

# Off-grid Cities: Elite infrastructure secession and social justice



*Photograph by Christina Culwick Fatti*

## ***City sector profile*** ***Electricity in the City of Cape Town***

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*This document has been prepared as part of the NRF-funded project entitled Off-Grid Cities: Elite Infrastructure Secession and Social Justice. The insights and data used in this City Sector Profile are drawn from desktop research and fieldwork conducted between 2022 and 2023. This document aims to provide a brief overview of electricity in the City of Cape Town in relation to the investment of private households and businesses in alternative electricity sources.*

## **Cape Town's energy-scape**

The City of Cape Town (CoCT) purchases electricity in bulk from Eskom, which provides the country's baseload electricity mostly through a fleet of coal-powered generation plants. The City also draws some of its energy requirements from other sources, most notably the Steenbras hydroelectric scheme. Together with solar PV generation by businesses and households, Cape Town uses a greater proportion of renewable energy than most other municipalities in South Africa. CoCT is proceeding with plans to transition away from carbon-based energy towards renewables, reducing its reliance on coal-powered electricity from Eskom, which is unreliable (discussed in the next section).

Mbandezi, a CoCT councillor, stated in 2023 that “around 70% of the City's income from

the electricity tariff goes towards buying bulk electricity purchases from Eskom, with the remaining 30% going towards delivering a reliable electricity service and plans to end load shedding”.<sup>1</sup> The Resilient Cities Network's Urban Power Profile for Cape Town (2023) outlines that Eskom owns plants that generate 3 338MW (just over 90%) out of a total generation capacity for Cape Town of 3 690MW. The City owns plants (including Steenbras) that generate power totalling 260.8MW, though some of these are not economical to run, and the remainder are privately owned. This shows that Cape Town is still heavily reliant on Eskom's largely coal-powered electricity, but Cape Town's mayor, Hill-Lewis, is adamant about continuing to reduce this reliance: “It has become clear to the City of Cape Town

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<sup>1</sup><https://www.iol.co.za/news/south-africa/western-cape/eskom-tariff-hikes-city-of-cape-town-offers->

[households-relief-8a8027e7-5c43-4494-9c8e-aae7b36fad9a](https://www.iol.co.za/news/south-africa/western-cape/eskom-tariff-hikes-city-of-cape-town-offers-households-relief-8a8027e7-5c43-4494-9c8e-aae7b36fad9a)

that if we wish to halt the damage caused by Eskom's monopoly over electricity generation, we have to take matters into our own hands. The only way for us to provide reliable and affordable electricity to our residents is to source it from elsewhere".<sup>2</sup> It is important to note here that with both Independent Power Producer (IPP) procurement and the quickly growing Small-scale Embedded Generation (SSEG) market, these figures are changing fast.

Cape Town's residents still have inequitable access to electricity, with the poor having lower levels of access compared to wealthy groups. Consumption patterns also demonstrate the city's high levels of spatial

and socio-economic inequality which still reflect colonial and apartheid-era urban planning. With rapidly increasing urbanisation, the state is unable to meet both housing demand and the concomitant growing pressure on the electricity grid (SEA and RCN). Rapidly increasing shifts towards alternative electricity infrastructure like solar PV, battery storage, and diesel generators are exacerbating inequality in the sector, largely by reducing municipal revenues and undermining cross-subsidisation and the state's ability to provide service to the poor. Furthermore, these private investments help to ensure reliable energy among already privileged groups.

## Ideology and plan for electricity delivery in the City of Cape Town

There is a significant and growing focus on energy security given the national electricity crisis as well as locally increasing urbanisation and energy demand. Cape Town's hydroelectric scheme at Steenbras plays a key and celebrated role in reducing the severity of load-shedding in the municipality, but increasing supply is a priority for the City. Given that Cape Town is well located in terms of solar and wind resources, it is aiming to further reduce reliance on Eskom for electricity supply by focusing on renewable energy sources. CoCT is increasing IPP procurement and has tendered for significant renewable energy generation from IPPs. Furthermore, it is the

first municipality in the country to institute wheeling<sup>3</sup> to enable connecting electricity generation to those demanding more clean energy.<sup>4</sup> CoCT has also facilitated SSEG in municipal buildings and at business and household scales more actively than most other municipalities in SA, which is continuing to increase local, distributed generation capacity.<sup>5</sup> Along with Own Generation, The Sustainable Energy Markets Department is pushing "energy efficiency and renewable energy across high-income residential, transport and commercial sectors".<sup>6</sup>

In South Africa, there is a Constitutional mandate for municipalities to deliver basic

<sup>2</sup> <https://businesstech.co.za/news/energy/555004/cape-town-begins-plans-to-move-off-eskoms-grid-and-away-from-load-shedding/>

<sup>3</sup> Wheeling refers to the transmission of energy from a power producer to an end user, using the national grid.

