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The Permian Whitehill Formation (Karoo Basin, South Africa): deciphering the complexity and potential of an unconventional gas resource

Annette E. Götz
Rhodes University, Grahamstown, South Africa (a.gotz@ru.ac.za)

A key energy policy objective of the South African government is to diversify its energy mix from coal which constitutes 85% of the current mix. Gas will play a key role in the future South African economy with demand coming from electricity generation and gas-to-liquids projects.
A study on world shale reserves conducted by the Energy Information Agency (EIA) in 2011 concluded that there could be as much as 485 Tcf recoverable reserves of shale gas in the South African Karoo Basin. However, the true extent and commercial viability is still unknown, due to the lack of exploration drilling and modern 3D seismic.
The present study compiles existing data from literature review and new data from outcrop analogue studies on the Permian Whitehill Formation, the main target formation for future shale gas production, including thickness, depth, maturity, TOC, lithologies, sedimentary and organic facies, and dolerite occurrence to provide a first reference dataset for further investigations and resource estimates.