



---

# EMERGING ECONOMIES OFTEN SUFFER FROM FOSSIL FUEL PATH DEPENDENCE AND LOCK-IN

a) **Political economy effects:** Existing social relations (social capital) between interest groups that benefit from the current arrangements will tend to reinforce themselves dynamically in the face of competition from new interest groups associated with a new (cleaner) techno economic paradigm.

b) **Vested rights:** Legacy systems are typically capital intensive and characterized by substantial sunk investments. These investments were often debt financed on the back of vested regulatory or contractual rights that guarantee the continued operation of the plant in order to ensure economic returns on the investment. In the absence of any new arrangements these assets will thus tend to continue operating irrespective of whether they are the most economic option or not.

c) In addition to the problem of vested rights, incumbents will often have considerable **market power**, which will put them in a strong position to continue operating legacy polluting assets.



# IN SOME CIRCUMSTANCES DIVESTMENT WILL BE COUNTERPRODUCTIVE, BUT ENGAGED PHASE DOWN FINANCE WILL SUCCEED

- The divestment movement has gained considerable traction within the global asset management community in recent years, and to date has served as an important decarbonisation pressure.
- Going forward, we believe divestment still has an important role to play, but one that is limited to those instances where divesting the asset in question will indeed result in its responsible phase down / shut down.
- We believe there are many instances where divestment may have unintended and potentially regressive outcomes. For example:
  - Investors with different ESG (Environmental, Social, Governance) aspirations may buy up the emitting assets, and run them for as long as they are economically viable.
  - Cleaner infrastructure may not be able to be built as fast as finance moves away from dirty assets. Closure of emitting assets will result in unserved demand, likely that of the poor.
  - In many cases owners of emitting assets are public (state-owned entities / municipalities), meaning the taxpayer is saddled with unrealised asset value and associated financial obligations.
  - At the level of the global financial system, ongoing divestment diverts finance away from emerging markets, which usually have higher carbon intensity, in the effort to ‘clean up portfolios’ (Ninety One, 2021)



Figure source: goingzerowaste.com

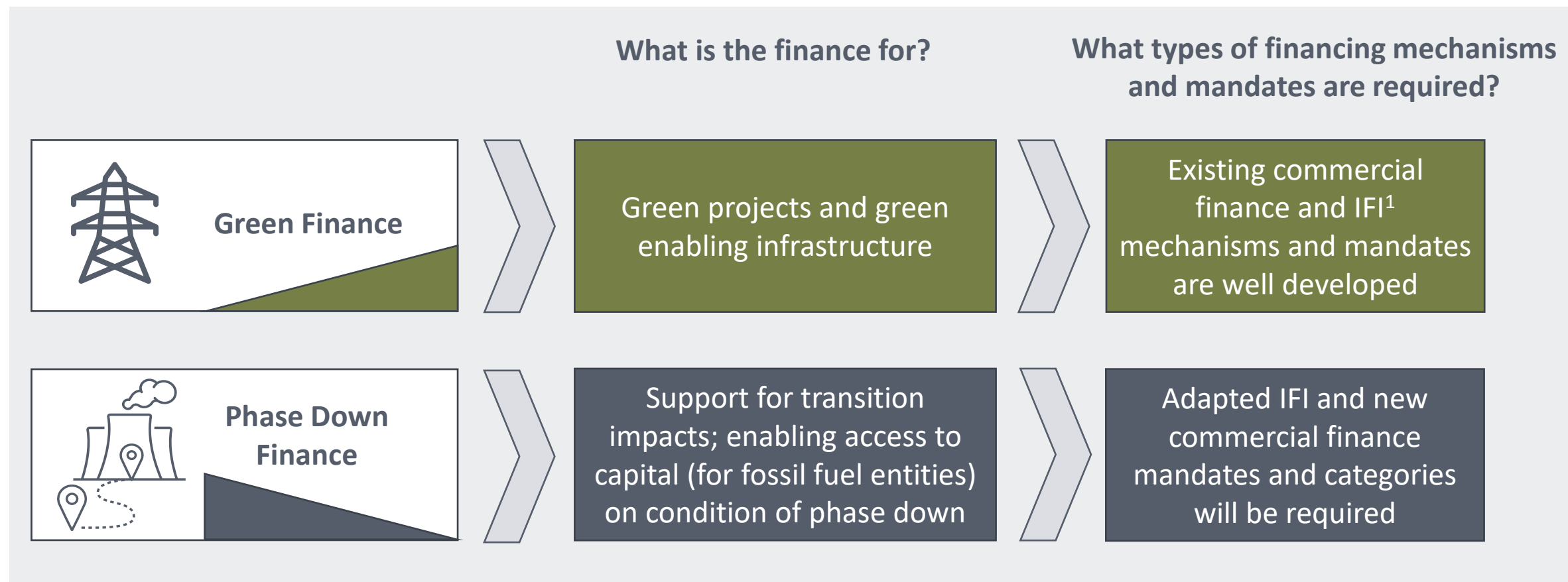
Speaking to these concerns, **Phase Down Finance** provides financing mechanisms that ensure a Paris-aligned\* retirement trajectory for assets in the context of sustainable development and a just transition.

