

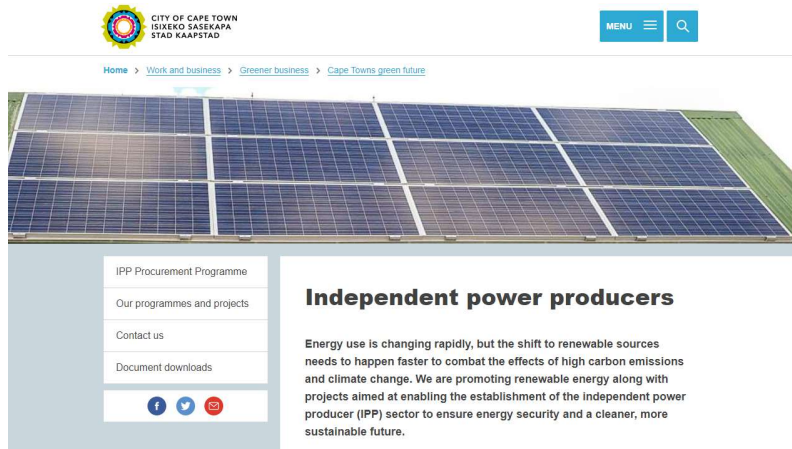
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## Publicly available data

Energy | March 2022

Making progress possible. **Together.**

# Data Sources Available



- IPP Website:  
[https://www.capetown.gov.za/Work and business/Greener-business/Cape-Towns-green-future/independent-power-producers](https://www.capetown.gov.za/Work%20and%20business/Greener-business/Cape-Towns-green-future/independent-power-producers)
- Frequently Asked Questions  
[https://resource.capetown.gov.za/documentcentre/Documents/Procedures%2c%20guidelines%20and%20regulations/IPP\\_FAQs.pdf](https://resource.capetown.gov.za/documentcentre/Documents/Procedures%2c%20guidelines%20and%20regulations/IPP_FAQs.pdf)



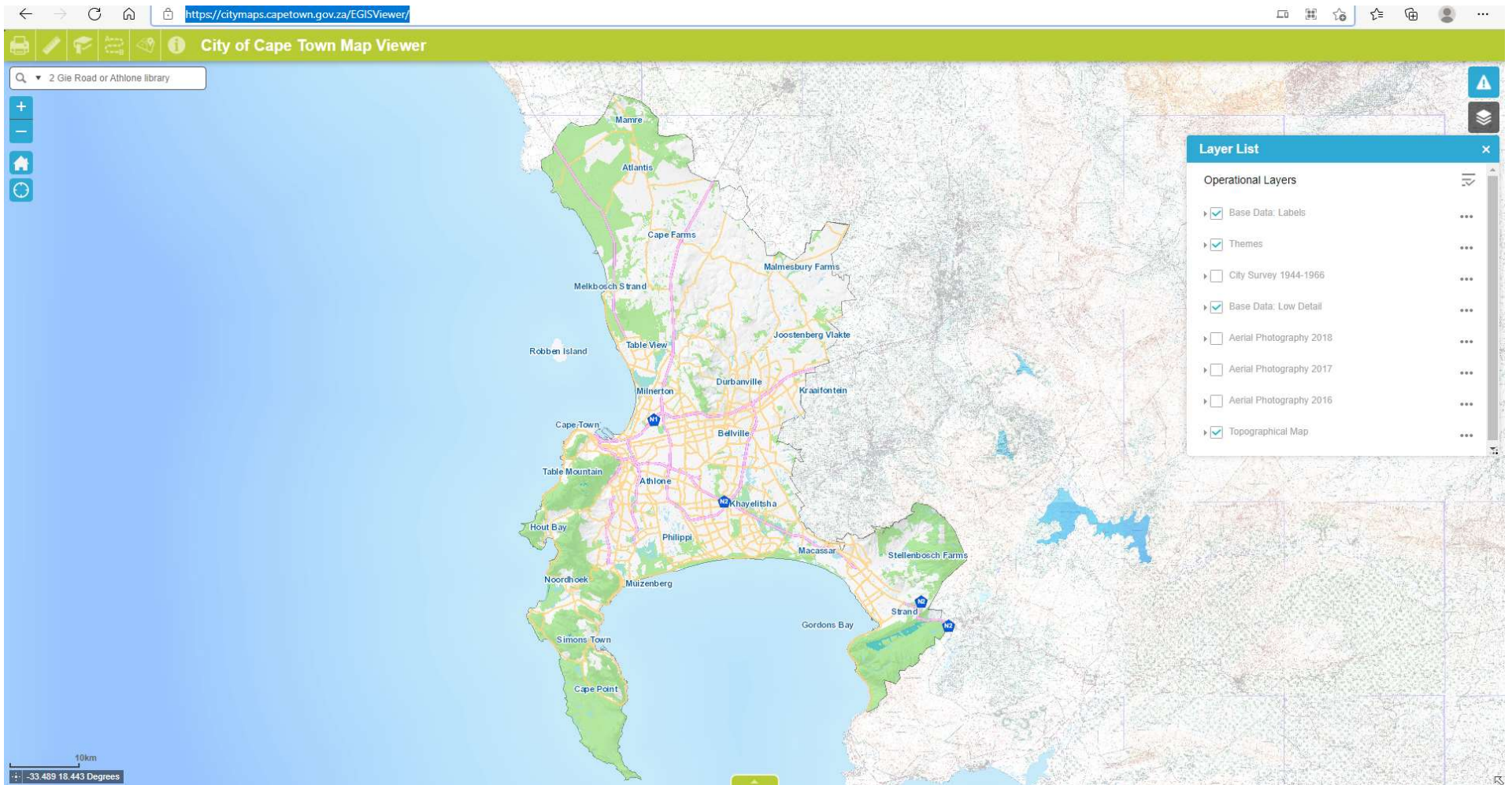
## INDEPENDENT POWER PRODUCER (IPP) PROCUREMENT PROGRAMME

### FREQUENTLY ASKED QUESTIONS

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# Map Viewer:

<https://citymaps.capetown.gov.za/EGISViewer/>



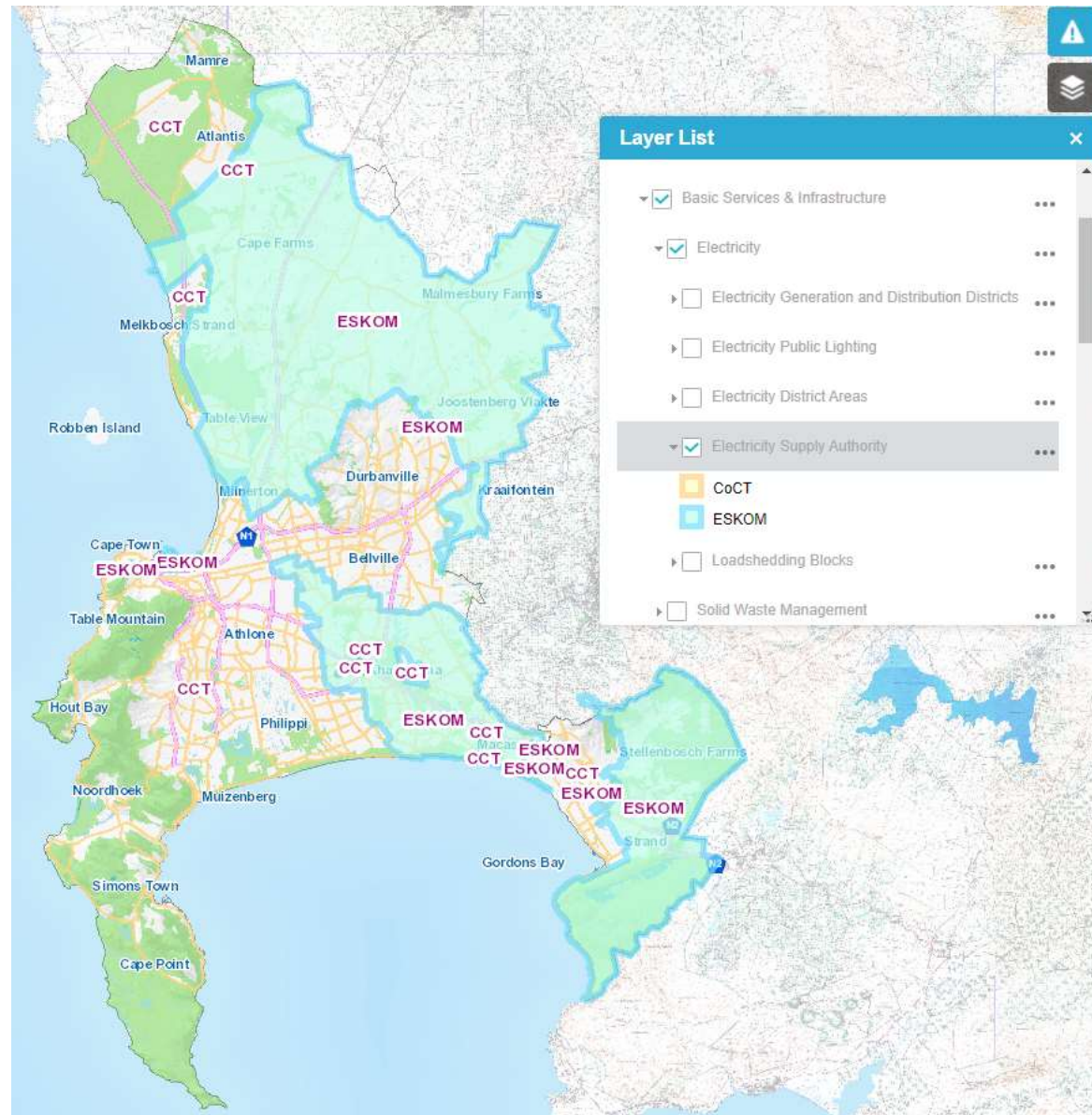
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Go to Insert > Header & Footer > Enter presentation name into footer field



# Map Viewer: Supply authority map

<https://citymaps.capetown.gov.za/EGISViewer/>



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[illegible]



# Cape Town State of Energy and Carbon report

[https://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/CT\\_State\\_of%20Energy\\_and\\_Carbon\\_Report\\_2021.pdf](https://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/CT_State_of%20Energy_and_Carbon_Report_2021.pdf)



## CAPE TOWN STATE OF ENERGY AND CARBON 2021



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- Full data set available here:

<https://web1.capetown.gov.za/web1/opendataportal/DatasetDetail?DatasetName=CPT%20State%20of%20Energy%20and%20Carbon%202021&ContentType=Data%20set>



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Fri, 4 Mar 2022

[City Home](#) | [Site Guide](#) |

### City of Cape Town Open Data Portal - Data Set Description

[Home](#) [Data sets](#) [Suggest a data set](#) [Feedback](#) [Terms of use](#) [Policy](#) [Announcements](#)

**Data set name:** CPT State of Energy and Carbon 2021


**Description:** The Cape Town State of Energy and Carbon 2021 (SOEC2021) is published every five years. The SOEC2021 is a highly detailed set of data that give the document a scientifically and statistical foundation.

