

Study shows SA is well placed to lead the production of zero carbon shipping fuels

A study by Ricardo and Environmental Defense Fund for the P4G Getting to Zero Coalition Partnership finds that South Africa holds an untapped opportunity to supply the global shipping industry with zero-carbon fuels.

The production of green hydrogen-derived fuels can help to meet decarbonization targets and act as a catalyst for the country's economy - opening new export markets, supporting an equitable transition, and creating the jobs of the future. The study, *South Africa: fueling the future of shipping - South Africa's role in the transformation of global shipping through green hydrogen-derived fuels*, explores the economic and environmental potential for the implementation of zero-carbon shipping fuels through the shipping sector of South Africa.



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International maritime transport is on the verge of an energy revolution. Within this decade, the shipping industry must start to replace traditional heavy bunker fuel with new zero-carbon shipping fuels generated from renewable energy to meet decarbonisation targets. South Africa has vast renewable energy sources, and the country has committed to reach net-zero emissions by 2050.

"Our study shows that South Africa has an abundance of renewable energy potential. It is enough to supply the country's domestic electrical demand as well as the production of zero-carbon fuels to supply commercial vessels refuelling in its international ports. The adoption of zero-carbon propulsion technologies at South Africa's ports could attract investment of between 122 and R175bn in onshore infrastructure by 2030. All that is needed to unlock this investment is the right policy incentives set at the International Maritime Organization," says Aoife O'Leary, director, International Climate, Environmental Defense Fund.

Zero-carbon fuel distribution

The report finds that South Africa's geographical location and economic development make it particularly well suited to distribute zero-carbon fuels for the South African shipping sector, and export to international markets.

"South Africa has the opportunity feed into the growing global demand for decarbonised materials, products and services by offering bunkering capability for zero carbon fuels to vessels of all types. With access to busy shipping routes, abundant renewable energy potential, and experience handling these and other fuels, South Africa is in a great position to produce the shipping fuels of the future, access a growing global market, and thus catalyze a new low carbon economy," says Olivia Carpenter-Lomax, future energy specialist and project lead, Ricardo.

"It is easy to make a generalisation that many developing countries are positioned to gain from a future hydrogen economy and hydrogen-derived fuel use in shipping. This report goes into the important specifics of that opportunity for South Africa and finds not just why this is necessary, but the numerous reasons to be optimistic and seek to accelerate progress towards this future," says Tristan Smith, reader in energy and shipping, University College London.

Several zero-carbon fuels can potentially be used in shipping. The abundance of renewable energy resource in South Africa means that shipping fuels can be derived from renewable electricity generation.

"The report identifies hydrogen and ammonia as the most suitable options for large commercial vessels while South Africa's small domestic vessels can be supplied through direct electrification using onboard batteries and motors. Shipping's demand for zero-carbon fuels could provide a constant long-term revenue stream, which is an attractive feature for investment," says Ingrid Sidenvall Jegou, project director, Global Maritime Forum.

Inclusive, globally scalable transition

The adoption of zero-carbon shipping fuels depends on global market requirements. In order for a successful adoption of zero-carbon shipping fuels, South Africa should look globally. Vessels adopting zero-carbon fuels bunkering in various ports around the world must have the opportunity to refuel along their journey.

"The transition to a zero-emission future is for and about people. Achieving an inclusive, globally scalable transition requires a systems-oriented, transparent approach. This requires standards to be set by the maritime industry to encourage the zero carbon transition not only for vessels but for global ports. South Africa can be a part of driving international standards as an important player in the international shipping sector and as a pioneer in zero-carbon fuels," says Margi Van Gogh, head of supply chain and transport, The World Economic Forum.

Adopting zero-carbon shipping fuels has significant benefits and synergies for South Africa far beyond the shipping sector and is in line with South Africa's commitment to reach net-zero carbon by 2050.

Zero carbon fuels may also be used in wider industries such as fertilizer and steel production and could act as a catalyst to achieving South Africa's overall carbon commitments. There is the potential to create a wide range of jobs within the supply chains of zero-carbon fuels, which can support South Africa's just and equitable transition as jobs in coal mining and coal-based electricity generation decrease.

The report highlights the ports of Saldanha Bay, Ngqura (Coega) and Richards Bay as great examples of how South

African can capitalize on a zero-carbon fuel transition due to established shipping routes and significant port export hubs.

"Zero carbon shipping presents South Africa with the opportunity to usher in 'a new economy in a new global reality', to quote President Ramaphosa in our national Economic Reconstruction and Recovery Plan. For this, the SBIDZ supports this research in its efforts to stimulate solutions and investment into a global megatrend that is becoming the agenda of our time.

"It will require sustainable capital investment into new technologies, new vessel designs, new landside infrastructure and a shake-up of the services and logistics sub-sectors. This is exactly the work the SBIDZ is vested in as a catalyst for economic growth and transformation, and the unique potential of the Port of Saldanha Bay as the first Freeport in South Africa," says Kaashifah Beukes, chief executive officer, Saldanha Bay Industrial Development Zone.

[Download the full report.](#) South Africa: fueling the future of shipping - South Africa's role in the transformation of global shipping through green hydrogen-derived fuels [here](#).

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