*\*A Paris-aligned phase down trajectory means one where cumulative emissions until retirement are aligned with achieving the Paris temperature goals – with reference to science, equity and economic considerations.*





# GREEN AND PHASE DOWN FINANCE ADDRESS DIFFERENT ASPECTS OF THE SAME TRANSITION



<sup>1</sup> International Finance Institution, e.g. World Bank, African Development Bank





# DELVING DEEPER: FINANCING MECHANISMS AND MANDATES


## WHAT INNOVATIONS ARE NEEDED FOR PHASE DOWN FINANCE?




**Green Finance**

 Finance for ring fenced projects / programmes


 Does not finance emitting assets / entities


 Financing for new endeavours only


 Decarbonisation integrity assessed on technical specifications only




**Phase Down Finance**

 Entity/Sovereign finance (not project specific. There is no project to fund)

 Finances emitting assets/entities on a credible decarbonisation trajectory

 Re-financing existing endeavours; possible debt re-structuring

 Decarbonisation integrity referenced to Paris adequacy

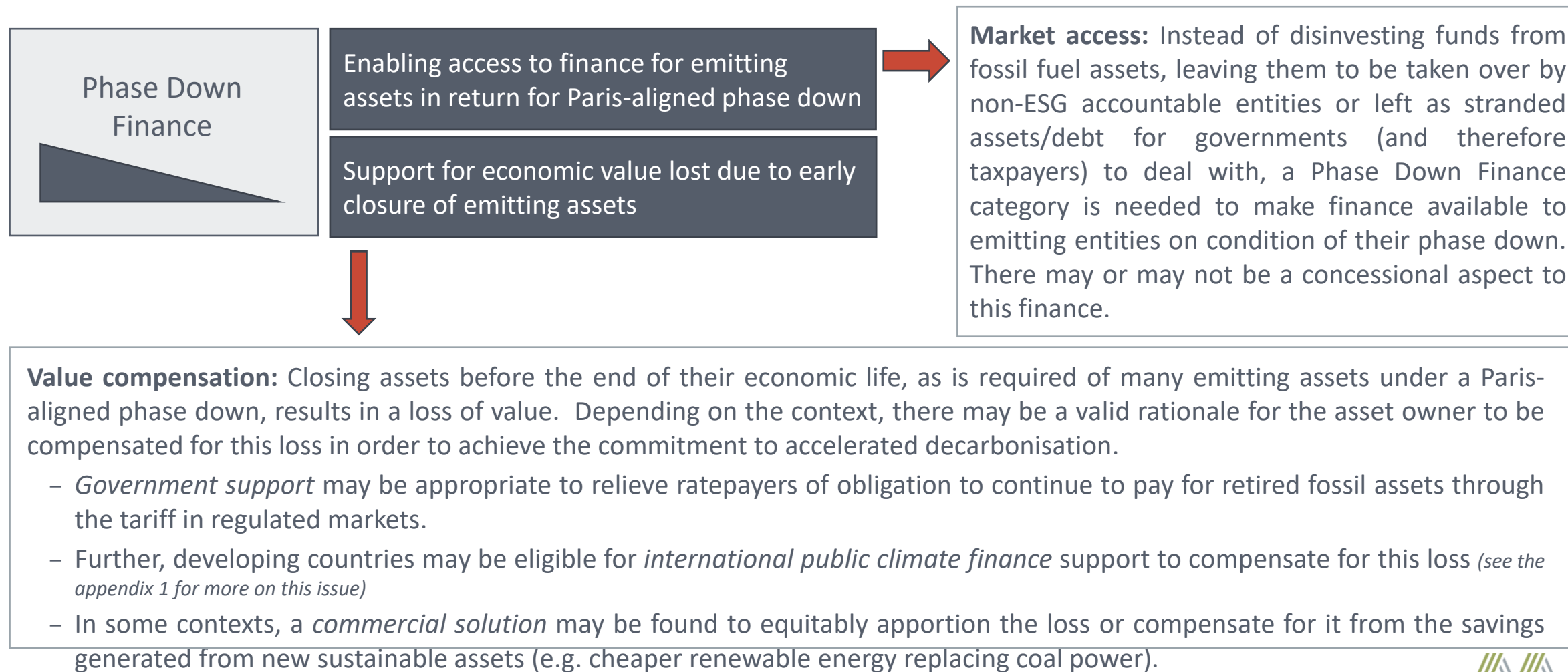


*Phase Down Finance requires interventions at the political level (for IFIs), and establishment of new norms and standards.*

*Our experience is that there is increasing appetite for such intervention internationally.*

