

Increased R&D Crucial for South Africa's Energy Future

Inadequate coordination, insufficient funding and skills shortages threaten South Africa's energy future.

These are among the findings of a consensus study entitled *The State of Energy Research in South Africa* released by the Academy of Science of South Africa.

The study aimed to improve the understanding of the energy research landscape in South Africa in order to support the South African National Energy Development Institute (SANEDI) to fulfil its functions in terms of energy research support and co-ordination. The study is seen as an important baseline assessment that can inform future energy research investment in the country.

According to the study report, investments in coal research and development are inadequate despite the fact that coal will dominate South Africa's energy supply for the foreseeable future. Clean coal technologies are also not sufficiently funded, carbon capture and storage research programmes are insufficient and the bulk of coal research and development (R&D) is being performed by only four entities.

Key recommendations of the study relate to a formal coordination mechanism to guide energy and energy-related R&D investment, increased funding and the prioritisation of human capital development in the sector.

The study proposes that government departments with an energy budget establish a formal coordination mechanism, in accordance with the recommendations of the NDP, with a mandate to steer, plan and coordinate energy and energy-related R&D funded with public money, eliminate gaps and overlaps, taking into account national imperatives and priorities.

It is also recommended that an Energy Research and Development Desk be established to give effect to a coordination mechanism.

With regard to funding, the study recommends that a more substantial portion of the national R&D vote should be allocated to energy and energy-related research in line with national priorities. At least 1.5% of the fiscal appropriation should be earmarked for R&D support with a higher proportion of this allocated for energy than at present.

A recurring finding of the study is that human capital development in energy and energy-related research is insufficient despite the prominence given to energy in policy documents. It is recommended that human capital development for energy areas aligned with the national energy agenda needs to be prioritised through the establishment of more research chairs, centres of competence and centres of excellence.

Other findings and recommendations of the study are:

- Gas: Significant R&D is needed in shale gas, which has the potential to provide a lower carbon medium-term energy future for South Africa. Research is needed on exploitation of the resource, techno-economic evaluations of exploitation pathways, environmental and other risks, risk abatement strategies and beneficiation strategies.
- Renewable energy: Significant R&D investment is needed to meet national targets and the penetration of renewable energy in South Africa should be increased through appropriate mechanisms. Better coordination is needed to avoid fragmentation of R&D efforts.
- Nuclear energy: The implications of delaying the nuclear decision in terms of the country's capability to support (any part of) the nuclear cycle, have to be evaluated and compared with alternative energy supply options.
- Energy efficiency: In spite of energy efficiency measures, the commitment to and adoption of energy efficient measures should be increased, *inter alia* by improving awareness and understanding of energy efficiency and effective incentives for participation in energy saving.
- Energy economy and policy: Comprehensive techno-economic feasibility studies are needed to inform the national energy R&D agenda, as well as the planning and legislative environment needed for effective implementation on a path to lower carbon and energy intensity.

The study is available on www.assaf.org.za

ENDS

The Academy of Science of South Africa (ASSAf) is mandated to provide evidence-based advice to government on matters of critical national importance.

The study has followed the traditional Academy consensus study methodology, in which a panel of experts, guided by the panel chair, undertakes the study on a voluntary basis. The advantage of this multiperspective approach is that it is free of partisan interest. As a result, the findings and recommendations are the best considered outcomes in the circumstances.

This report is the result of the collaborative work of a six-member ASSAf study panel. The study panel members were: Professor Frederik van Niekerk (Chair), Professor Susan Harrison, Dr Nelson Ijumba, Dr Steve Lennon, Professor Regina Maphanga and Professor Wikus van Niekerk.

Issued by:

Patricia Scholtz

Communication Manager

Academy of Science of South Africa

Tel +27 12 349 6618

Cell + 27 82 550 0757

E-mail: patsy@assaf.org.za

www.assaf.org.za

About the Academy of Science of South Africa (ASSAf)

The Academy of Science of South Africa (ASSAf) is the official national academy of science and represents the country in the international community of science academies. As collective resource, the Academy enables the generation of evidence-based solutions to national problems.

The strategic priorities of the Academy are closely matched to those of the nation, focusing particularly on the need for the greatly enhanced availability of high-level human capital and an increased use of the country's best intellectual expertise in generating evidence-based policy advice that is practical and feasible.