

**5 TOP ENERGY EFFICIENCY MEASURES
IMPLEMENTED IN ICLEI'S CCP NETWORK IN SOUTH AFRICA**

ICLEI conducted a survey to identify the Top 5 municipal building energy efficiency measures implemented by cities participating in ICLEI's Cities for Climate Protection Campaign® in South Africa. With their feedback, the following table was designed to provide practical examples to encourage cities in South Africa and other countries to replicate these projects in their own municipal buildings. Costs, savings and emissions reductions were estimated for all the described energy efficiency implemented measures. In addition, policy and regulatory measures from two cities have also been included.

The ICLEI CCP Network in South Africa includes 11 Municipalities: Buffalo City, Cape Town, Durban (eThewini), Ekurhuleni, Johannesburg, Mangaung, Polokwane, Potchefstroom, Pretoria (Tshwane), Sol Plaatje and Saldanha Bay. For more information (www.iclei.org/africa and www.iclei.org/ccp)

Technology	Case (City)	Units	Results				
			Cost (ZAR)	Annual Energy Use Reduction (kWh)	Annual Energy Cost Savings (ZAR)	Payback Period (years)	Annual Emissions Reduction (eCO ₂)
Lighting							
<i>Efficient technology</i>							
<ul style="list-style-type: none"> ▪ Compact Fluorescent Light-CFL (15W) replacing Incandescent Light Bulb-ICB (60 W) 	Ekurhuleni Municipal buildings retrofit project	2003 CFLs installed	R 15/light	131 kW/h/light/year	R 50/light/year	0.3	122 Kg/light/year
<ul style="list-style-type: none"> ▪ Metal Halide Bay Fittings replacing Fluorescent Light Fittings 	Tshwane Lighting retrofit in Hall C	65 * 400 W (13 rows with 5 luminaries)	R 710/light	728 kW/h/light/year	R 276/light/yea	2.6	680 Kg/light/year

Water Heating							
<i>Efficient water boilers</i>							
<ul style="list-style-type: none"> Zip hydroboils replacing urns and kettles 	Ekurhuleni Municipal buildings retrofit project	23 hydroboils	R 4,775/ hydroboils	1,861 kWh/ hydroboils/ year	R 708.5/ hydroboils	6.7	1,740 Kg/hydroboils/ year
<i>Renewable source</i>							
<ul style="list-style-type: none"> Solar Water Heaters 	Cape Town Kuyasa low cost housing thermal energy upgrade	2300 solar heaters (150 liters avg.)	No individual cost provided	1,447 kWh/ household/ year	R550 household/ year		1,351 Kg/household/ year
Space Heating and Cooling							
<i>Air conditioning controls</i>							
<ul style="list-style-type: none"> Timers. Trim central plant timers and install new timers 	eThekwini Air Conditioning Rationalisation in City Engineers Building	14, 287m2 Area of City Engineers Building	R 3/ m ²	R 27kWh/m ² / year	R 10/m ² / year	0.3	18 Kg/m ² / year
Policy & Regulation							
Green Building	Potchesfroom Energy Efficiency guidelines compliant to SAEDES (South African Energy and Demand Efficiency Standard)		No extra cost				
Energy Awareness Campaign	eThekwini Raise awareness and optimise good housekeeping measures amongst general staff occupying City Engineers Building	City Engineers Building (14, 287m2)	R76,500	121,800 kWh/year	R46,300	1.6	114 Tonnes/year

Most of the individually presented measures were implemented together with others in larger retrofitting projects. The breakdown is made to allow for assessment of individual technologies. Values assumed: 0.38R/kWh and 0.934 Kg eCO₂/kWh, Source: Eskom.