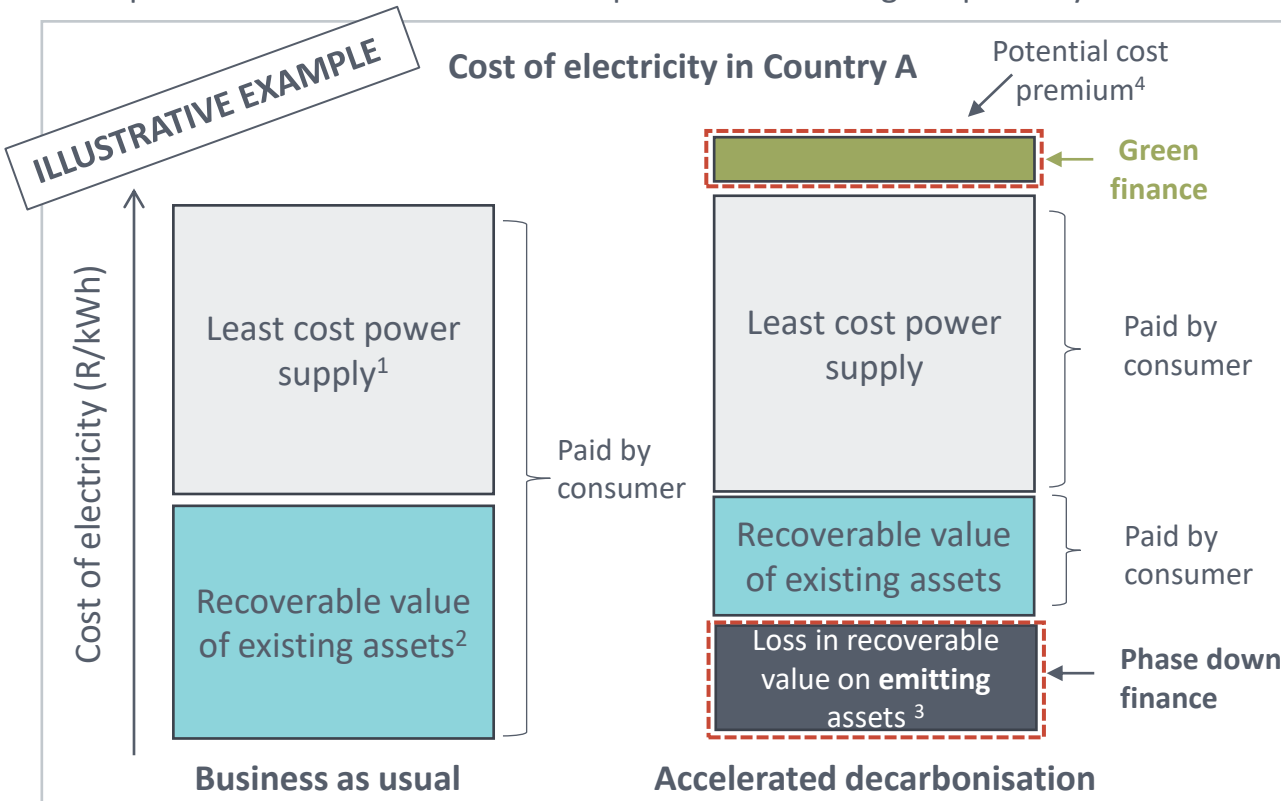


# THERE ARE TWO RATIONALES FOR PHASE DOWN FINANCE IN THE CONTEXT OF THE POWER SECTOR



# CONCESSIONAL PUBLIC FINANCE HAS A CRITICAL ROLE IN ACHIEVING A PARIS-ALIGNED POWER SECTOR

Depending on national context, public concessional finance has a role to play in supporting low carbon transitions, beyond that of socio-economic support (providing adequate financial / other support to workers, communities and regional economies that will be negatively impacted by a transition). Concessional Phase Down Finance has a role to play in compensating citizens and consumers for unrecoverable emitting asset value – which in many cases is built into the electricity tariff – whilst concessional Green Finance enables an adequately accelerated renewables build which might come at a cost premium due to the scale and pace at which renewables are required in a Paris-aligned pathway\*.



<sup>1</sup> The theoretically least cost combination of resources to supply power in a particular jurisdiction over a particular period of time (20-30years),




<sup>2</sup> The value of power sector assets that is recoverable from ratepayers based on operating them until the end of their useful life,

<sup>3</sup> The loss in recoverable economic value due to earlier phase down of emitting power sector assets (e.g. coal-fired power stations) to mitigate additional carbon (they are therefore not utilised in a manner in which the full investment cost is recovered over the lifetime of the asset, which is often built into the tariff paid by ratepayers),

<sup>4</sup> Potential cost premium due to building renewable energy and storage to replace existing emitting assets earlier than on a least cost pathway. Note that in 2020 it was already cheaper to build new renewable plants plus storage than to run 39% of the globe's existing coal assets (RMI, 2020).



# PHASE DOWN FINANCE IS A CRITICAL COMPONENT OF THE BROADER SUITE OF POWER SECTOR TRANSITION FINANCE NEEDS

Type of finance	Possible power sector uses	Examples
Phase Down Finance 	Enabling access to finance for emitting assets in return for Paris-aligned phase down	'Transition bonds'
	Support for economic value lost due to early closure of emitting assets	Grants, concessional re-financing of emitting assets.
Socio Economic Support 	Support for impacted fossil fuel workers, and broader social / value chain	Re-skilling, upskilling, support packages for fossil fuel-workers, broader employment support
	Green socio-economic regional development initiatives	Funding establishment of special economic zones, other enabling infrastructure for green industrialisation
Green Finance 	Green (infrastructure) investment projects	Funding transmission grid expansion and storage infrastructure to facilitate green projects
	Re-purposing fossil fuel infrastructure for Paris-alignment	Financing the re-powering of coal fired power stations, or repurposing to provide inertia / other services