**Time coverage:** 2008 - 2018

**Spatial coverage:** Not spatial

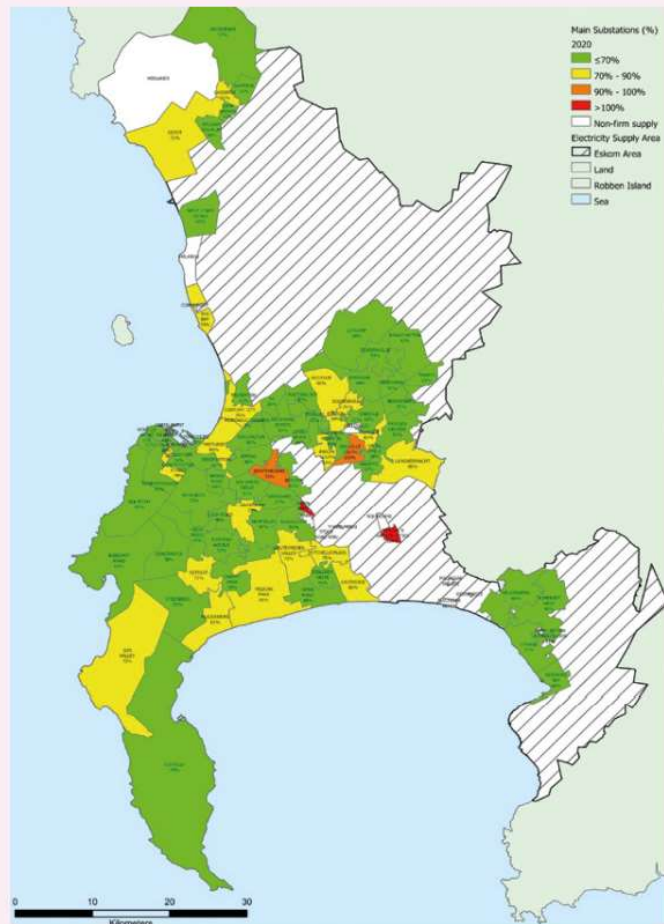
**Subject:** Basic services and infrastructure

**Update frequency:** Every 5 years

Document	Description	Download	Details
 SOEC2021 Final Open Data Portal Files.zip	The data comprises of -raw and modelled data analysed to produce energy and emissions time series from 2012-2018. The results were then packaged and formatted to produce the SOEC_2021 data annexures.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>

# Cape Town State of Energy and Carbon report: Heat map

FIGURE 13: LICENSED DISTRIBUTION SERVICE AUTHORITIES AND CCT MAIN SUBSTATION 2020 LOAD STATUS OVERVIEW



Source: City of Cape Town.



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- Heatmap is from a loading perspective.
- Indicates the peak main substation load expressed as a % of **firm** (trfr) capacity
- IPPs have access to the underlying information:
- Combination of two sources

## a) Electricity Distribution Capacity

## b) Electricity load profiles

- Note: Electricity load profiles are separated into the Electricity regions:
  - Area North,
  - South and
  - East







# Electricity Transmission Capacity: Switching Stations

<https://web1.capetown.gov.za/web1/opendataportal/DatasetDetail?DatasetName=Electricity%20Transmission%20Capacity>



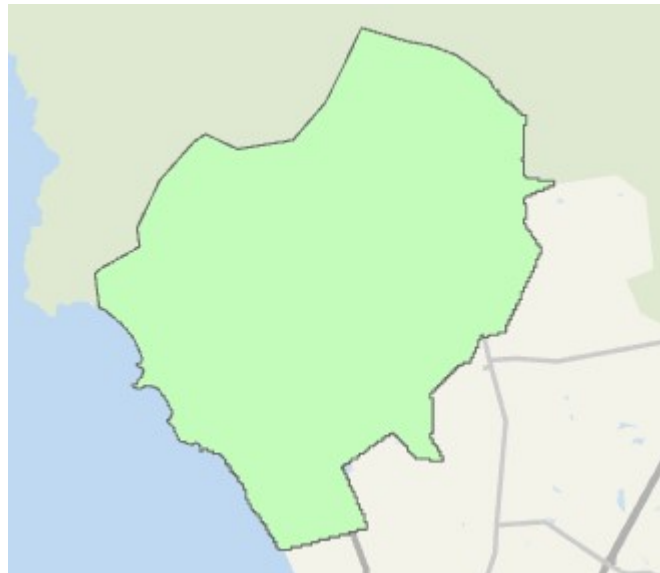
- **Indicates:** City's electrical supply area broken up in 1ha blocks accumulated to the nearest switching station.
- **Attributes:**
  - ✓ **Substation:** The name of the City's Switching Station.
  - ✓ **Status:**
    - CO: Commercial operation
    - UC: under construction
    - FP: Future planned
  - ✓ **InstId\_MVA:** The installed network capacity in unit of MVA at the switching station.
  - ✓ **Voltage\_kV:** The voltage level of the switching station area in the unit of kiloVolt.
  - ✓ **NumSpreBkr:** The total number of spare breakers at the switching station.

Electricity Transmis... Capacity_Mar22					
Field: Add Calculate Selection: Select By Attributes Zoom To Switch Clear					
FID	Substation	Status	InstId_MVA	Voltage_kV	NumSpreBkr
0	Muizenberg	CO	0	66	0
1	Gordons Bay	CO	0	66	0
2	Philippi	CO	0	132	0
3	Atteridgeville	CO	120	66	0
4	Maitland	CO	0	132	2
5	Paardevelei	UC	0	132	1
6	Montague Gardens	CO	0	132	2
7	Eiselen	CO	0	132	0

