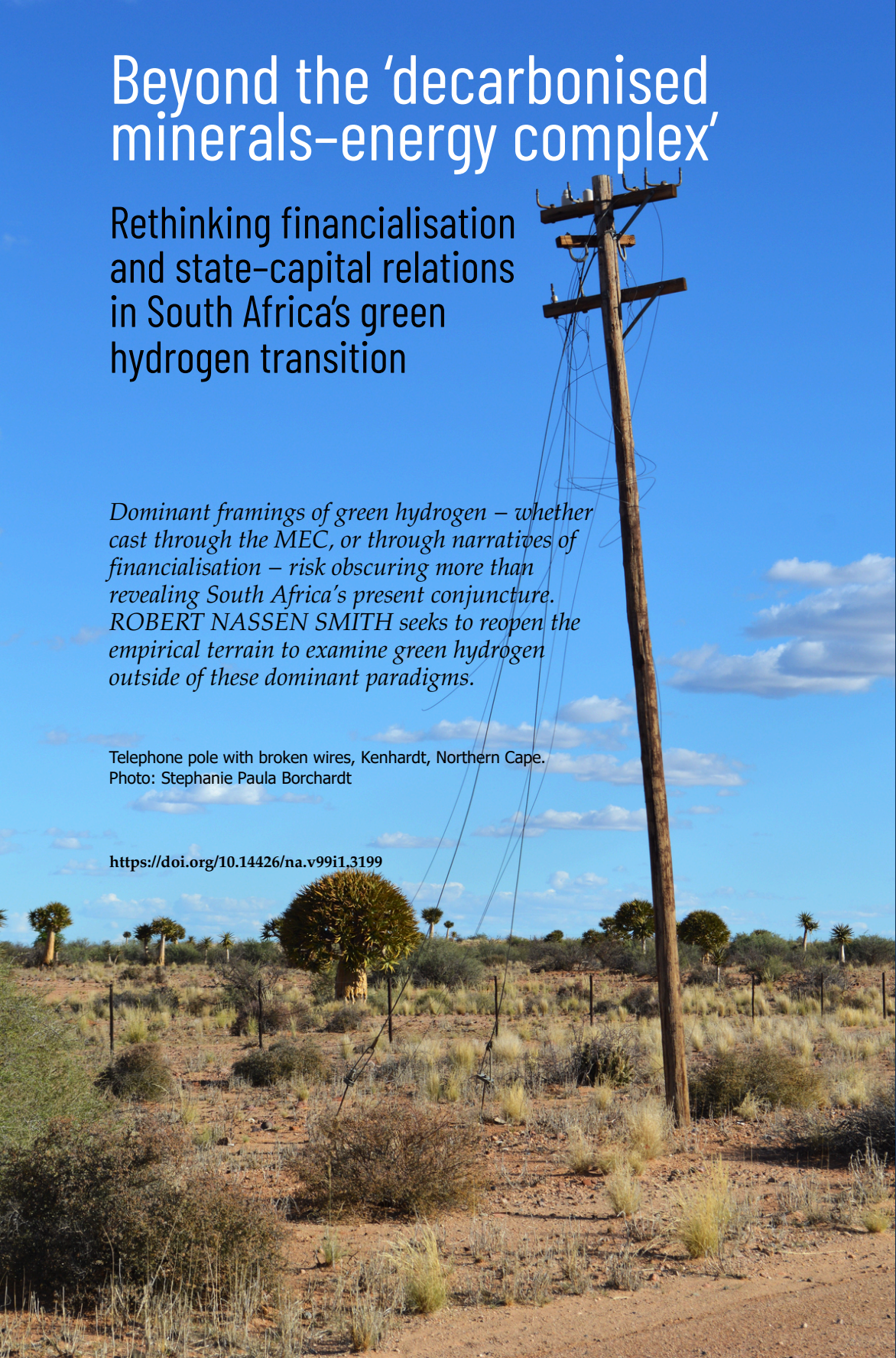
Beyond the 'decarbonised minerals–energy complex'

Rethinking financialisation and state–capital relations in South Africa's green hydrogen transition

Dominant framings of green hydrogen – whether cast through the MEC, or through narratives of financialisation – risk obscuring more than revealing South Africa's present conjuncture. ROBERT NASSEN SMITH seeks to reopen the empirical terrain to examine green hydrogen outside of these dominant paradigms.



Telephone pole with broken wires, Kenhardt, Northern Cape.
Photo: Stephanie Paula Borchardt

https://doi.org/10.14426/na.v99i1.3199

Beyond the 'decarbonised minerals-energy complex': Rethinking financialisation and state-capital relations in South Africa's green hydrogen transition

Robert Nassen Smith

Doctoral candidate, DSTI/NRF SARChI Chair in the Sociology of Land, Environment and Sustainable Development, Department of Sociology and Social Anthropology, Stellenbosch University.

https://orcid.org/0000-0002-3607-8956

https://doi.org/10.14426/na.v99i1.3199

Published in *New Agenda: South African Journal of Social and Economic Policy*, issue 99, 4th Quarter, December 2025.

Submitted 25 July 2025; Accepted 25 November 2025.

This is a peer reviewed article, published following a double blind peer review process.

Abstract
This article interrogates South Africa's green hydrogen ambitions as a key site of the financialisation of development. While hydrogen is increasingly framed through the lens of a 'decarbonised' or 'financialised' minerals-energy complex (MEC), such readings risk reproducing a power-bloc conception of finance that overstates its expansion while casting the state as a conduit for interests. Drawing on recent critical interventions by Reddy (2025) and Bernards (2025), in combination with initial fieldwork as part of ongoing PhD research, this article argues that these dominant frameworks obscure two central features of the current conjuncture: the persistent financing gap and significant institutional fragmentation within the state itself. Rather than demonstrating the consolidation of a 'decarbonised MEC' or the expanding dominance of finance capital, South Africa's hydrogen landscape reveals the absence of substantial financial participation, alongside a state labouring – often unsuccessfully – to construct conditions of investibility. The article, therefore, calls for rethinking the political economy of hydrogen beyond inherited paradigms and reopening empirical inquiry into how state–capital relations are being actively assembled in the emerging hydrogen economy.