<sup>4</sup> <https://businesstech.co.za/news/energy/718572/cape-town-starts-wheeling-electricity-for-the-first-time-in-big-move-to-end-load-shedding/>

<sup>5</sup> Interviews with businesses in the solar industry, conducted by author 2022-2023.

<sup>6</sup>

<https://www.capetown.gov.za/Departments/Sustainable%20Energy%20Markets>

services. This includes the provision of a level of free electricity (Free Basic Electricity<sup>7</sup>) each month to households in need, which is largely funded through a cross-subsidisation model utilising the revenues from sales to users consuming more electricity. There are plans for Free Basic Alternative Energy (FBAE) to enhance energy security and renewable energy in low-income areas; all of this suggests energy security and decarbonisation are working in tandem. However, with CoCT mayor Hill-Lewis announcing in March 2023 a 500MW procurement of dispatchable energy (using *any* technology), it seems that the current goal of security of supply is predominating decarbonisation. The goal of mainstreaming resilience across city departments shows that there is an extent to which increasing generation and working towards sustainability are mutually reinforcing. For example, by trying to align measurable line items in budgets and key performance indicators to the Resilience Strategy and the Climate Action Plan (interview with WCEDP official, 2023). The City is also driving energy efficiency programmes and working towards net-zero public buildings. CoCT regards a resilient energy system as one that is able “to reduce the impact of shocks and stresses, including the capacity to anticipate, absorb, adapt to, and rapidly recover from such events and to transform where necessary”.<sup>8</sup>

The Cape Town State of Energy and Carbon Report (2021) shows rapidly changing electricity consumption patterns, fast-growing self-generation, and the city’s prioritisation of free basic electricity. Importantly, it explores how “subsidised tariffs remain one of the most direct, transparent and unequivocally beneficial means of social support at our disposal. Cape Town ... face[s] the difficult challenge of transforming our utility businesses while trying to maintain strong cross-subsidisation of poorer customers, maintain existing infrastructure, transition to a radically different technology paradigm, reduce emissions and improve reliability” (*ibid.*: 3). This demonstrates the multiple drivers of change in the electricity sector. Cape Town is committed to delivering and expanding free basic services, partly through the FBAE policy, which is subsidised by the revenue from electricity sales, discussed below.

The plan for electricity distribution and energy efficiency links to the JET approach through a focus on climate change. The City runs a dedicated [website](#) focused on saving electricity in the contexts of load-shedding, cost-saving, alternative infrastructures and climate change.

## Stakeholders involved in electricity generation and distribution

The national electricity utility, Eskom, is in charge of the majority of generation, transmission and distribution in South

Africa, but local reticulation is mandated to municipalities (Resilient Cities Network, 2018). Currently, Eskom’s generation

<sup>7</sup> For more detail on FBE, see <https://earthlife.org.za/research-reports-submissions/free-basic-electricity/>

<sup>8</sup> Arup, Future-proofing energy systems: The Energy Resilience Framework, 2019, page 4 - Cited in Cape Town Urban Power Profile (2023), p 6.

mandate is being unbundled through the development of a separate transmission company called the National Transmission Company South Africa (NTCSA), though this has seen several delays.<sup>9</sup> Some electricity customers in Cape Town purchase electricity directly from Eskom. The City purchases bulk electricity from Eskom and distributes it to customers. At the provincial level, the Western Cape recently established a new Department of Infrastructure that oversees public works infrastructure, transport infrastructure, human settlements, and community-based programmes/ Expanded Public Works Programme (EPWP).<sup>10</sup> Relatedly, the Western Cape Economic Development Partnership (WCEDP) is closely involved in energy projects.

