

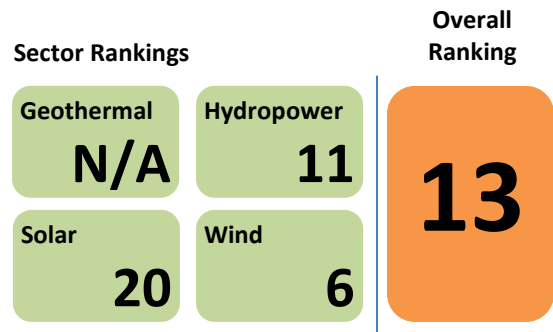


2016 Top Markets Report **Renewable Energy** Country Case Study

South Africa

Type: Small Market; Large Market Share

South Africa is a growing renewable energy market with major upside potential for U.S. exporters. The threat of continued power shortages is a strong driver for government commitment to renewable energy investment and technology solutions from foreign suppliers. Much of South Africa’s upside potential depends on the Renewable Energy Independent Power Producer Procurement Program (REIPPP) – a successful program for independent power producers that provides an open playing field for foreign competitors. REIPPP provides opportunities for U.S. renewables suppliers that rival major markets around the world.



Over the past five years, South Africa has developed a renewable energy independent power producer (IPP) program that has proven very successful in bringing renewable energy projects to commercial operation, with just over 2,000MW operating today, out of 6,000MW planned or under construction. These projects include wind, solar (both PV and concentrating solar power) small hydro, landfill gas and biogas as sources of energy.

After more than four bid rounds under REIPPP, the cost of wind and solar technology has declined over 70 percent and is now cost-competitive with new build coal and gas.¹ These technologies are also successful in South Africa as they are able to be built and scaled-up quickly, a feature central to the government’s plan to bring the energy capacity to a more sustainable level in the short-term.

The IPP office within the South African Department of Energy (DOE) is responsible for overseeing the REIPPP auctions and, ultimately, the procurement of

energy from each IPP. All REIPPP projects sell their electricity to the State owned electrical utility, Eskom. The National Energy Regulator of South Africa (NERSA) approves electricity rates based on submissions from Eskom. As retail electricity rates continue to rise, renewable energy is becoming increasingly cost-competitive. While Eskom has commissioned the addition of new coal-fired plants, coal as a percentage of the overall energy mix is expected to decrease in coming years as penetration of renewables increases.

Overview of the Renewable Energy Market

The utility-scale renewable energy market in South Africa has taken off in recent years, attracting \$4.6 billion in new investment in 2014 alone.² In January 2015, South Africa’s Minister of Energy announced another doubling of goals for the renewable energy generation capacity in the country.³ Over the next few years, South Africa can expect an additional \$16

billion of investment in renewables, thanks to its reverse auctioning program.⁴ Since the start of REIPPP, wind projects accounted for slightly over half of total capacity, followed by solar PV (30 percent), solar thermal (14 percent), with the balance comprised of landfill gas and biomass.

South African energy policies are guided by the Integrated Resource Plan (IRP), the last of which was issued in 2011; an update is expected in 2016. The 2011 IRP included a strong mix of renewables, and it is likely the version to be released this year will continue this trend, highlighting the potential for renewables development.

A tradeable carbon tax is under consideration, which when combined with electricity price adjustments, will help to bring renewable technologies in line with the cost of existing generation sources.⁵ These policies, coupled with a government push to reach a 97 percent electrification rate by 2025 means that renewable technologies will play an increasing role in the energy mix of the country.

Competition in the REIPPP procurement system has driven down the prices across all technologies. REIPPP allocates specific MW targets per renewable energy technology, so there is potential for U.S. company participation across all resource-viable and cost-competitive renewable technologies.

The REIPPP program has successfully concluded four rounds of public tenders totaling more than 6,000 MW procured. An additional announcement of preferred bidders—as a carry-over part of Round 4—is scheduled to be announced in the second quarter of 2016 with plans to announce the opening of the Fifth Round to be made shortly thereafter. The success of the REIPPP program has already led to an announcement by the Minister of Energy to expand the program into subsequent rounds to include another 6,300 MW of renewables technologies.

Challenges and Barriers to Renewable Energy Exports

South African local content requirements (LCRs) on REIPPP bids have increased in subsequent rounds. For example, the LCR for REIPPP Bid Round 3 was 45 percent. Additionally, DOE has implemented a black identity shareholder requirement, which mandates that a firm or project have black South Africans as

shareholders. This is part of the Government's larger mandate under its Broad-Based Black Economic Empowerment (BBBEE) program which seeks to redress the inequalities of Apartheid by giving certain previously disadvantaged groups greater economic privileges. Enterprises in South Africa are assessed on an annual basis by receiving a federal scorecard based on benefits they provide to South African communities including employment preference to disadvantaged groups, skills development, equity ownership and management, socioeconomic development, enterprise development and preferential procurement.