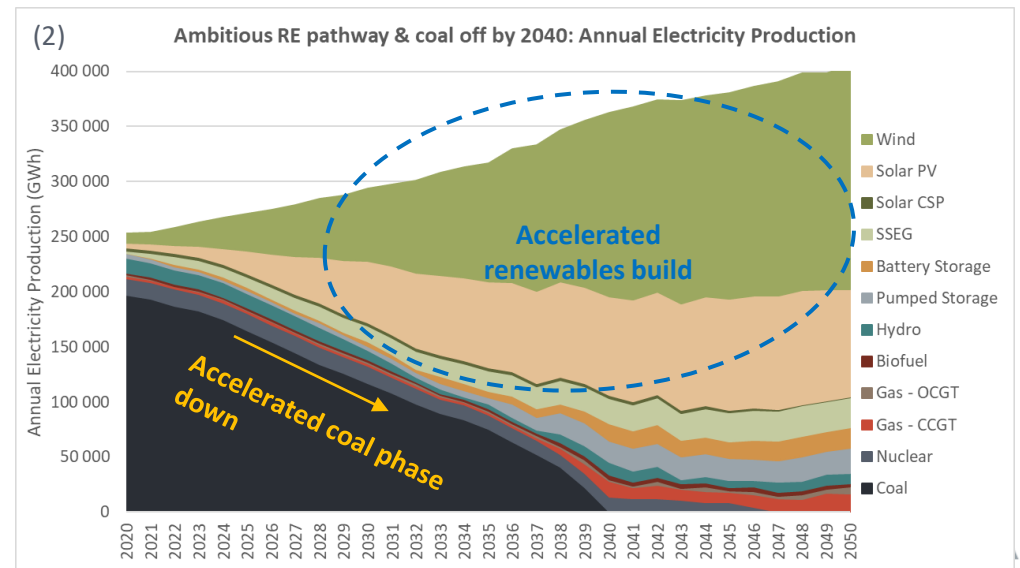
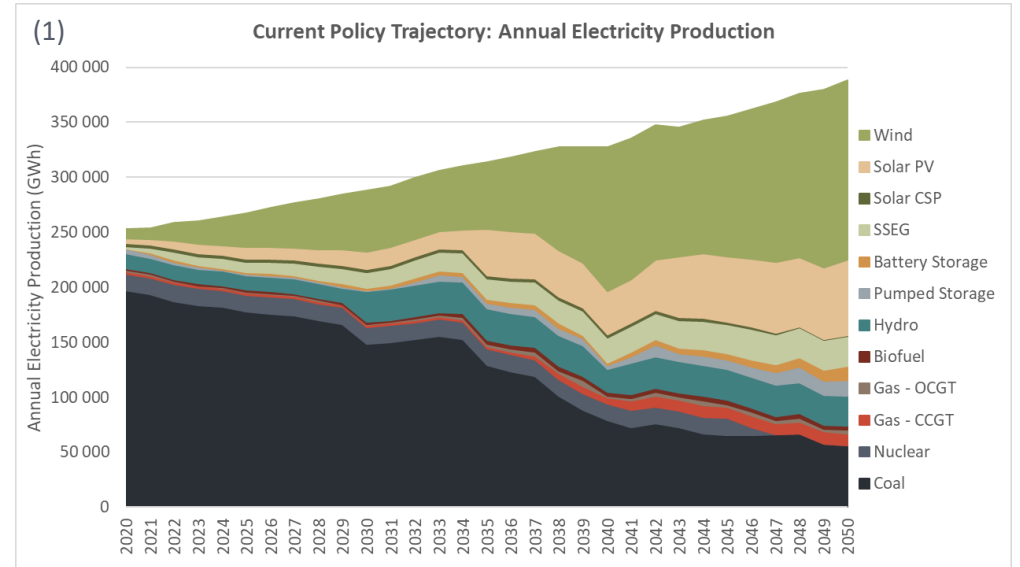


# THE SOUTH AFRICAN CONTEXT: WHAT A PARIS-ALIGNED POWER SECTOR COULD LOOK LIKE

- South Africa has recently committed to a Nationally Determined Contribution under the United Nations Framework Convention on Climate with **Paris-aligned carbon emissions targets\***, and an aspiration to setting a long-term net zero CO<sub>2</sub> emissions goal for 2050.
- An accelerated transition in South Africa's **electricity sector is critical** to the country being able to realise these goals.
- Achieving a Paris-aligned decarbonisation trajectory for the power sector (depicted in Figure 2) requires **acceleration of the coal fleet phase out and a considerable ramp up of green power investment** compared to the current policy trajectory (depicted in Figure 1)\*\*, including transmission expansion and strengthening to accommodate new large scale low-cost renewable energy and storage.
- Whilst the decline of coal in the current policy trajectory signals the **disruption of livelihoods and economic activities in the Mpumalanga coal province**, an accelerated coal phase down will intensify this disruption.