# Electricity Transmission Capacity

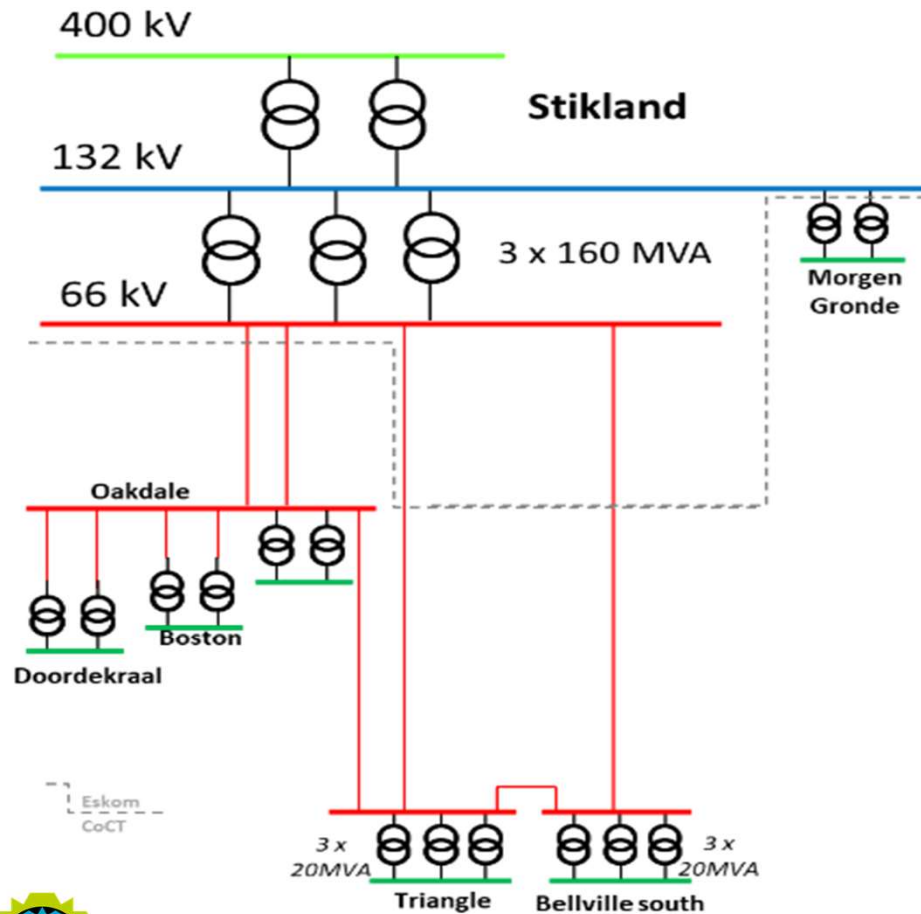
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- **Perkins (33 kV)** and **Atlantis (132kV)** has the same area, different voltage connections available
  - Generator size to be limited to **William Gourlay MS load profile**