Introduction

In his foreword to the Hydrogen Society Roadmap (HSRM), Minister of Higher Education, Science and Innovation, Dr Blade Nzimande, articulates a vision of green developmentalism centred on green hydrogen:

> ***South Africa today is well placed and poised to leverage the hydrogen opportunity to be at the centre of our economic growth and development strategies, as well as part of our mitigation strategy for climate change through greening our economy and society. Transitioning through the hydrogen development trajectory must also form a strong platform to address the needs of the overwhelming majority of our people, especially blacks, women, youth and the poor, both urban and rural.***
>
> (DSI, 2022, p. A)

However, this vision is being articulated in accordance with the developmental paradigm that Gabor (2021) has termed The Wall Street Consensus, an effort to reorganise development around partnerships with global finance. South Africa's Green Hydrogen Commercialisation Strategy (GHCS) rhetorically commits to utilising a suite of de-risking arrangements aimed at rendering projects 'bankable' through state guarantees, blended finance, and public-private partnerships (PPPs) (DTIC, 2023). A growing body of critical scholarship has rightly highlighted the dangers of this 'private turn': it empowers finance capital while exposing states and communities to new risks (Baker, 2015; Gabor & Sylla, 2023), and narrows policy space for redistributive or democratic alternatives (Baloyi & Krinsky, 2022) by "rendering technical" and de-politicising the sustainable development agenda (Taggart & Power, 2024; Tan, 2022).

South Africa's experience with the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) already illustrates how the private turn has structured renewable energy investment, with Power Purchase Agreements (PPAs) functioning as a key de-risking mechanism that underwrites private participation in renewable energy PPPs. This turn to private capital produces a central contradiction: the state's ambitions for green energy as both a means for energy security as well as a catalyst for a green developmentalism are increasingly tethered to the investment criteria of finance capital. That is, as Baker (2015) sharply captures it, "between short-term, bankability-driven, shareholder-maximising imperatives and the unique, progressive demands for community ownership and economic development required to legitimise renewable energy projects in South Africa" (p. 155).

Photo: Stephanie Paula Borchardt

Moreover, the encounter between the private turn and its interaction with extant state-capital formations and patterns of capital accumulation has become subject to critical attention. Baker (2015), for one, makes the case for framing the evolving role of finance in South Africa's renewable energy sector in terms of a (decarbonised) "financialized minerals energy complex (MEC)". She finds that under REIPPPP, a reconfiguration of long-standing MEC actors is underway, particularly in the realms of finance, as they merge with new sources of foreign capital. Financialisation is read by Baker as a state-mediated project of constructing new green energy asset classes.

It is therefore unsurprising that hydrogen is already being cast as part of a decarbonised, financialised MEC (see Baker & Burton, 2023). However, in light of Reddy's recent 'debunking' of the MEC (2025), there is reason to pause, or else risk prematurely inserting South Africa's green hydrogen ambitions into a paradigm that "rests on shaky foundations" (p. 25). Over and above the challenge Reddy makes to the empirical foundations of the MEC thesis, the true motivation of his intervention concerns how the dominance of the MEC framework (often) crowds out empirical inquiry, obscuring the actual dynamics of corporate power, interest-group formation, and state-business relations. The same risk applies to green hydrogen: by presuming it to be a continuation of the

MEC (decarbonised or otherwise), we may foreclose on the investigation needed to understand what is presently unfolding.

This article responds to that provocation. It seeks not to replace the (decarbonised, financialised) MEC with an alternative overarching framework − that is beyond its scope. Instead, it intends to clear conceptual space by interrogating the assumptions embedded in MEC and financialisation readings of green hydrogen. To do so, the article draws together two recent, parallel scholarly interventions: Reddy's critique of the MEC paradigm and Bernards' (2025) critique of financialisation. Both seek to intervene in these respective literatures in the same spirit; a spirit best captured by Bernards, where he laments the extent to which:

> ***financialization serves as a shortcut, a way of attributing disparate social phenomena to the growing power of finance capital…it offers up a ready-made way of critiquing myriad changes in the way that finance capital and the wider economy operate, allowing authors to more or less uncritically assimilate them as instances of a wider process*** (2025, p. 9).

This article draws on a combination of initial fieldwork conducted in 2025, as part of my ongoing PhD research, including first-hand interviews with provincial officials and industry actors involved in the hydrogen sector, supplemented by analyses of policy documents, investment reports, and publicly available financing data. The empirical material is not intended to provide a comprehensive account of the emerging hydrogen economy; rather, it is used diagnostically to illustrate that MEC and financialisation framings rely on the assumed coherence of state and capital that does not reflect the present conjuncture.

The remainder of the article develops this argument in three steps. The first section revisits the MEC thesis and traces how it has been extended into 'financialised' and 'decarbonised' variants, showing, via Reddy's critique, how these extensions rely increasingly on the assumed coherence of capital and an instrumentalist understanding of the state. Section two examines why green hydrogen appears to fit both the MEC and financialisation frameworks, before turning to Bernards to argue that financialisation framings risk prematurely closing empirical inquiry. The penultimate section then turns to the empirical material and makes the case of why the persistent shortfall of green and sustainability-linked finance should be centred analytically, especially for what it implies about the role of the state in driving the push for private finance for its green hydrogen ambitions and development goals more broadly. The final section offers concluding reflections. Taken together, this article aims to demonstrate how the dominant framings of green hydrogen obscure

more than they reveal about the political economy of green hydrogen and seeks to open the conceptual space for further enquiry.