Figure 1 provides a simplified illustration of the flow of electricity from generation to consumption within the City of Cape Town. As described above, CoCT buys electricity from Eskom and various IPPs, and also generates its electricity from the Steenbras Hydropower plant. CoCT sells electricity to consumers via the grid, with Eskom also selling directly to some consumers. In addition to selling power to CoCT, IPPs consume the electricity that they generate on-site, and also sell directly to other consumers by wheeling through the municipal grid.

At the local level, Geordin Hill-Lewis, the current Executive Mayor of Cape Town, has taken an active interest in the City's energy matters. Below him is the City Manager

and Executive Management Team (EMT), appointed in terms of Section 57 of the Municipal Systems Act. Each member heads a directorate and is responsible for key functions of the organisation. Electricity supply is organised under the Energy Directorate (MMC Beverly van Reenen), which has two departments: Electricity Generation and Distribution (exec. Director Kadri Nassiep), which distributes electricity purchased by the City from Eskom, IPPs, and from the City's generation projects, and Sustainable Energy Markets (SEM) (Director Leila Weideman), which leads on decarbonisation. Collaboration between these two departments with other City departments is important, especially the Future Planning and Resilience Directorate (Executive Director Gareth Morgan) and the Department of Human Settlements (Executive Director Nolwandle Gqiba). The Energy Directorate is also in charge of engaging with NERSA, the National Treasury, and other national departments.

The South African Local Government's Association (SALGA) represents and promotes the interests of local governments across the country, supports local government development, and assists with engaging provincial and national levels of government. SALGA, working with Sustainable Energy Africa (SEA) and the South African Cities Network (SACN), run the Urban Energy Support platform to support local government with climate change and sustainable energy challenges.

<sup>9</sup><https://www.engineeringnews.co.za/article/gordhan-criticises-eskoms-elongated-restructuring-timelines-wants-grid-company-to-begin-trading-from-nov-2023-09-20>

<sup>10</sup><https://www.westerncape.gov.za/tpw/department-of-infrastructure>

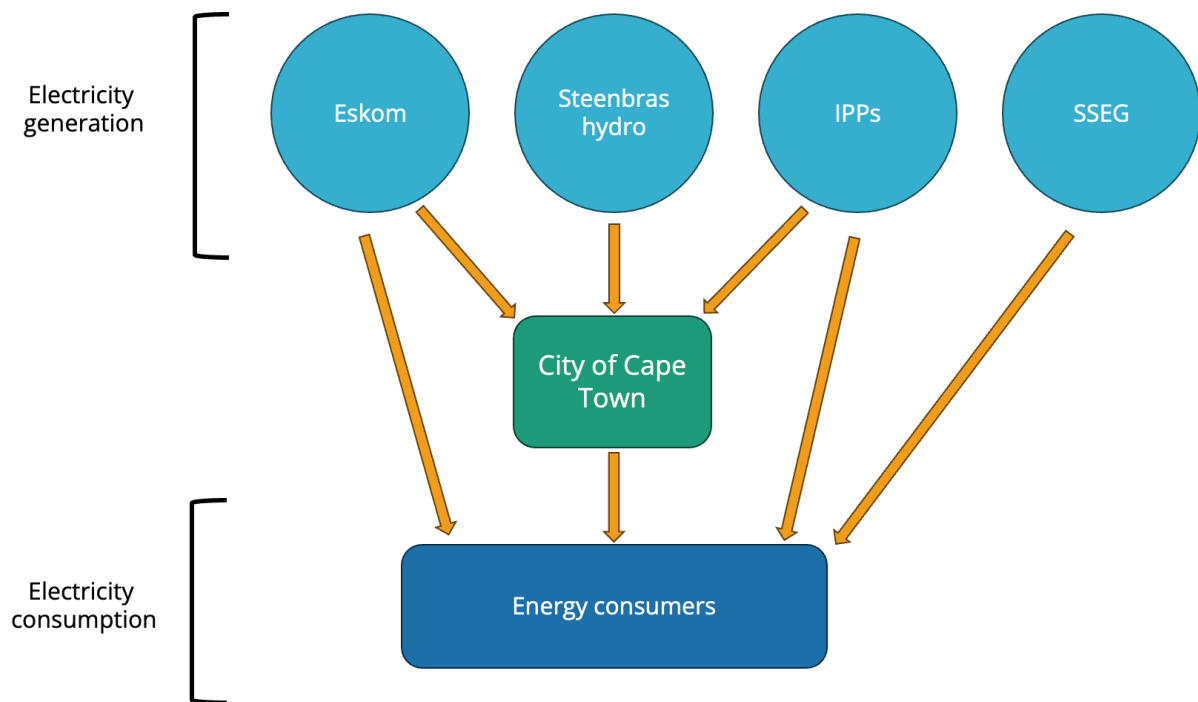


Figure 1: Simplified diagram of generation, distribution and consumption of electricity in Cape Town.