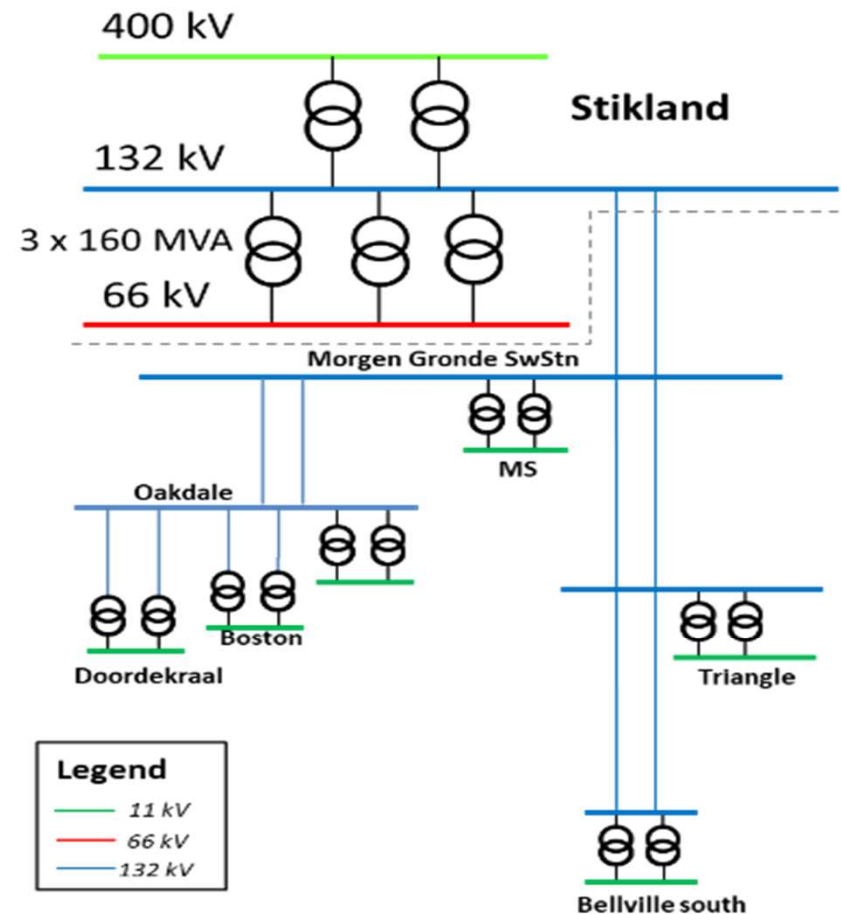


# Short to medium term SwStns: Morgen Gronde (2024), Triangle (2025), Oakdale (2027)

## Existing



## Future



### Legend

- 11 kV
- 66 kV
- 132 kV

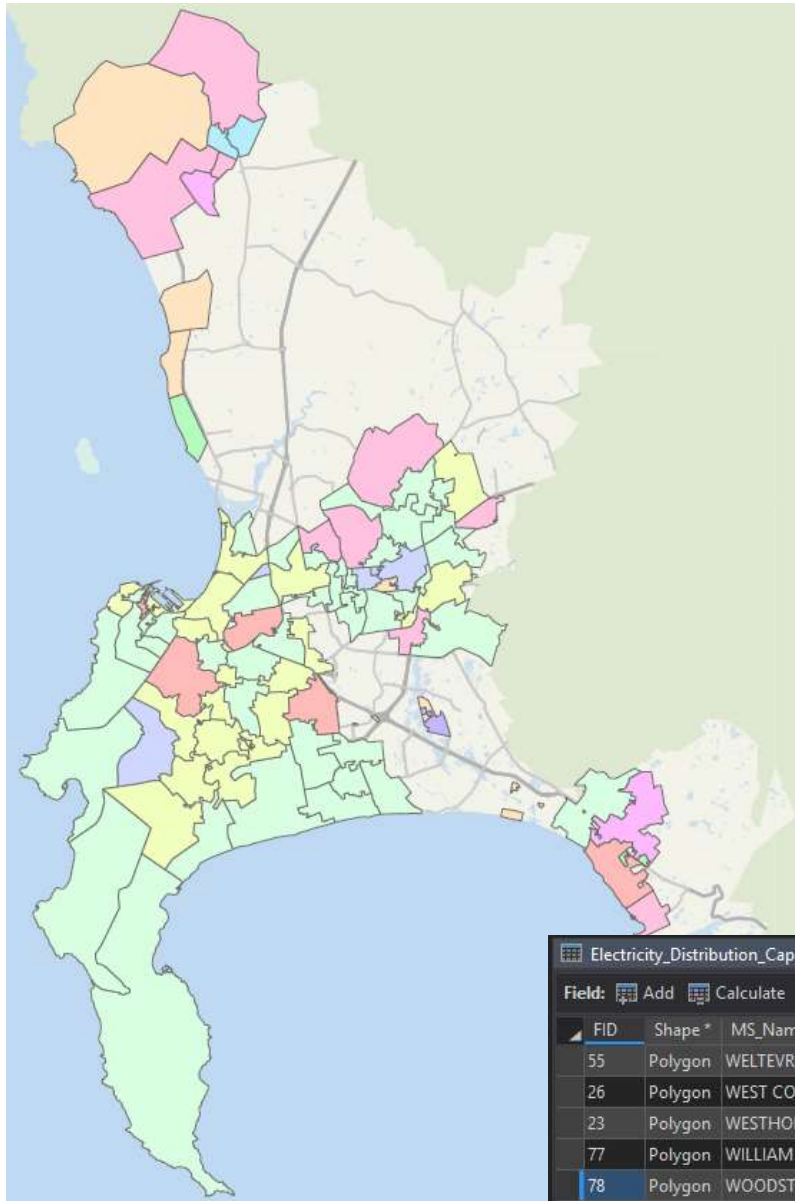


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# Electricity Distribution Capacity: Main substations & 11kV intakes

<https://web1.capetown.gov.za/web1/opendataportal/DatasetDetail?DatasetName=Electricity%20Distribution%20Capacity>

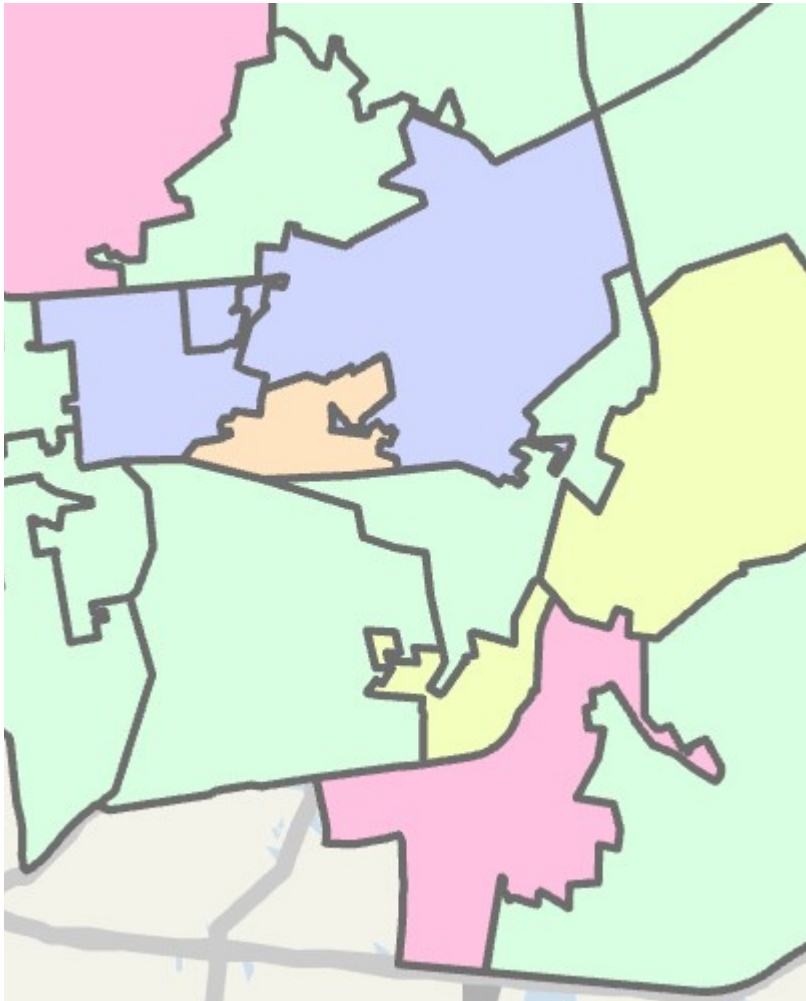


- **Indicates:** City's main substation and 11kV intake point supply areas
- **Attributes:**
  - ✓ **MS\_Name:** The name of the City's main substation or 11kV intake point supply area.
  - ✓ **Voltage\_kV:** 11kV
  - ✓ **NumSpreBkr:** Total number of spare breakers at the 11kV connection point.  
Sum of SprebkrBBA, SprebkrBBB and SprebkrBBC.
  - ✓ **SprebkrBBA:** The number of spare breakers on Busbar A.
  - ✓ **SprebkrBBB:** The number of spare breakers on Busbar B.
  - ✓ **SprebkrBBC:** The number of spare breakers on Busbar C.
  - ✓ **Instld\_MVA:** The installed network capacity in MVA.
  - ✓ **FirmCapMVA:** The theoretical firm network capacity in MVA.