Wither MEC?

The MEC thesis was developed by Fine and Rustomjee (1996) and argues that South Africa's economic development is organised around a historically entrenched and interconnected complex of mining, energy, and heavy industry, whose mutually reinforcing linkages structure patterns of capital accumulation and shape the form and functioning of the state.

It is beyond the scope of this article to rehearse the full MEC thesis. What matters for present purposes is the emphasis placed on the coherence and persistence of the MEC. Central is the claim that the MEC should be understood as a system of accumulation; a historically specific configuration through which patterns of production, finance, labour, and governance became closely aligned. In this sense, Fine and Rustomjee were not simply describing a sectoral cluster but a wider economic architecture through which particular industries commanded access to finance, determined the trajectory of industrial development, influenced regimes of labour, and facilitated the constitution of the state itself. Crucially, on this final point, the state is cast as internal to the MEC insofar as infrastructure investments reinforce MEC industries, major State Owned Enterprises (SOEs) (such as Eskom, Sasol, Iscor and the Industrial Development Corporation [IDC]) function as central nodes within MEC value chains, bureaucratic capacities are built around MEC-relevant functions, policy agendas are shaped by the lobbying power of MEC-linked capital, and its coercive instruments are deployed to secure the low-cost labour on which MEC profitability depends.

This conceptualisation of an interlocking system of internal linkages and logics continues to inform efforts to read more contemporary developments, including green hydrogen. For Ashman, Fine and Newman (2011), from the early 1980s, the liberalisation of the financial sector in conjunction with the financialisation and internationalisation of capital, had shifted South Africa to a "financialized MEC" (p. 182). The MEC's historic structure persists, yet is reorganised through liberalised finance, shareholder-value imperatives, and capital flight. Financialisation is therefore a modification and intensification of the MEC, not its replacement.

For Baker (2015), REIPPPP is not only located firmly inside the MEC system of accumulation, but is also further evidence that the MEC is becoming more financialised. The programme connects Eskom and the

state to privately financed independent power producers and exemplifies a broader shift from an MEC centred on coal-fired heavy industry to one in which financial logics, instruments, and actors are increasingly central to how energy is produced, owned, and profited from.

Thus, REIPPPP and utility-scale renewables unfold within the MEC system of accumulation as new technologies and financial arrangements that are being threaded through its existing industrial and institutional architecture. Moreover, the state-capital alliances that defined the original MEC are here rearticulated through new 'green' modalities: Eskom's continued role as single buyer underwriting revenue streams via long-term PPAs; National Treasury's design and stewardship of the procurement framework; and the prominent roles of development finance institutions such as the IDC and the Development Bank of Southern Africa (DBSA) alongside the major commercial banks. Far from displacing these dense state-capital-finance linkages, utility-scale renewables reproduce and extend them under increasingly financialised forms.

But it is precisely these extensions of Fine and Rustomjee's original thesis that prompt Reddy (2025), in a recent critical work, to question the evidentiary basis on which such extensions rest. "The original work on the subject was indeed deeply historical," he writes, "…[but] as its popularity has increased, the boundaries of the concept have become blurred" (p. 6). His discontent with the MEC framework – "as a theory of post-apartheid capitalism … the problems with the MEC [approach] are too large, in my view, for there to be any hope of resuscitation" (p. 26) − is matched by a scrupulous interrogation of empirical evidence. Under examination are both the structural dimensions of the original MEC thesis and the institutional narrative of MEC continuity, both of which exhibit notable deficiencies. Structurally, the apparent size, stability, and integration of MEC sectors are, for Reddy, statistical artefacts of an overly expansive, ad hoc definition: once benchmarked internationally, South Africa's industrial profile appears entirely ordinary.

'…as a theory of post-apartheid capitalism…the problems with the MEC [approach] are too large, in my view, for there to be any hope of resuscitation.'

Mine in the Northern Cape. *Photo: Stephanie Paula Borchardt*

Institutionally, the post-apartheid corporate landscape bears little resemblance to the cohesive conglomerate bloc presumed by MEC theory. Conglomerates were dismantled, ownership dispersed, and by 2022, MEC-linked firms accounted for only a marginal share of major corporate assets. Moreover, following Sachs (2024), the MEC thesis is said to suffer from an instrumentalist framing of the state, which functions as a conduit for the interests of a dominant capitalist bloc. Such a conception, particularly in light of the fragmentation and internal contestations of the post-apartheid state, is untenable.

Space prohibits a more robust engagement with Reddy's argument besides the summary above. For the purposes of this article, Reddy's intervention usefully points to instances of analytic overreach on the part of post-apartheid MEC theorists, and as such is an invitation for more empirical work to be done to understand patterns of interest group formation, state-capital relations, and power. This paper is an attempt − albeit a limited one − to re-open the empirical terrain for the study of green hydrogen, so as not to foreclose inquiry before it has begun. What follows is a brief overview of current developments surrounding green hydrogen.

Green hydrogen: A decarbonised MEC?

South Africa's green hydrogen ambitions have begun to take shape across a range of policy platforms, institutional arrangements, and early project proposals that together outline the contours of an emerging hydrogen economy. These early developments help explain why green

hydrogen so readily invites comparison with the MEC, as it draws together familiar actors within recognisable governance structures.

Take, for example, the Boegoebaai Port and Green Hydrogen Cluster − one of South Africa's flagship green hydrogen megaprojects − located in the Namakwa District of the Northern Cape province, approximately 60km north of Port Nolloth and 20km south of the Namibia-South Africa border. The site is being developed as a deep-water port and has been designated a Special Economic Zone (SEZ) for the production of green hydrogen and its derivatives (like green ammonia) and associated export infrastructure. The Northern Cape Green Hydrogen Strategy, launched at COP26, targets the development of 10GW of renewable energy capacity and 5GW of electrolyser capacity at Boegoebaai (NCEDA, 2021). Significantly, the priority of the strategy is not to service domestic demand but to position the Northern Cape as a global green hydrogen exporter to markets such as Europe and Japan.

