

IEEE PES/IAS PowerAfrica, 26-29 June 2018, Cape Town

<https://ieeexplore.ieee.org/document/8520959>

Energy efficient audits - a strife for energy autonomy

Simelane, Sengiphile N
Isaac, Nithin
Duma, Talent C
Chowdhury SPD

ABSTRACT:

The Council for Scientific and Industrial Research (CSIR) in Pretoria is currently implementing an energy autonomous programme aimed at creating an Energy- Autonomous Campus (EAC) by supplying energy from the three primary energy sources: solar, wind and biogas from biogenic waste. The power generators will be combined with electricity and heat storage, integration of electric and hydrogen-driven vehicles, power-to-liquid and power-to-gas processes, demandside management and energy-efficiency measures. Energy efficiency audits are a primary stepping stone needed to identify and decipher current energy usage patterns in order to apply effective demand side management (DSM) measures and energy efficiency initiatives. This paper describes the method used to conduct energy audits, the findings of this audit and the DSM initiatives identified in order to achieve energy reductions and move towards energy autonomy. The CSIR energy autonomous campus will be a South African benchmark for commissioning many more energy autonomous campuses for several public and private organisations. Besides, the CSIR Energy Center team will be helpful in training, commissioning and green energy augmentation in the South African power pool which at present is predominantly thermal power contributing to carbon foot

print. The CSIR energy autonomous campus will have pioneering impact in the implementation of green energy in the national energy mix.