In addition, in order to serve the rapidly growing generation capacity, South Africa will need to address its transmission losses and improvement of the national grid.⁶ There has been a lack of investment into the network, which has already been a contributing factor to project delays, including the bids from REIPPP's November 2014 fourth round auction. This, coupled with concerns in the conventional power sector over Eskom's financial viability, may soften lofty expectations of renewables in the country.

Opportunities for U.S. Companies

Current energy shortages are slowing economic growth in Africa's second largest economy. Due to the need for energy, South Africa is currently seeking power projects that can go online quickly to boost energy supplies. Any future development should enjoy relatively easy access to international financial support.

Another opportunity in the South African market is the energy poverty gap of over 3.5 million people without access to reliable electricity (approximately 8 percent of the population in 2012).⁷ Increasing electricity access to these people will require infrastructure upgrades including grid expansion, as well increased distributed generation. Renewable energy companies would be well positioned to supply technologies for these smaller-scale electrification efforts.

Additionally, many large industries in South Africa, such as the mining and construction sectors, are looking to alleviate the supply-demand mismatch that had led to load-shedding (rolling blackouts). Many of these industries have traditionally relied on

diesel-powered back-up generators to run while the electricity is off, however, distributed generation using renewables is becoming increasingly attractive as renewables require no fuel inputs and typically function during working hours, as is the case for solar PV. In these cases, U.S. companies should work with these large industries to facilitate deals outside of the bounds of REIPPP.

Several municipalities in South African, including Johannesburg and Cape Town, have expressed an interest in developing their own separate energy sources. Rooftop solar has been identified as a preferred renewable source to fill this gap. However, with 95 percent of the South African grid being controlled by Eskom, the market is awaiting new federal regulations that would create the framework for municipalities to source their own energy and be able to feed into the national grid.

Wind

South Africa's onshore wind sector, under the South Africa Wind Energy Programme (SAWEP), is expected to contribute the largest share to renewables development in South Africa in the near future. The potential for the industry will likely be tempered by a continued reliance on coal-fired plants for electricity production and the need to expand transmission lines to more areas suited for wind power.

Hydropower

South Africa has several small hydroelectricity facilities and there is a great potential for additional small plants in the Eastern Cape and KwaZulu-Natal. South Africa's participation in the Southern African Power Pool (SAPP) of the Southern African Development Community (SADC) allows it to trade electricity freely between SADC member countries, including those with larger hydropower sectors, but South Africa's electrical grid is many times larger than any of its neighbors, and cross border trade is a small portion of South Africa's energy mix.

Solar

ITA expects strong growth in South Africa's solar industry, on both a utility scale and in commercial, industrial, and residential rooftop applications. While much of the new utility-scale generation has focused on PV technologies, several companies have been successful in introducing Concentrated Solar Power (CSP) solutions into South Africa.

In addition to solar developers, South Africa is also attracting manufacturers that are interested in establishing production facilities. For example, in 2015, SunPower broke ground on a solar PV factory in Cape Town that it hopes will generate 160 MW annually.⁸

¹ Business Monitor International, "South Africa Renewables Report Q2 2016," January 2016.

² Bloomberg New Energy Finance, "H1 2015 Sub-Saharan Africa Market Outlook," 19 February 2015.

³ Monteiro, Ana. Bloomberg Business, "South Africa Doubles Plans for Renewable Energy on Program Wins." December 2014. <http://www.bloomberg.com/news/articles/2014-12-12/south-africa-doubles-plans-for-renewable-energy-on-program-wins>.

⁴ Bloomberg New Energy Finance, "H1 2015 Sub-Saharan Africa Market Outlook," 19 February 2015.

⁵ Republic of South Africa, "Draft Carbon Tax Bill."

<http://www.treasury.gov.za/public%20comments/CarbonTaxBill2015/Carbon%20Tax%20Bill%20final%20for%20release%20for%20comment.pdf>

⁶ Business Monitor International, "South Africa Renewables Report Q2 2016," January 2016.

⁷ International Energy Agency, "Africa Energy Outlook 2014."

http://www.iea.org/publications/freepublications/publication/WEO2014_AfricaEnergyOutlook.pdf

⁸ PV Magazine, "SunPower to build 160 MW panel fab in South Africa." http://www.pv-magazine.com/news/details/beitrag/sunpower-to-build-160-mw-panel-fab-in-south-africa_100017053/#axzz43fToXf3M