South African Institute of Electrical Engineers



# FINDING PATHWAYS TO A DECARBONISED POWER SECTOR IN SOUTH AFRICA

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**A Power Sector Decarbonisation Report by the National Business Initiative (NBI), Business Unity South Africa (BUSA) and Boston Consulting Group (BCG) shows that it is possible for South Africa to decarbonise its economy, by around 2050, and looks at ways to ensure a just transition that is economically, socially and environmentally sustainable and which leaves no one behind.**

**Johannesburg, August 11, 2021—**As a country with one of the most emissions-intensive power sectors in the world, and a nation that is particularly vulnerable to the impacts of climate change, South Africa understands the need to transition its economy and to decarbonise, as well as to build resilience to the impacts of climate change. The central finding of a new report, *Decarbonising South Africa's Power System,* being released today by the National Business Initiative (NBI), together with Business Unity South Africa (BUSA) and Boston Consulting Group (BCG), is that South Africa can fully decarbonise its power sector.

The *Power Sector Decarbonisation Report* is part of the NBI's Just Transition and Climate Pathways project and is the first in a series of reports on decarbonisation pathways for sectors of the South African economy.

The NBI, in partnership with BUSA and BCG, have worked with leaders in business, government, civil society, and academia to identify decarbonisation pathways for key economic sectors aligned to an aspiration of achieving net-zero emissions by 2050. The report also considers how to achieve a just transition that is economically and environmentally sustainable and which leaves no one behind.

"Results from the work to date show that this can be done – but that efforts must begin now. Timing is of the essence and there is no time like the present to create the regulatory and policy environment to support transitioning the economy. This is why business has committed to supporting South Africa's commitment to find ways to transition to a net-zero emission economy by 2050," says Joanne

Yawitch, NBI CEO.

Climate change is undoubtedly one of the defining challenges of today, the world is facing increasing risks to natural and human systems, with the consequences of the growing frequency of extreme weather events already apparent. South Africa is one of the countries at greatest risk. Rising temperatures, increased aridity and rainfall variability will have significant consequences, not only for the country's agricultural sector and its biodiversity, but also the health and wellbeing of its people.

The case for change is undeniable and is additionally driven by trade risk as South Africa's key trading partners implement their low-carbon commitments, with some, like the European Union planning to introduce carbon border tax adjustments. This will create mounting pressure for South Africa, especially in key economic export sectors like mining, manufacturing and agriculture.

**A balancing act: mitigating risks to rapidly move to a resilient, renewable future**

"South Africa has a unique balancing act that it needs to navigate: the country must carefully juggle the urgent need for economic transition and growth with its reality of a high rate of inequality, poverty and unemployment and its dependence on a fossil fuel-based energy system in order to effectively mitigate risks and make a just transition to a low-carbon future that is resilient and inclusive," says Lucas Chaumontet, Managing Director and Partner at BCG, Johannesburg.

Making this transition, particularly in the predominantly coal-based electricity sector, will be complex. The report identified 10 key findings around the future of the power sector, and decarbonisation, in South Africa:

1. By leveraging its world class renewable energy sources, South Africa can fully decarbonise its power sector, while unlocking the opportunity to stimulate economic growth and job creation.
2. South Africa's complementary wind and solar resources are among the best renewable energy resources in the world, available on vast amounts of unused land.
3. By 2050, a renewables-dominated power system is the most cost-competitive system for South Africa.
4. Transitioning South Africa's power system to net-zero would require the deployment of approximately 150GW wind and solar capacity by 2050 – this is almost four times the total capacity of South Africa's coal power plants today – and an investment of about ZAR3 trillion within the next 30 years, requiring significant expansion and upgrade to the transmission and distribution infrastructure.
5. To reach net-zero by 2050, South Africa would need to speed up deployment of renewable energy capacity; at least 4GW of renewables will need to be installed every year – roughly ten times the current pace of new-build.
6. Natural gas as a transition fuel will be critical in this journey – initially growing as an enabler to the integration of wind and solar into the power system at scale, gas will then be gradually replaced by other technologies to reach net-zero emissions.
7. The transformation of South Africa's power system can result in net-positive job creation, if South Africa can successfully localise elements of the renewable energy value chain and effectively re-skill the workforce.
8. South Africa's world class renewable energy resources also allows a highly competitive production cost of H2 below 1.60 $/kg by 2030, putting South Africa as potentially one of the largest global exporters of green H2 and green fuels.
9. To help fund this journey and ensure competitive cost of capital, access to international green finance will be required to succeed.
10. To enable this pathway, cross-sector collaboration and a conducive policy environment will be critical.