The Northern Cape Economic Development Trade and Investment Agency's (NCEDA) business case of the Boegoebaai Port Project had estimated 0.07 Mtpa of green ammonia to be produced by 2027, with a planned increase to 2.15 Mtpa by 2038 (PRDW, 2022). Yet, the SEZ is still in early stages. Feasibility studies have been completed, the strategic environmental assessments led by the Council for Scientific and Industrial Research (CSIR) are presently being presented to concerned and affected communities, and infrastructure planning is still in progress. Nevertheless, the Boegoebaai project is an example of how the state (across provincial and national scales) is seemingly aligning its institutional power around dominant energy blocs and new green industrial projects.

Sasol, already a leading global hydrogen producer, has completed a pre-feasibility study at Boegoebaai that affirmed the technical and economic viability of this export-oriented ecosystem. Elsewhere, Sasol's involvement in the HySHiFT sustainable aviation fuel project at its Secunda facility demonstrates how the company is leveraging its existing Fischer-Tropsch (FT) conversion technology to repurpose existing industrial capacity for green hydrogen-derived fuels.

... the priority of the strategy is not to service domestic demand but to position the Northern Cape as a global green hydrogen exporter to markets such as Europe and Japan.

More significant still is that the SEZ is sited in a geography already defined by legacies of extractivism. A report by *GroundUp* documents how many members of the Richtersveld Communal Property Association have been sidelined in the consultations around the proposed port and hydrogen facility (Human, 2024). The community carries heavy memories of protracted land-rights battles (notably the landmark 2003 Constitutional Court decision) and anticipates that the proposed development may repeat patterns of dispossession and dysfunctional benefit-sharing that characterised past mining projects. In a fairly direct sense, green hydrogen is built on the very terrain of the old MEC.

Nor are these extractive geographies confined to Boegoebaai but will extend along the "Platinum Valley" (see DSI, 2020) infrastructural corridor linking Limpopo to major infrastructure hubs in Johannesburg and Durban, tying platinum-group metal (PGM) extraction to hydrogen value chains. As Baker and Burton (2023) rightly observe, PGMs play a central role in South Africa's green hydrogen ambitions. The National Hydrogen and Fuel Cell Technologies Research, Development and Innovation strategy (Hydrogen South Africa, henceforth HySA) was launched by the Department of Science, Technology and Innovation (DSTI) in 2008 to link South Africa's PGM endowment with a future hydrogen economy. HySA comprises three Centres of Competence, each focusing on part of the hydrogen/fuel-cell value chain:

1. HySA Infrastructure − Hosted at North-West University, and focuses on hydrogen production, storage, and delivery technologies.
2. HySA Catalyst − Hosted at the University of Cape Town and focused on catalyst materials (especially those using PGMs) and membrane electrode assemblies for fuel cells.
3. HySA Systems − Hosted at the University of the Western Cape, and focused on system integration, product development and prototyping of hydrogen fuel-cell systems.

Proton-exchange membrane electrolysers are globally favoured for green hydrogen production because of their suitability for pairing with renewable energy, and rely heavily on PGMs (Quitzow & Lentschig, 2025). By developing local catalyst technologies, membrane electrode assemblies and systems, HySA aims to capture value that traditionally goes abroad (rather than simply mining and exporting PGMs). The programme has a mandate to develop components, materials, and systems for hydrogen production, storage, delivery, and fuel cells locally, while generating South African intellectual property, advancing human capital (skills), and building an industrial base, hoping to position South

Africa in the global hydrogen value-chain not merely as supplier of metals but as a supplier of higher-value components and systems.

Taken together, there are certainly resemblances between these initiatives and what Baker and Burton (2023) describe as an emerging "decarbonised MEC" where the incumbent regime of elite interlinkages may be fragmenting but not altogether disappearing. They argue that opportunities in green energy, supported by critical mineral extraction, may lead to new value chains across industries and support the emergence of a "new MEC, this time undergirded by the transition to a low-carbon future" (Baker & Burton, 2023).

Finance also organises hydrogen's insertion into a 'decarbonised MEC'. The GHCS outlines a financing ecosystem in which the state strategically uses public funds, green bonds, fiscal incentives, and regulatory support to mobilise private investment, supported by substantial development finance institution (DFI) participation and concessional climate finance from developed countries. Key mechanisms include government on-balance-sheet funding, PPPs, export credit financing, green bonds, and blended finance structures, with the explicit aim of de-risking early projects to crowd in private actors and ensure the long-term bankability of South Africa's green hydrogen economy (DTIC, 2023).

While the financing for green hydrogen is still in its early stages, in June 2023 the SA-H2 Fund was launched as a dedicated finance vehicle for green hydrogen in South Africa. It is structured as a public-private, blended-finance facility supported by actors including Climate Fund Managers (CFM) and Invest International B.V. (of the Netherlands), alongside domestic institutions such as the IDC and DBSA. The Fund's target is US$1 billion, to be raised either directly in South Africa or through alternative channels. In June 2025, the Fund made its first major investment, an up-to US$20 million commitment to the Hive Hydrogen Green Ammonia Project in the Coega SEZ.

This financing architecture is far from uncontested. The Institute for Economic Justice has been critical of the state's emphasis on blended finance, PPPs and other de-risking instruments, arguing that these mechanisms effectively embed South Africa within The Wall Street Consensus model that prioritises minimising private-sector risk and maximising profit opportunities while reallocating risk to public institutions (Baloyi & Krinsky, 2022). Baker's (2015) study on the financing of REIPPPP also offers important lessons for thinking through South Africa's emerging hydrogen finance architecture, not least because

it shows how project-finance logics and demands for bankability have significantly transformed the ownership structures, risk allocations, and development outcomes of South Africa's renewable energy sector. Her analysis turns on the question of the state − whether the state can meaningfully steer a sector increasingly structured around the interests of finance − that is equally relevant for hydrogen.