\*Source: Climate Action Tracker, 2021

\*\*based on modelling done by Meridian Economics – CSIR for [the 2020 Ambitions project](#)



# THE SOUTH AFRICAN POWER SECTOR'S TRANSITION STARTING POINT

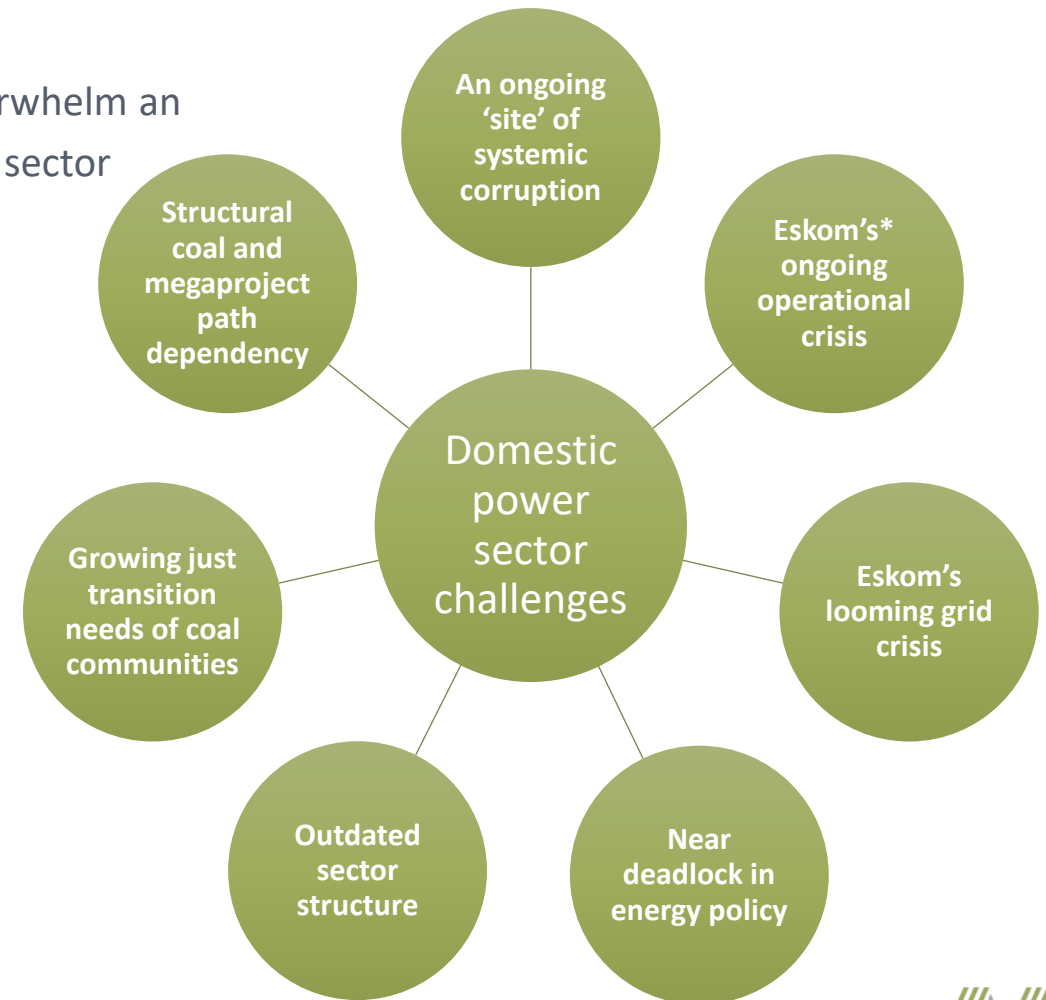
A global wave of disruptive change...

Increasingly competitive renewable energy technology prices

Climate change: Coal market decline, Divestment movement

Decentralisation and digitalisation of the global power sector

... threatens to overwhelm an already-vulnerable sector



---

# ESKOM'S FINANCIAL CRISIS OBSTRUCTS THE FINANCING OF AN ACCELERATED POWER SECTOR TRANSITION

- Eskom's balance sheet is straddled with ZAR200 (\$12.5Bn) of unserviceable debt.
- Its shareholder, the South African Government, is itself experiencing a rapid narrowing of its fiscal space, exacerbated by the economic impact of Covid-19 pandemic. Gross national debt is currently 80% of GDP, and is projected to rise to 89% by 2025/6 (Stats SA, 2021).
- Government's current strategy to avoid a default on Eskom debt is to transfer large-scale fiscal bailouts, and to guarantee any new Eskom debt issuances, or renewable energy power purchase agreements.
- While the strategy works on the short-term, the underlying debt problem is compounding and the burden on the sovereign has become unsustainable. Already and increasingly, this approach threatens the fiscal budget available for social development. South Africa's socio-economic position is itself deteriorating, with national poverty and unemployment currently at record levels.
- The accelerated closure of Eskom's coal plants, as required under a Paris-aligned power sector transition, will only exacerbate the utility's financial predicament as Eskom will not be able to gain returns on the part of its regulatory asset base closed prior to the end of their economic life.
- In principle, much of the replacement green power infrastructure required for SA's power sector transition is commercially financeable, mainly due to the country's superior solar and wind resources and its well-developed capital markets.
- However, Eskom's weak financial position and its systemic role in the sector (as either investor itself, or counterparty to Power Purchase Agreements) currently undermines the financing of an accelerated transition.