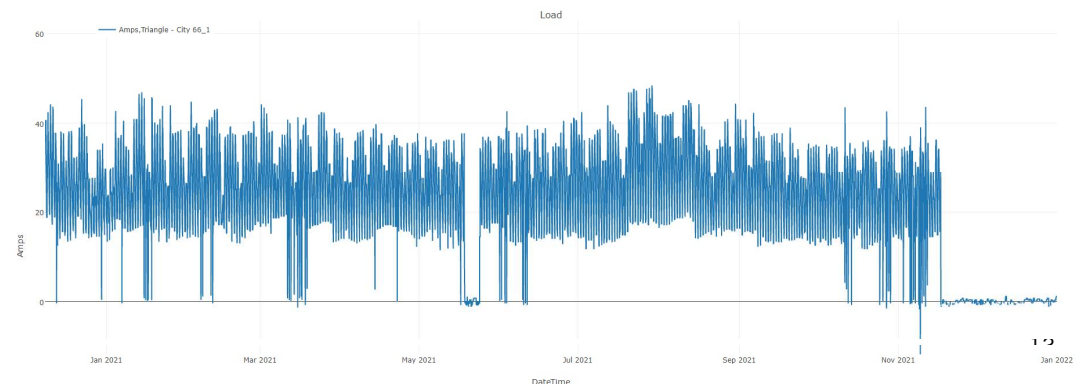
Electricity_Distribution_Capacity X											
Field: Add Calculate Selection: Select By Attributes Zoom To Switch Clear Delete Copy											
FID	Shape *	MS_Name	Instld_MVA	FirmCapMVA	VOLTAGE_kV	NumSpreBkr	SprebkrBBA	SprebkrBBB	SprebkrBBC	Shape_Leng	Shape_Area
55	Polygon	WELTEVREDEN VALLEY	80	40	11	0	0	0	0	23500.869387	15410695.8969
26	Polygon	WEST COAST INTAKE (...)	10	0	11	0	0	0	0	16045.353118	15306945.3848
23	Polygon	WESTHOF	40	20	11	2	0	2	0	19249.420714	15785984.4205
77	Polygon	WILLIAM GOURLAY	80	60	11	0	0	0	0	12471.080673	6769976.52294
78	Polygon	WOODSTOCK	80	40	11	2	2	0	0	13651.403688	4945583.22702

# Electricity Distribution Capacity: Notes

<https://web1.capetown.gov.za/web1/opendataportal/DatasetDetail?DatasetName=Electricity%20Distribution%20Capacity>



- 0 spare breakers is not a deterrent.
- Just means larger upfront capital required / longer lead time:
  - Space for panel extension
  - Building renovation
  - Second nearest connection point /
  - Different voltage level
  - Create a new connection point. Building/land parcel might be required
- City (Bellville) was recently decommissioned (GIS updates are still in progress). Load will be accommodated on Boston, Oakdale and Triangle supply areas.



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## Premium Connections not available here:

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- Langverwacht
- Marais
- Gordon's Bay
- Melkbos (single upstream Eskom trfr)
- West Coast (single upstream Eskom trfr)
- Midlands



# Load Profiles

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# Electricity load profiles

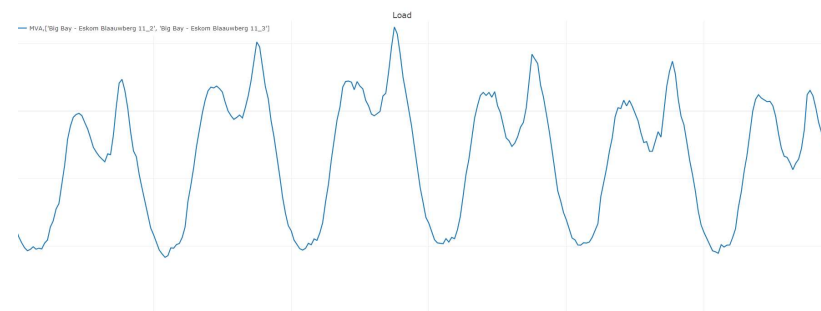
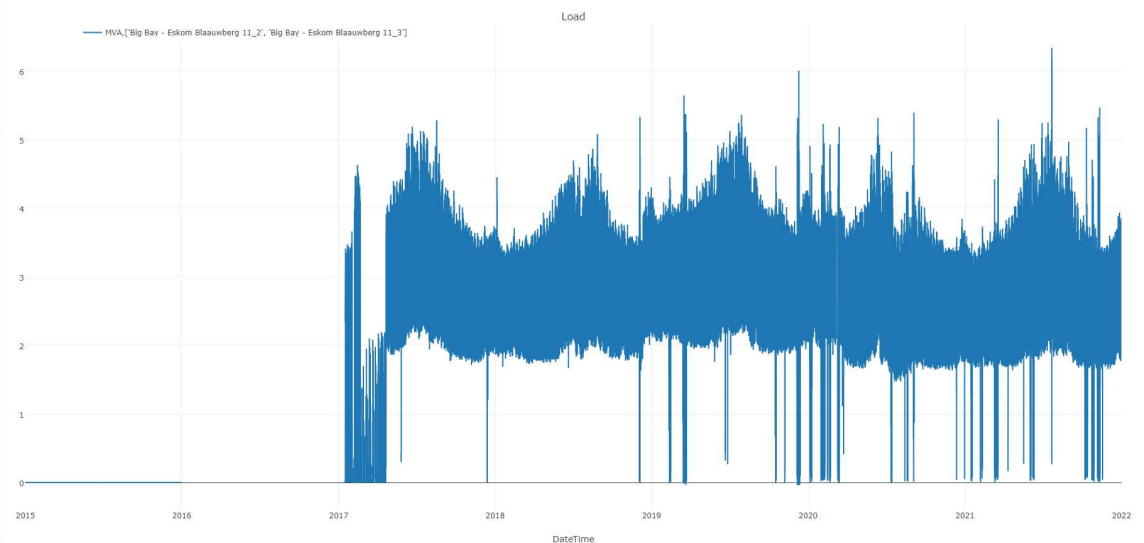
<https://web1.capetown.gov.za/web1/opendataportal/DatasetDetail?DatasetName=Electricity%20Load%20Profiles&ContentType=Data%20set>

Data set name:	Electricity Load Profiles
Description:	A load profile is a chart illustrating the variation in electrical demand or electrical load (either expressed in the unit of apparent power (MVA) or current (amps)) over a specific time1. The apparent power or current is measured every half an hour at each of our main substations and plotted against the time when the measurements were taken to produce a load profile. Electricity load profiles, for City of Cape Town main substations or 11kV intake points from Eskom, in units of either apparent power (MVA) or current (amps), separated in accordance to EGD Regions 2015 - 2021
Time coverage:	2015 - 2021
Spatial coverage:	Not spatial
Subject:	Basic services and infrastructure
Update frequency:	Annually