This question also sits within the broader shift noted at the beginning of the article concerning the financialisation of development under the private turn, in which states are reconfigured to 'escort' private finance into de-risked development asset classes, effectively reorganising the public good around the needs of global investors. Seen through this lens, South Africa's hydrogen development trajectory suggests a deepening of these dynamics rather than a departure from them.

Wither financialisation?

Yet, it is necessary to acknowledge that the term 'financialisation' itself is contested. The most-cited definition, taken from Epstein, states: "financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein, 2005). Christophers (2015), however, contends that the concept's broad gesture to the contemporary importance of finance obscures as much as it explains. Bernards (2025) more emphatically suggests that "talking in terms of financialization is thus ultimately a dead-end if we want to understand the nature of contemporary capitalism" (Bernards, 2025).

Bernards' most recent book, *Fictions of Financialization* (2025), emerges from and builds on this dissatisfaction, and is written in the same spirit and seeking to make an analogous intervention to Reddy's critique of the MEC. As a means to move beyond the term's amorphous and inchoate definitional usage, Bernards − drawing on Lapavitsas (2009) − extracts an "orientating metanarrative" from how financialisation is deployed to evoke a particular story about the major transformations of the global political economy over the past half-century. First, financialisation names a distinct phase of capitalism since the late 1970s; second, it denotes a structural shift in capital accumulation from production to finance; third, it describes an expansionary logic through which ever more domains of social and natural life are converted into financial assets.

It is pertinent to note that MEC authors have similarly mobilised this metanarrative to make sense of the country's trajectory. Baker's (2015) analysis of REIPPPP, for one, uses Epstein's definition and traces how the

Port Nolloth, northwestern coast, Namaqualand.

Photo: Caitlin Rickerts

expansion of financial logics into the renewable energy sector − the growing power of financial actors, the rise of project-finance norms, and the demands for 'bankability' − reshape social and environmental outcomes.

With this metanarrative at hand, Bernards − like Reddy − directly challenges its empirical and conceptual bases, insisting that financialisation narratives rely on an imagined coherence of finance that rarely materialises in practice. The empirical chapters of the book are extensive and can't be reviewed substantially here; it is nevertheless worth drawing out the conceptual flaws Bernards lays against the way financialisation is often invoked across the literature he surveys. He does so by advancing a theoretical intervention that draws on Harvey's (2018) distinction between a "power-bloc" view of finance and a "process" view. The power bloc view, for Bernards, tends to depict finance as a dominant force that bends the world to its will, and assumes that financial deregulation or policy decisions favouring finance must be evidence of its dominance. Thus, it also tends to cast the state as a passive transmitter of finance capital's interests. Drawing on the work of Krippner (2011) and Copley (2022) − both of whom show that financialisation often arises unintentionally from crisis-management interventions, not from a unified

project of finance-capital − Bernards suggests reversing the arrows of causation and to "treat the actions of the state as an explanation for financial expansion" (2025, p. 162).

The full significance of this reversal will be taken up more substantially in the next section, particularly as it relates to the politics of the private turn and the state's role in cultivating it. For now, it is worth emphasising the significance of the parallel interventions made by both Bernards and Reddy. For the former, the central concern is that financialisation has become a ready-made explanation that serves as a theoretical shortcut that obscures how finance actually operates and circulates. Thus, just as the MEC framework − whether in its financialised or decarbonised variants − is criticised for becoming a shorthand for structural dominance, so too do invocations of financialisation risk functioning as a shorthand for the power of finance. For this article, the risk is that green hydrogen will be prematurely interpreted through the convergence of MEC and financialisation before an investigation of how finance is actually behaving in this sector, and how it is enabled or constrained by the state. The next section turns to emerging empirical evidence that challenges the assumptions of financialisation directly.

Where is the finance?

Much of the literature of the private turn in development finance − epitomised by what Gabor (2021) calls The Wall Street Consensus − tends to reproduce the very power bloc conception of finance that Bernards critiques. Across this literature, the expansion of private finance into arenas such as climate mitigation, biodiversity, infrastructure, and social provisioning is frequently read as the deliberate advance of a financial elite, with the state positioned largely as a conduit for the interests of global investors. However, as Bernards argues (2024; 2025), this reading is increasingly hard to sustain in light of finance capital's repeated indifference to the very projects meant to attract it. Taggart and Power (2024) have similarly discussed how the private turn in development has failed to meet its stated goal of mobilising investment, particularly in low-income countries. Taken together, these accounts indicate the need to treat these shortfalls not merely as anomalies but as central analytic objects through which the dynamics of financialised development can be grasped. Significantly, it raises important questions about the expansionary power of finance capital in relation to the private turn, as well as the state's embrace of de-risking strategies.

The *South African Climate Finance Landscape 2025* report (Meattle et al., 2025) provides empirical evidence to support this investigation. The report tracked an annual average of R188.3 billion in climate finance for

2022-2023, far below the requirements needed to meet the Nationally Determined Contribution (NDC) and net-zero targets, which will require at least "two to threefold increase in current climate finance, with estimated needs reaching up to ZAR 499 billion per year" (p. 9), demonstrating the limited mobilisation of finance toward these development projects. Energy accounts for the bulk of climate-related investment, averaging R139.5 billion per year (74.1%), largely directed toward renewable electricity generation (p. 9). Significantly, approximately 60% of total climate finance flows originated from domestic sources, while public sources (made up of bilateral and multilateral DFIs, foreign governments, and multilateral climate funds) account for 79.2% (p. 9).