---

# THE LARGE TRANSITION FINANCE NEED IMPLIES THAT SCARCE CONCESSIONAL FINANCE SHOULD BE STRATEGICALLY TARGETED TO MAXIMISE IMPACT AND CROWD IN COMMERCIAL FINANCE

- **The financing requirements for South Africa's transition are significant:**
  - At least ZAR1trillion of *green finance* will be needed for green transmission infrastructure and green generation investment ([Meridian, Sept 2021](#)),
  - Initial analysis shows that *socio-economic transition support* required for Mpumalanga's coal region is in the region of ZAR12billion ([Meridian, March 2021](#)),
  - *Phase Down finance* compensation for economic value lost through the accelerated phase down of Eskom's coal assets could be in the region of ZAR375billion (see Appendix 2).
- **Where can and should concessional finance be accessed and deployed to support SA's transition?**
  - Under the UNFCCC South Africa has legitimate claim to *concessional, international public finance* to support its low carbon transition.
  - The **socio-economic support component clearly requires concessional finance**, sourced both domestically and internationally.
  - Given Eskom's predicament, together with the existence of lost economic value due to the transition, there is a **strong argument for an public finance intervention** to ensure that the Eskom is financially sustainable and that Eskom's systemic risk to broader power sector investments is reduced. The quantum of such an intervention is in the order of magnitude of asset value lost due to accelerated coal retirement.
  - Because of South Africa's lack of fiscal space, together with the country's entitlement to international public finance support under the UNFCCC, it would appear that **a combination of domestic and international concessional Phase Down Finance could be strategically deployed** to enable Eskom to play its transition role, reduce systemic power sector risk, and crowd in affordable commercial finance for the green infrastructure build.



# IN THE SA CASE, CONCESSIONAL PHASE DOWN FINANCE CAN UNLOCK THE SCALE OF COMMERCIAL FINANCE NECESSARY FOR THE TRANSITION

Type of finance	Activity	What does SA need?	Where can concessional finance play a role?
Phase Down Finance 	Enabling access to capital for emitting assets in return for a Paris-aligned phase down	✓	
	Support for asset base lost due to early closure of emitting assets	✓	✓
Socio Economic Support 	Support for impacted fossil fuel workers, and broader social / value chain	✓	✓
	Green socio-economic regional development initiatives	✓	✓
Green Finance 	Green (infrastructure) investment projects including grid and storage infrastructure	✓	Phase Down Finance used to support Eskom's accelerated coal closure and financial sustainability will unlock affordable commercial Green Finance sources at scale
	Re-purposing fossil fuel infrastructure for Paris-alignment	✓	



---

# CONCLUSION

- This concept-piece has argued that Phase Down Finance is an important, but less well-understood, type of finance which will be critical to shifting the dial in the global decarbonisation agenda.
  - The financial sector’s traditional focus either on divestment (removing capital from fossil fuels) and green finance (new capital in green projects) will be insufficient to achieve global decarbonisation goals – we need additional innovative solutions.
  - In the real economy, unless divestment is very accurately targeted it may in fact be counterproductive to the decarbonisation agenda, having potentially regressive outcomes for emerging economies in particular. Green finance is critical to building out the new, low carbon economy, but does not address legacy lock-in to fossil fuel assets – it does not support or enable the *transition away* from this locked-in path.
  - Phase Down finance is dependent upon adherence to Paris aligned phase down trajectories, thereby providing credible mechanisms for dealing with moral hazard problems.
- In the South African case, the country has an urgent need for a sustainable Eskom finance solution, massive green power sector investment over the next 5 to 10 years and adequate just transition support in order to achieve its climate commitments and reduce socio-economic risk in the context of a just transition. Further, the country has legitimate claim to concessional finance under international climate policy/finance architecture.
  - We argue that capital markets are likely to be able to finance much of the low carbon infrastructure necessary to achieve SA’s ambitious NDCs (green finance) on a commercial basis. However, in order to do this affordably, Eskom needs to be a financially viable counterparty. *Concessional international Phase Down Finance* compensating for asset value loss can play a strategic role, together with domestic public finance, in achieving this.
- The recent COP26 announcement of the [Just Energy Transition Partnership](#), commits an initial flow of \$8.5 billion to support South Africa’s decarbonisation journey. In order to unlock an affordable just transition for the country, there is a critical role for significant concessional Phase Down Finance to play as a component of this Partnership funding.