## City of Cape Town policy and legal frameworks<sup>11</sup>

The Municipal Systems Act (No. 32, 2000: 2) details “principles, mechanisms and processes” for municipalities to “move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all”. Regarding delivery of essential services, the MSA allows for both internal organisations of the City as well as through service delivery agreements with external organisations and businesses. The Municipal Fiscal Powers and Functions Act (No. 12, 2007) allows for the charging of fees and tariffs for the reticulation of

electricity. The National Energy Regulator of South Africa regulates all aspects of the electricity industry, including the tariff and fee-setting processes. The Municipal Finance Management Act (MFMA, No. 56 of 2003) prescribes the formation of public-private partnerships for the provision of electricity. A key guiding document that relates to “electricity provision in the country is ... the integrated resource plan (IRP) which sets out what electricity will be sourced and when.”<sup>12</sup> This document is in the process of being reviewed and should be out for public comment in late 2023.

<sup>11</sup> A full review of the many national and local policies related to electricity generation, transmission, and distribution is beyond the scope of this brief. These are explored in more detail in Cape Town’s State of Energy and Carbon Report (2021: 151-131).

<sup>12</sup> <https://www.dailymaverick.co.za/article/2020-02-16-cape-town-moves-to-set-up-own-electricity-supply/>

## City of Cape Town’s approach to the Just energy transition

In 2022, the Presidential Climate Commission adopted a Just Transition Framework for South Africa at the national level, which provides a tool to support planning the transition away from coal-based energy (PCC, 2022). The framework is based on principles of distributive, restorative, and procedural justice, and outlines a vision for decarbonising the economy while protecting and transforming at-risk sectors. At the local level, the most explicit commitment to a just energy transition (JET) approach in the CoCT comes from the Climate Change Action Plan. It outlines four aspirations towards a JET: “Job creation in a green economy and the transition of polluting industries; Sustainable and equitable land use and management within the city; Health, well-being, and access to a healthy and clean environment for all residents; Accessible and affordable essential services and economic opportunities” (CoCT, 2018).

While explicit mention of a JET is uncommon in CoCT policy documents, aspects of this approach are demonstrated through reference to environmental sustainability and social justice in various plans and policies. For instance, the State of Cape Town report (2022: 40) outlines “key steps towards improving energy

sustainability in Cape Town ... include efforts to reduce the administration’s energy consumption and to diversify energy supply to include more renewable sources, thereby enhancing sustainability and resilience to energy risks”. These efforts tie into Cape Town’s approach to a JET, which envisions: “less wasteful circular economy and new energy technologies [that] offer exciting green economy opportunities, reflected locally in the expansion of enterprises utilising waste streams and embedded generation” (State of Energy and Carbon, 2021: 4).

In the energy sector, “The City of Cape Town is making progress with on-the-ground projects. The first carbon credits were awarded to the landfill gas capture and flaring project at Coastal Park this year [2021] under the Unapproved Clean Development Mechanism (CDM). A waste-to-energy plant is being installed on the site that will use the gas to generate electricity, further reducing emissions and supplying much-needed clean energy” (State of Energy and Carbon, 2021: 4). These kinds of piecemeal JET projects and policy commitments feed into the overall strategy for electricity provision in the City.

## Private Sector Engagement

The CoCT has been working to improve how it engages with both private and civil sectors, including increasing transparency beyond the City. An example of increasing transparency is CoCT’s [Open Data Portal](#) which shares information to do with environmental and infrastructural issues,

electricity saving, budgets, and planning with businesses and citizens. Fieldwork for the Off-Grid Cities project surfaced a largely positive framing of relations with the City by businesses operating in the energy and solar industries.