On the hydrogen front, the *Hydrogen Insights 2024* report published by the Hydrogen Council (2024) notes that while announced investments in the hydrogen sector have grown to US$680 billion, there remains a significant investment gap of US$335 billion. In South Africa, available evidence indicates that the volume of committed hydrogen finance in South Africa remains both small and overwhelmingly public in origin. South Africa has made a substantial long-term commitment to its own Research and Development (R&D,) investing R1.4 billion into HySA since the programme launched in 2008 (PMG, 2025). The second major pool of committed finance is the SA-H2 Fund, whose raised capital presently comes almost entirely from public and development-finance sources: €50 million from the Dutch state-owned Invest International, €25 million from the European Union's Global Gateway instrument, and R656 million from South Africa's Public Investment Corporation (PIC), IDC and DBSA, totalling a committed fund of approximately R2.1-2.2 billion (IEA, 2025). International public funding beyond SA-H2 is most notably made up of Germany's €15 million grant to the HySHiFT sustainable aviation fuel project at Secunda (*Engineering News*, 2022).

What this shows is that quantified private capital commitments remain minimal for both climate-linked finance more broadly and green hydrogen in particular. Although the nascent nature of the green hydrogen industry may partly explain the hydrogen investment gap, the broader patterns outlined above suggest that, at the most basic level, efforts to mobilise private climate finance have failed on their own terms. Private commitments are difficult to quantify and source. A 2025 report by Just Share (2025) finds that South African asset managers' limited disclosure practices undermine their claims to responsible investment and hinder meaningful assessment of how they are performing. Nevertheless, the report also shows that South African asset managers significantly lag

behind global peers in responding to climate and biodiversity risks while also highlighting a sharp gap between managers' stated commitments to social development and a just transition, and the actual allocation of capital, which shows little evidence of such priorities. The crucial point, then, is that it is far from evident that finance capital is especially interested in 'maximising' opportunities to invest in development projects − hydrogen or otherwise. Thus, contrary to the dominant narrative of the private turn, the role of finance capital in driving shifts in development strategy is far less direct than some accounts may imply.

Sanlam − who jointly own Climate Fund Managers (CFM) with the Dutch Entrepreneurial Bank, FMO − has contributed R1.3 billion (approx. US$70 million) since 2017 to each of CFM's prior two blended finance funds (Climate Investor One and Climate Investor Two), representing just 0.093% of its R1.4 trillion total assets under management (Sanlam, 2024). CFM's Climate Investor Three (CI3), the blended finance vehicle dedicated to hydrogen-themed investments in Namibia and South Africa, is a paradigmatic 'Wall Street Consensus' project, structured to use public and concessional capital to unlock institutional investment.

CI3 is organised so that its money flows through separate investment windows: one dedicated to early-stage project preparation and another to later-stage construction finance. The early-stage development tranche is funded entirely by European donor commitments of €150 million and is designed to absorb first-loss and early-stage risks, turning pre-feasibility concepts into investible projects (CFM, 2025).

CI3 then mobilises construction-phase finance through a set of "risk-tiered Equity Tranches" (CFM, 2025), which are explicitly structured to accommodate different classes of investors, such as DFIs and impact investors. Commercial institutional investors are only entering at the most senior and protected tier. The lower-ranking tranches, which are made up by donors and DFIs, absorb potential losses and protect the senior tranche, thus creating a risk–return profile acceptable to pension funds and insurance companies. The South African-specific fund, SA-H2, has received R656 million (approximately US$37 million) in pledged commitments from the PIC, IDC, and DBSA, while no private institutional investors have yet been publicly disclosed (Creamer, 2025).

The tiered structure is designed to make investment palatable for private capital by absorbing risk. Nevertheless, even with these de-risking mechanisms in place, private participation in blended finance remains limited globally. The *State of Blended Finance* 2025 report (Convergence, 2025) reveals the limited mobilisation of blended finance to least-

developed countries, showing that private sector investment flows from developed to developing countries comprised only 2% of the financing needs for Sustainable Development Goals in 2024. The report further acknowledges that despite growing advocacy for blended finance, the issue of attracting genuine private investment persists. These findings provide clear evidence that even well-designed de-risking structures have not overcome the fundamental disinterest of private capital.

More importantly, this curious "presence-in-absence" (Bernards, 2024) of private finance necessitates a reframing of the role of the state in the private turn. In two interviews conducted earlier this year what becomes abundantly clear is that instead of a coherent 'decarbonised, financialised MEC' in which state institutions act as transmission belts for financial interests, the empirical picture is one of a fractured state labouring to coax a fundamentally disinterested financial sector, even as its own institutional fragmentation prevents it from assembling the conditions required for investment. Even amongst advocates for the role of private finance, far from facilitating an influx of green investment, national and provincial officials find themselves engaged in a continuous labour of making projects appear investible.

Mining on the Northern Cape coastline.

Photo: Stephanie Paula Borchardt

Dominant framings of green hydrogen…risk obscuring more than revealing South Africa's present conjuncture.

Yet, as a member of the Western Cape Provincial Treasury acknowledged, these architectures remain aspirational in the absence of investor appetite (provincial treasury official, Cape Town, interview, 20 June 2025). The problem, therefore, is not that finance is excessively powerful, but that it is fundamentally reluctant to engage, and the state has few other options than to try and steer private finance to projects that it either does not have a history of investing in or is reluctant to support. Significantly too, the state's turn to blended finance is explained not as a mechanism through which finance capital dominates development, but as a strategy of last resort: a response to fiscal exhaustion, institutional fragmentation, and the inability of the provincial or national state to fund long-term infrastructure directly.