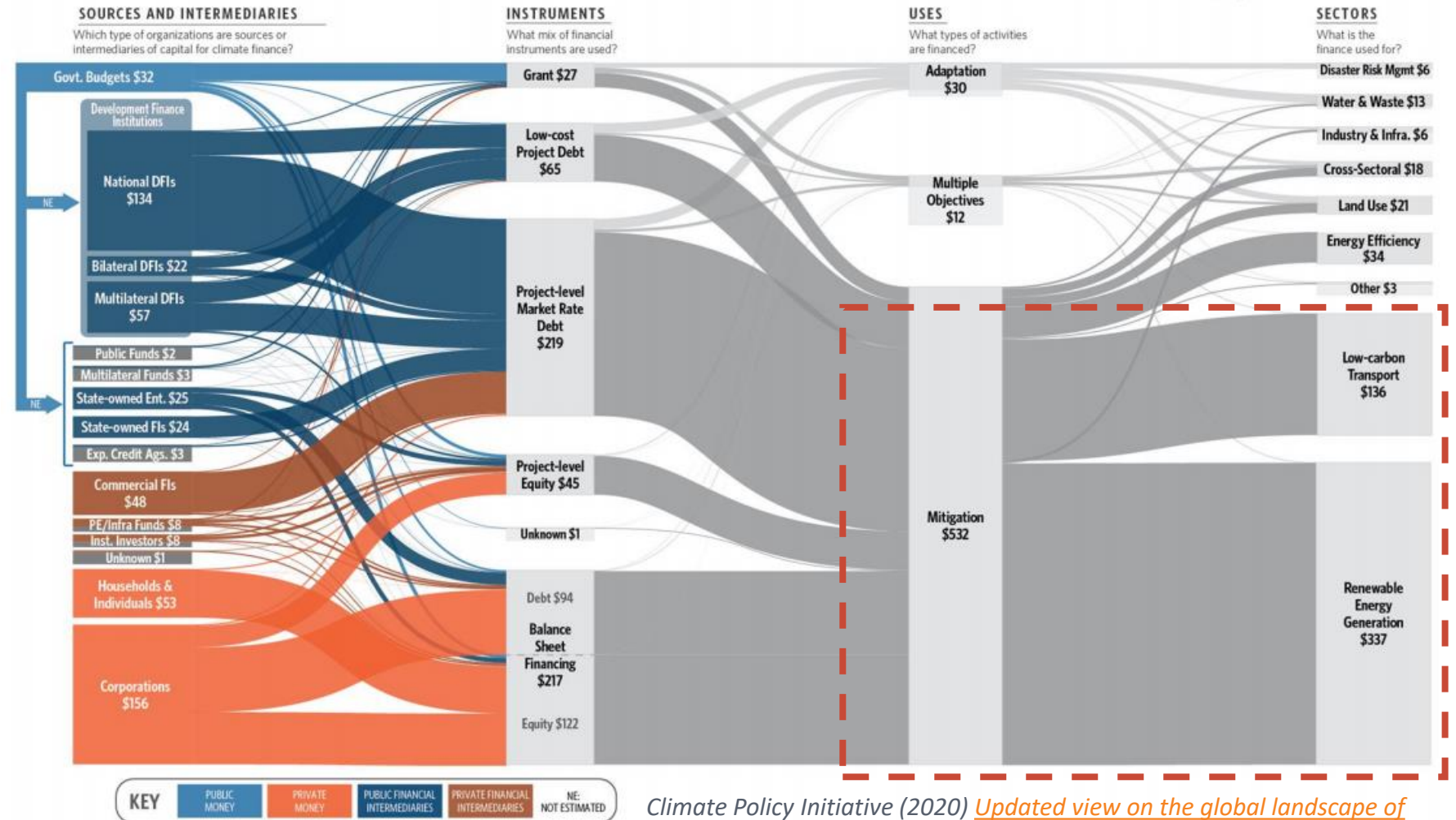
---

# CONTACT US

Suite EB04, Tannery Park,  
23 Belmont Road, Rondebosch, 7700  
+27 21 200 5857  
[emily.tyler@meridianeconomics.co.za](mailto:emily.tyler@meridianeconomics.co.za)  
[meridianeconomics.co.za](http://meridianeconomics.co.za)

