

# ENABLING ENERGY EFFICIENCY IN SOUTH AFRICA'S COMMERCIAL BUILDINGS



South Africa is leading a number of efforts to support a thriving economy while also reducing energy use. Increasing energy demand coupled with a highly energy intensive economy and energy inefficient industries provide the backdrop for strong government action underway in South Africa.<sup>1</sup>



South Africa's Department of Environmental Affairs has a 6 Star Green rating from the Green Building Council of South Africa. *Photo from constructionreviewonline.com/2015/02/secombines-fire-safety-natural-ventilation-energy-efficiency-new-dea-hq-building-pretoria-sa*

South Africa's National Energy Efficiency Strategy, released in 2005, seeks to reduce energy intensity in several sectors to foster economic growth without equivalent growth in carbon emissions and energy consumption. The strategy presents energy efficiency targets for the industry and mining, commercial and public, residential and transport sectors. In particular, the government seeks to improve energy efficiency in the commercial sector by 15%. The strategy lays out a number of key actions to reach these targets while supporting economic growth, energy security and competitiveness.<sup>2</sup>

 <b>SOUTH AFRICA COUNTRY PROFILE</b>	
<b>Total area</b>	1,221,037 km <sup>2</sup>
<b>Population density</b>	42.4/km <sup>2</sup>
<b>Energy supply</b>	72% coal, 22% oil, 3% natural gas, 3% nuclear, <1% renewables
<b>Energy use</b>	37% manufacturing, 31% transport, 9% residential, 7% commercial, 8% mining, 8% other
<b>Electrification rate</b>	73%
<b>Installed generation capacity</b>	90% coal, 5% nuclear, 5% hydro
<b>Fuel imports</b>	110,000 barrels/day petroleum

Source: <http://www.reegle.info/policy-and-regulatory-overviews/ZA>; <http://www.energy.gov.za/cop%2017/CopFiles/PerspectiveOnEnergyEfficiencyBuilding.pdf>

<sup>1</sup><http://www.reegle.info/policy-and-regulatory-overviews/ZA>

<sup>2</sup>[http://www.energy.gov.za/files/IEP/jhb\\_workshop/Overview-on-the-National-Energy-Efficiency-Strategy-Post2015-26Sep2013.pdf](http://www.energy.gov.za/files/IEP/jhb_workshop/Overview-on-the-National-Energy-Efficiency-Strategy-Post2015-26Sep2013.pdf)

Within this context, in 2013 South African National Energy Development Institute (SANEDI) partnered with the Clean Energy Solutions Center via its Ask an Expert service to enable energy efficiency in the buildings sector. In particular, the Solutions Center supported development of the Regulations on Allowance for the Energy Efficiency Savings legislation designed to provide a framework for effective energy efficiency regulation, incentives and energy reduction targets for South Africa's commercial buildings sector.



## Recommended Solutions

The Solutions Center partnered with the government of South Africa to provide an in-depth review of the Regulations on Allowance for the Energy Efficiency Savings. The review resulted in a number of concrete recommendations to support effective design and implementation of the regulations and related incentives.

- **Support policy design that allows flexibility to adapt to changing market conditions.** To ensure energy efficiency programs can be improved over time and respond to market needs, policymakers can consider presenting programmatic details in complementary documents (like guidelines) that can be modified over time, rather than within the actual regulation, which could only be changed through legislative action. This allows for program implementation flexibility and simple modification of guidelines and program details as needed to ensure program success. Specific language on valuation methods of energy efficiency projects and required participant documentation, for example, are details that might benefit from flexibility as the program matures. Regulations can also integrate authority for institutions, such as SANEDI, to revise certain aspects of a regulation over time to support long term policy effectiveness and simplified program administration.
- **Consider integration of renewable energy technologies with energy efficiency programs.** A review of SANEDI renewable energy and energy efficiency programs noted that certain renewable energy technologies, such as passive solar and ground source heat pumps, were not included under either program, but could be useful in energy efficiency programs to support broader goals and targets. Recommendations noted that policymakers should ensure that renewable energy technologies covered under other incentive programs are not eligible for “double counting” between programs. Finally, renewable energy technologies included in energy efficiency incentive programs, such as those listed above, should be clearly defined to ensure program participants fully understand technology eligibility.
- **Assess energy savings and support monitoring and evaluation with robust modeling tools.** A number of modeling tools are available to support policymakers in assessing energy savings associated with energy efficiency actions.

Policymakers can use modeling tools for improved information on project savings rather than relying on past usage data, because changes in weather and demand can impact loads. Robust energy savings assessment can support strong monitoring and evaluation and inform improvements to energy efficiency programs over time. However, in many cases there is a need to build capacity of relevant practitioners on use of modeling tools, which is a key aspect of effective policy implementation. SANEDI noted that there was a lack of available energy modeling capacity in the market and discussed engaging university partners to develop and expand this capacity. Solutions Center assistance included a brief introduction to several types of available software for commercial building energy modeling.

## Impact of Assistance

Based on the key recommendations, collaboration between the government of South Africa and the Clean Energy Solutions Center is supporting successful implementation of the Regulations on Allowance for the Energy Efficiency Savings. The regulations adopted in December 2013:

- Provide tax incentives for businesses that can demonstrate measurable energy savings
- Include tax incentives for all energy efficiency projects that reduce energy use
- Offer tax incentives for savings in all energy forms—not only electricity—which can be claimed until 2020
- Specify the process for determining the amount of energy savings achieved through efficiency measures.

The government of South Africa's partnership with the Clean Energy Solutions Center informed development and adoption of key regulations and incentives to support energy efficiency. The Solutions Center's assistance added great value to the policy design process and continues to inform effective implementation.