But even the labour of rendering projects investible is itself carried out inconsistently, undermined by the state's own internal divisions and competing mandates. With respect to the spatial conditions of investibility that SEZs supposedly secure, it was explained that they play virtually no role in rendering hydrogen projects bankable (former SEZ investment officer, interview, 22 October 2025). SEZs are stranded between the Department of Trade, Industry and Competition (DTIC), National Treasury, South Africa Revenue Service (SARS), and provincial governments, each with competing mandates and limited coordination capacity. The tax incentives marketed by the DTIC can only be authorised by the National Treasury. Treasury's approval, however, is governed by criteria that privilege traditional manufacturing activities rather than hydrogen's technical needs.

Provinces, meanwhile, do not have the fiscal autonomy to mediate or resolve these misalignments. Even if these incentives can be formalised, the spatial parameters of SEZs render them largely irrelevant for hydrogen projects. Their geographic footprints are too small to accommodate the scale of renewable energy generation required for co-located electrolysis, and relying on wheeled electricity through the existing coal-dominated grid undermines claims of 'greenness,' jeopardising European Union certification and therefore offtake. Thus,

despite South Africa's widely cited 'comparative advantages' of solar resources, land availability, and the success of REIPPPP, green hydrogen cannot be converted into an investible proposition because neither binding offtake agreements nor credible state guarantees exist. The result is a spatial-industrial infrastructure that not only fails to de-risk investment but actively reproduces uncertainty.

These sentiments, in combination with the data presented above, provide an empirical counterweight to the assumptions embedded in both MEC and financialisation literatures. In neither case do we see a state captured by or aligned with a powerful bloc of finance capital. Instead, we find a state fragmented across jurisdictions, struggling to coordinate itself, and forced to undertake continuous labour to render projects 'bankable' for financiers who remain either ambivalent or actively disinterested. Private finance does not discipline the state; it eludes it.

Conclusion

Dominant framings of green hydrogen − whether cast through the MEC, or through narratives of financialisation − risk obscuring more than revealing South Africa's present conjuncture. Rather than assuming coherent blocs of capital or unified state-finance alliances, I have sought to reopen the empirical terrain to examine green hydrogen outside of these dominant paradigms.

Both the MEC and financialisation literatures share, in different ways, a power bloc view that presumes the coherence of finance capital and positions the state as its conduit. This article has argued that such readings foreclose inquiry at precisely the moment inquiry is most needed. The empirical data presented points not to a resurgent MEC nor to an ascendent financialised green transition, but to persistent financing gaps and a state struggling to compensate for it. Treating this shortfall as analytically central, rather than peripheral, reveals the limits of power bloc thinking and the need to understand why finance fails to enter even strategically prioritised sectors. The very difficulty of securing investment illustrates how tenuous the assumed coherence of 'green finance' is. The state, too, faces its own internal fragmentation over overlapping mandates, misaligned incentives, and limited fiscal capacity that together undermine its ability to construct the conditions of investibility. The labour of de-risking − which is central to both MEC and financialisation narratives − is revealed here as institutionally fragile and not as a mechanism of financial domination, but as a response to structural constraint.

Moreover, the financing gap that has been centred here is not merely a sign of failure but should be taken as a generative analytic entry point for future research. Following Reddy, it signals the need for renewed empirical attention to how interest groups actually form, how state-business relations are negotiated, and how power is exercised across an emerging hydrogen economy. Ultimately, what green hydrogen reveals is not the emergence of a new green MEC nor the triumphant advance of financialised development, but the fragility of the institutional arrangements through which the continuities of these systems of accumulation are imagined.

South Africa's green transition cannot be adequately understood through inherited frameworks alone. This article has taken a first step toward that reorientation. The task ahead is to deepen empirical inquiry into the political economy of green hydrogen, not to confirm the outlines of familiar paradigms, but to open the space for what is actually unfolding.

REFERENCES

Ashman, S., Fine, B. & Newman, S. (2011). The Crisis In South Africa: Neoliberalism, Financialisation and Uneven and Combined Development. *Socialist Register*, 47, 174-195.

Baker, L. (2015). The evolving role of finance in South Africa's renewable energy sector. *Geoforum*, 64, 146–156. https://doi.org/10.1016/j.geoforum.2015.06.017

Baker, L. & Burton, J. (2023). From the minerals-energy complex to a just transition? In S. Mohammed, A. Ngoma & B. Baloyi (eds.). *The Evolving Structure of South Africa's Economy: Faultlines and Futures*. Mapungubwe Institute for Strategic Reflection.

Baloyi, B. & Krinsky, J. (2022). *Towards a Just Energy Transition: A Framework for Understanding the Just Energy Transition Partnership on South Africa's Just Transition*. https://iej.org.za/wp-content/uploads/2023/03/IEJ-policybrief-ClimateFinance1.pdf

Bernards, N. (2024). Where is finance in the financialization of development? *Globalizations*, 21(1), 88-102. https://doi.org/10.1080/14747731.2023.2222481

Bernards, N. (2025). *Fictions of Financialization: Rethinking Speculation, Exploitation, and Twenty-First-Century Capitalism*. Pluto Press.

Christophers, B. (2015). The limits to financialization. *Dialogues in Human Geography*, 5(2), 183-200. https://doi.org/10.1177/2043820615588153

Climate Fund Managers (CFM). (2025, February 20). CFM Forms Energy Transition and Green Hydrogen Infrastructure Fund Climate Investor Three with EUR 150 million Capital Commitments. https://climatefundmanagers.com/2025/02/20/cfm-forms-energy-transition-and-green-hydrogen-infrastructure-fund-climate-investor-three-with-eur-150-million-capital-commitments/

Convergence. (2025). State of Blended Finance Spring 2025. https://www.convergence.finance/resource/state-of-blended-finance-2025/view