Businesses and the private sector are important actors in the energy sector, for example through lobbying the government or generating their own electricity, often operating on a national scale rather than being specific to Cape Town. Organisations such as Business Unity South Africa (BUSA) play a role in representing the concerns of business and industry to the government. The South African Institute of Electrical Engineers works to advance the profession of electrical engineering, and collaborate with the government through AMEU, attempting to provide technical support to municipalities on electricity reticulation.

Cape Town has been increasingly active in trying to create an enabling environment for solar investment, partly because of the positive impact on the economy both from keeping electricity running and from helping establish a renewables industry. Businesses involved in the provision and maintenance of solar PV were positive about the regulatory framework in Cape Town, which allows for good business practices. The recently announced cash-back for feeding into the grid<sup>13</sup> in Cape Town as well as nationally instituted tax breaks for solar installations<sup>14</sup> are likely to feed into this positive environment, but some residents remain angry about the grid connection fee for solar users.<sup>15</sup>

## Community and Civil Society Engagement

Cape Town's SEM department has "communication campaigns for sustainable energy and market liberalization transition; and interacts with academia and non-profit organizations on development solutions, and donor organizations that support its work" (Resilient Cities Network, 2018: 10). Various civil society organisations work towards goals relating to energy, electricity, the just transition and climate action. An umbrella body that incorporates several such organisations, including Project90 and the Centre for Environmental Rights, is the Energy Governance South Africa (EGSA), "a network of civil society organisations and individuals dedicated to promoting

transparent, inclusive and accountable decision-making in the energy sector" (EGSA, no date). Another example is the South African National Energy Association (SANEA), an NPO aimed at engaging key stakeholders and being a thought leader in the energy sector. Similarly, Sustainable Energy Africa is an NPC promoting green development in Southern Africa. GreenCape provides resources to those involved in the green economy, engages government, and does in-depth market research reports on different aspects of the sector.

The SACN is a platform of Cities and other actors involved in urban development and governance through which CoCT engages in

<sup>13</sup> <https://cleantechnica.com/2022/08/12/the-city-of-cape-town-will-pay-cash-for-your-excess-solar/>

<sup>14</sup> <https://www.esi-africa.com/finance-and-policy/tax-incentive-for-rooftop-solar-in-south-africa-good-or->

[bad/#:::text=A%20tax%20rebate%20of%2025,enhanced%20renewable%20energy%20tax%20incentive\)](bad/#:::text=A%20tax%20rebate%20of%2025,enhanced%20renewable%20energy%20tax%20incentive)

<sup>15</sup> <https://theconversation.com/higher-electricity-connection-fees-in-south-africa-a-good-and-necessary-next-step-188299>



peer-to-peer learning and exchanges with key actors within and outside the state. The CoCT is increasingly collaborating with these kinds of networks as part of deepening engagement across stakeholders at different scales. Part of this includes support from international organisations. For instance, the C40 Cities Finance Facility and international

governments including the development agencies of the United Kingdom, France and Germany (GIZ) are supporting a solar plant project in Cape Town.<sup>16</sup> The commitments in Cape Town's Climate Change Strategy (2021) were necessary to partner with C40, a global network of Mayors working to combat climate change.

## Off-grid Cities: Elite infrastructure secession and social justice

The Off-grid Cities project, funded by the National Research Fund (NRF), has explored how private households and businesses in South Africa have invested in alternative electricity and water sources. The project has interrogated the imaginaries (motivations, justifications) and practices (financing, regulating, implementing) of elite infrastructure transitions in order to critically consider their outcomes for the current and future city in four dimensions: political, environmental, infrastructural, and financial. The research focused primarily on Cape Town and Johannesburg, and adopted an interdisciplinary approach including interviews, surveys, document analysis, geographical information systems (GIS) and visual methods. The core objective of the project is to explore how elite infrastructure transitions need to be integrated into debates on, and practices of, producing cities that are environmentally sustainable and socially just. The project builds on the social justice literature and introduces it into climate change scholarship in the global South, recognising that the actions of one social group affect resource allocation in highly unequal cities, and that the infrastructures of elites tend to be absent from urban climate thinking.

More information about the project can be found on the project website <https://offgridsa.wordpress.com/>

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<sup>16</sup> <https://www.da.org.za/2023/04/cape-town-launches-r1-2bn-solar-plan-project-with-help-from-c40-and-giz>

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