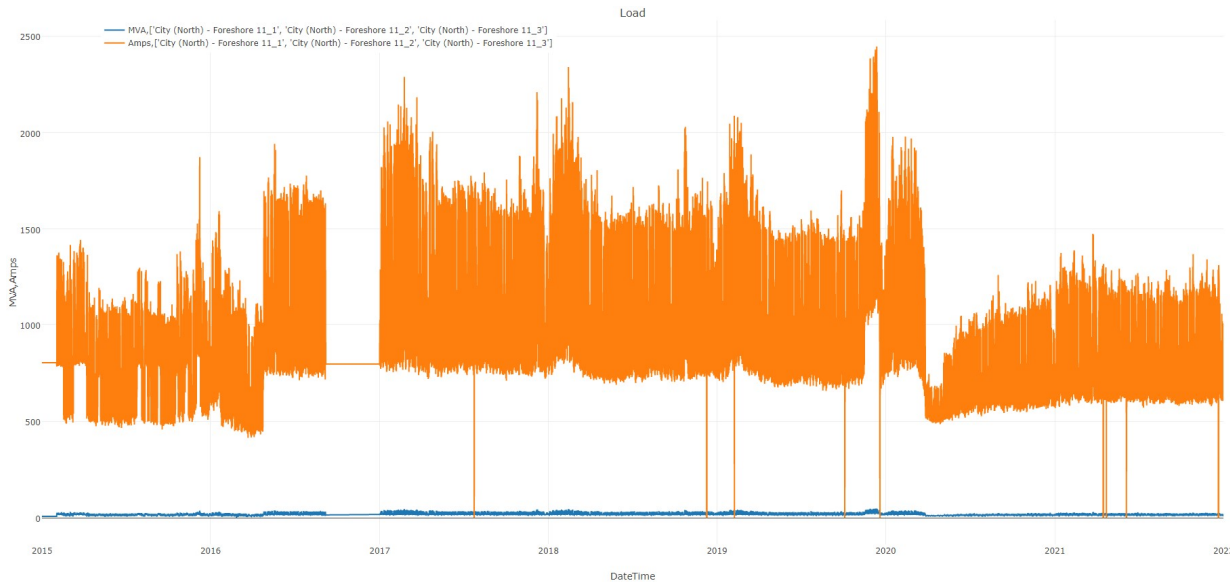
- 2 Formats: Scalable graph & .csv excel file



Document	Description	Download	Details
Load Profile for Area North CVS 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>
Load Profile for Area North HTML 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>
Load Profile for Area South CVS 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>
Load Profile for Area South HTML 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>
Load Profile for Area East CVS 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>
Load Profile for Area East HTML 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>
Electricity Load Profiles 2021.zip	A load profile illustrates the variation in electrical demand expressed in the unit of apparent power (MVA) or current (amps) measured every half an hour at each of our main substations.	<a href="#">Download document</a>	<a href="#">Click for more detail</a>



# Electricity load profiles: Notes on units



- Sometimes Apparent power (MVA) and current measurements (Amps) given on the same graph.
- Can toggle between them: Click on the left upper corner to de-select a graph
- Y-axis unit don't always update, trust the series name