Copley, J. (2022). *Governing financialization: The tangled politics of financial liberalization in Britain*. Oxford University Press.
Creamer, M. (2025, June 12). South Africa's green hydrogen sector boosted by big-ticket funding commitments. *Engineering News*. https://www.miningweekly.com/article/south-africas-green-hydrogen-sector-boosted-by-big-ticket-funding-commitments-2025-06-12
Department of Science and Innovation (DSI). (2020, October 19). *Science and Innovation on South Africa's Platinum Valley project*. https://www.gov.za/news/media-statements/science-and-innovation-south-africas-platinum-valley-project-19-oct-2020
Department of Science and Innovation. (2022). *Hydrogen Society Roadmap for South Africa 2021*. https://www.dsti.gov.za/index.php/resource-center/reports/strategies-and-reports/3574-hydrogen-society-roadmap-for-south-africa-2021
Department of Trade Industry and Competition (DTIC). (2023). *Green Hydrogen Commercialisation Strategy for South Africa*. https://www.thedtic.gov.za/green-hydrogen-commercialisation-strategy/
Engineering News. (2022, December 12). Germany extends €15m grant in support of Secunda green hydrogen project. *Engineering News*. https://www.engineeringnews.co.za/article/germany-extends-15m-grant-in-support-of-secunda-green-hydrogen-project-2022-12-12
Epstein, G. (2005). Introduction: Financialisation and the World Economy. In G. Epstein (ed.). *Financialisation and the World Economy*, pp. 3-16. Edward Elgar Publishing Ltd.
Fine, B. & Rustomjee, Z. (1996). *The Political Economy of South Africa: From Minerals-Energy Complex to Industrialization*. Westview Press.
Gabor, D. (2021). The Wall Street Consensus. *Development and Change*, 52(3), 429-459. https://doi.org/10.1111/dech.12645
Gabor, D. & Sylla, N.S. (2023). Derisking Developmentalism: A Tale of Green Hydrogen. *Development and Change*, 54(5), 1169-1196. https://doi.org/10.1111/dech.12779
Harvey, D. (2018). *The Limits to Capital*. Verso.
Human, L. (2024, March 7). Hydrogen project splits Richtersveld community. *GroundUp*. https://groundup.org.za/article/richtersveld-community-split-over-hydrogen-project/
Hydrogen Council. (2024). *Hydrogen Insights 2024*. https://hydrogencouncil.com/en/hydrogen-insights-2024/
International Energy Agency (IEA). (2025, September 11). Hydrogen Investment Fund – SA-H2 Fund. https://www.iea.org/policies/27621-hydrogen-investment-fund-sa-h2-fund (accessed 15 November 2025).
Just Share. (2025). *Asset Manager Responsible Investment Benchmark 2025*. https://justshare.org.za/wp-content/uploads/2025/10/Asset-Manager-RI-Benchmark-2025.pdf
Krippner, G. (2011). *Capitalizing on Crisis: The Political Origins of the Rise of Finance.* Harvard University Press.
Lapavitsas, C. (2009). Financialized capitalism: Crisis and financial expropriation. *Historical Materialism*, 17(1), 114-148.
Meattle, C., Taylor, M., Price, M., de Aragão Fernandes, P., Johansson, L., Munkombwe, L., Gwebu, L. & Koopman, S. (2025). *The South African Climate Finance Landscape 2025.* https://www.climatecommission.org.za/publications/the-south-african-climate-finance-landscape-2025

Northern Cape Economic Development Trade and Investment Agency (NCEDA). (2021). *Northern Cape Green Hydrogen Strategy*. https://www.ncgh2.co.za/

Parliamentary Monitoring Group (PMG). (2025). *Question NW4721 to the Minister of Science, Technology and Innovation*. https://pmg.org.za/committee-question/32382/

PRDW. (2022). Boegoebaai Port Project Business case review: Preliminary Results. https://www.etenders.gov.za/home/Download/?blobName=5f516016-1a04-44c4-a16d-a82db7147200.pdf&downloadedFileName=Annexure%20S-%20Boegoebaai%20Business%20Case%20Validation.pdf.

Quitzow, R. & Lentschig, H. (2025). Introduction. In R. Quitzow & Y. Zabanova. (eds.). *The Geopolitics of Hydrogen Volume 2: Major Economies and Their Strategies*. Springer. https://doi.org/10.1007/978-3-031-84022-7

Reddy, N. (2025). The Minerals Energy Complex in South Africa: an Empirical Debunking. *Development and Change*, 1-29. https://doi.org/https://doi.org/10.1111/dech.70031

Sachs, M. (2024). Strategic reflections on South Africa's economy. *South African Journal of Science*, 120(7/8). https://doi.org/10.17159/sajs.2024/18034

Sanlam. (2024, March 27). 2024: The year of sustainable investment. https://www.sanlaminvestments.com/sanlam-intelligence/institutional-insights/2024-the-year-of-sustainable-investment/

Taggart, J. & Power, M. (2024). Rendering development investible: The anti-politics machine and the financialization of development. *Progress in Human Geography*, 48(5), 552–574. https://doi.org/10.1177/03091325241240741

Tan, C. (2022). Private Investments, Public Goods: Regulating Markets for Sustainable Development. *European Business Organization Law Review*, 23(1), 241-271. https://doi.org/10.1007/s40804-021-00236-w

INTERVIEWS

Provincial treasury official –Cape Town, (20 June 2025).
Former SEZ investment officer – Cape Town, (22 October 2025).

ACKNOWLEDGEMENTS

The National Research Foundation's (NRF's) financial assistance towards this research is hereby acknowledged (Grant no: 98765). Opinions expressed and conclusions arrived at are those of the author and are not necessarily to be attributed to the NRF.

BIOGRAPHY

Robert Nassen Smith is a doctoral candidate with the DSTI/NRF SARChI Chair in the Sociology of Land, Environment and Sustainable Development, in the Department of Sociology and Social Anthropology, Stellenbosch University. His research explores the political economy of South Africa's energy transition, with a particular focus on green hydrogen.