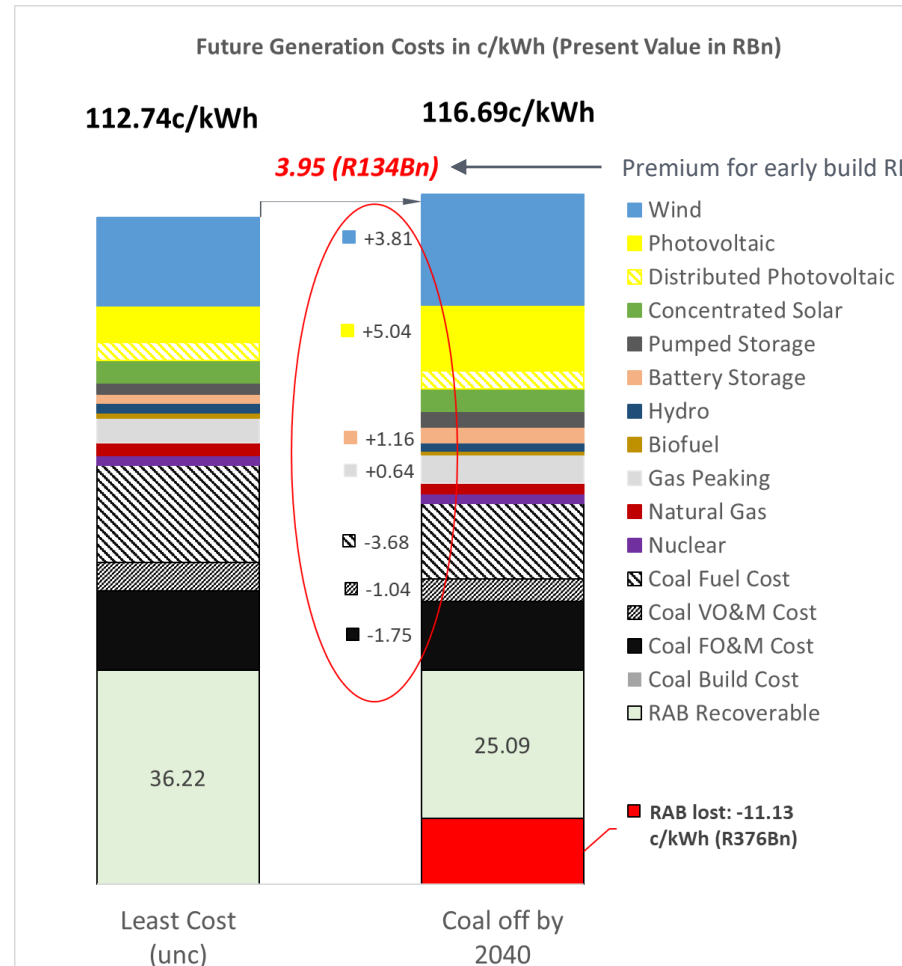
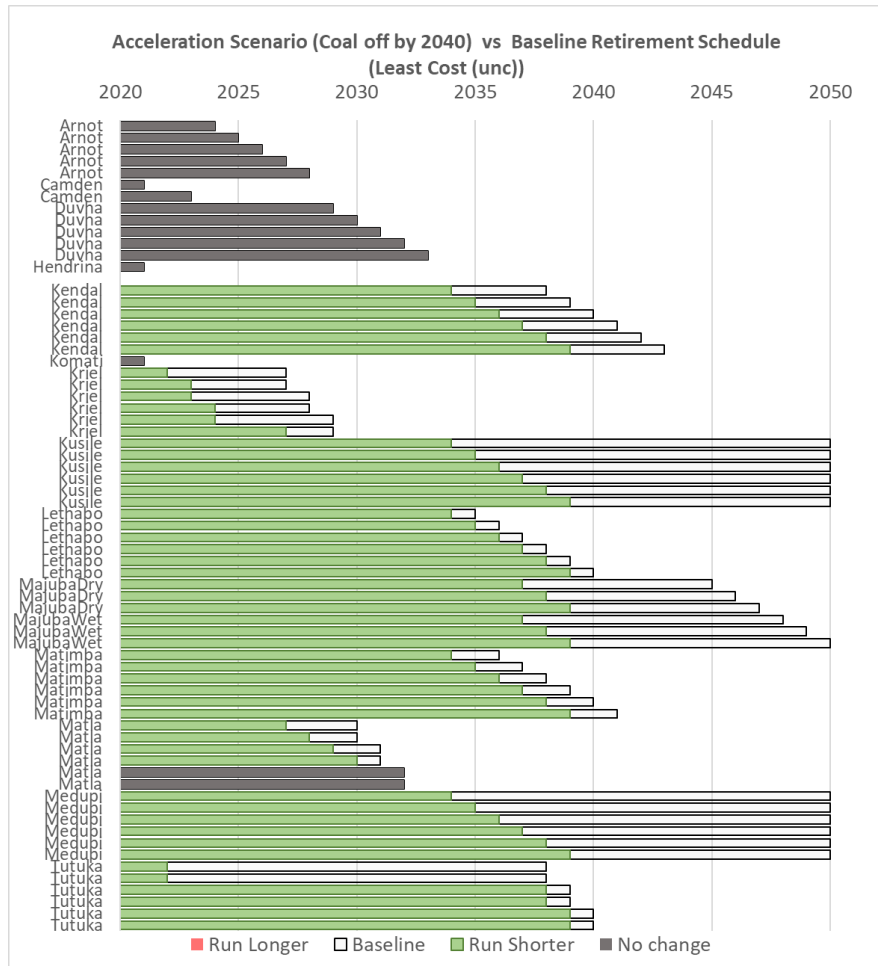
# APPENDIX 1: TO DATE, PHASE DOWN FINANCE HAS NOT FEATURED IN THE TRADITIONAL CLIMATE FINANCE LANDSCAPE

- Climate finance includes grant, loan, equity and concessionary sources of finance.
- Up until very recently, the global climate finance landscape has mainly targeted green projects and technologies for climate mitigation financing.
- The concept of Phase Down Finance (grant, loan, equity or concessionary) in the climate / development support space is still emerging.



# APPENDIX 2: SOUTH AFRICAN POWER SECTOR ILLUSTRATIVE EXAMPLE

## LOST ASSET VALUE DUE TO EARLY CLOSURE, AND POTENTIAL PREMIUM FOR EARLIER RENEWABLES BUILD



### Regulatory Asset Base (RAB) lost:

Earlier closure of plant in an accelerated transition scenario (with all coal assets retired by 2040) results in economic value of the existing coal fleet being lost/stranded. This difference represents the portion of Eskom's RAB lost and which the utility will not be able to recover from electricity consumers.

### Renewable energy premium: A

bottom-up comparison of components of total power generation cost in a Least cost versus accelerated transition scenario. There is a small premium associated with the accelerated (earlier than economically viable) build out of renewable energy to replace the coal, which in the Least cost scenario remains competitive for many years as a dispatchable generation source.