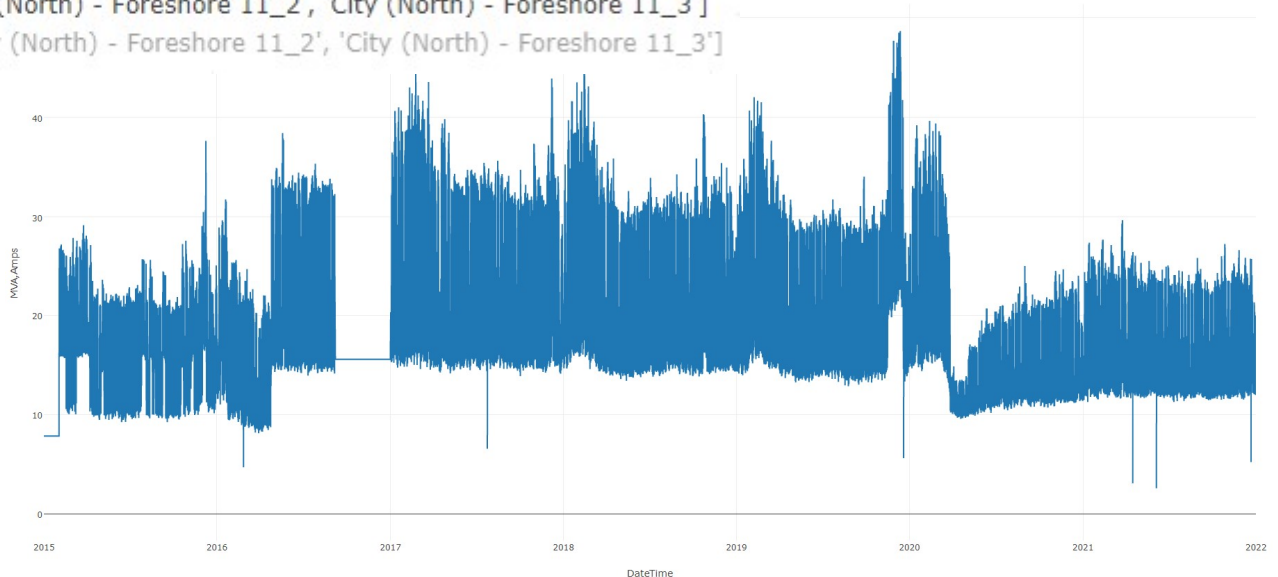


Units

Voltage level

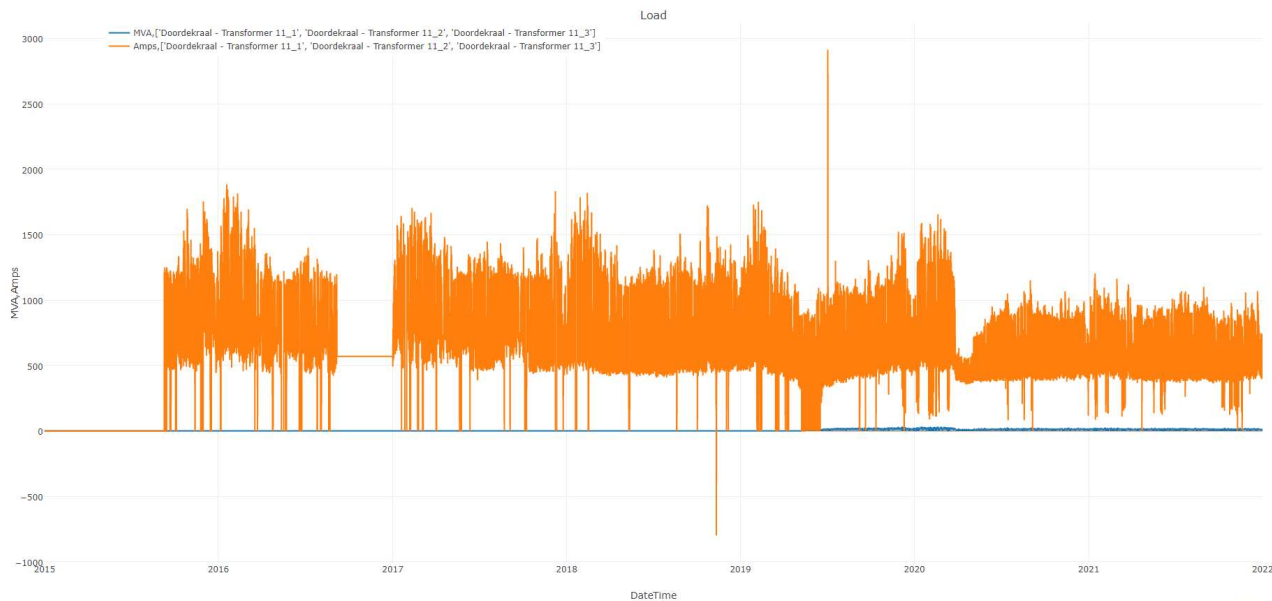


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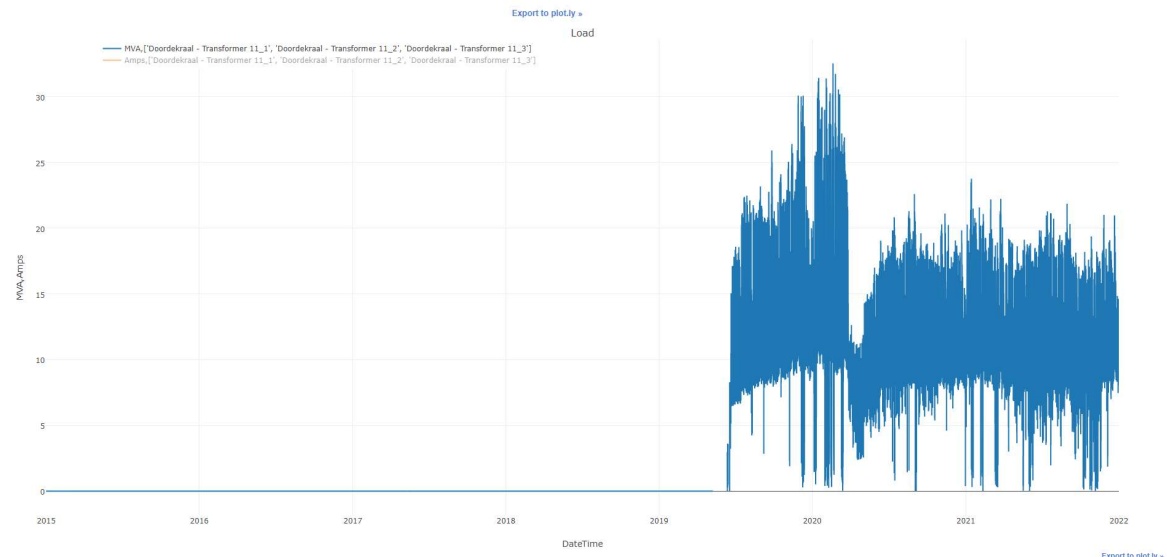




# Electricity load profiles: Missing loading

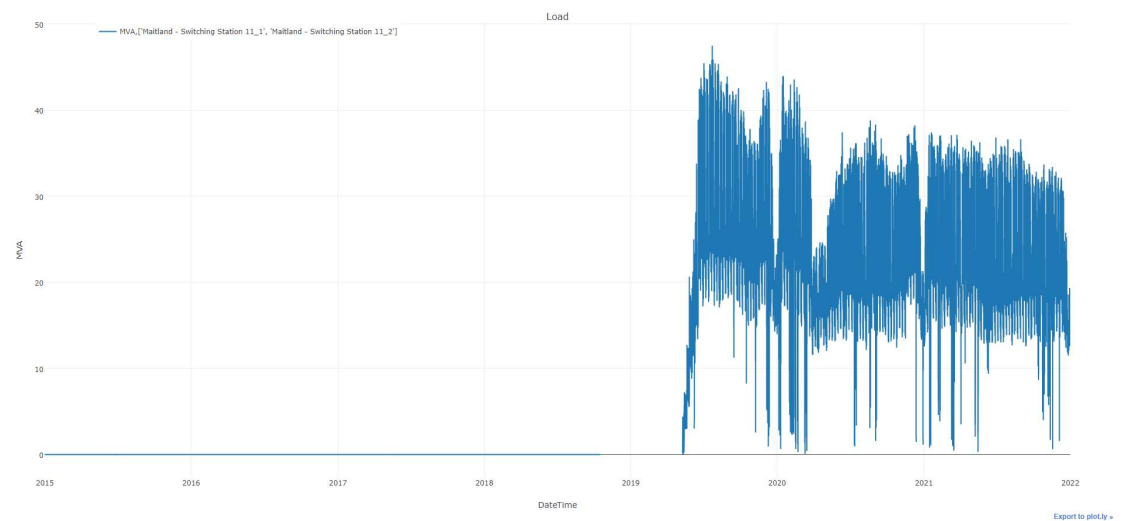
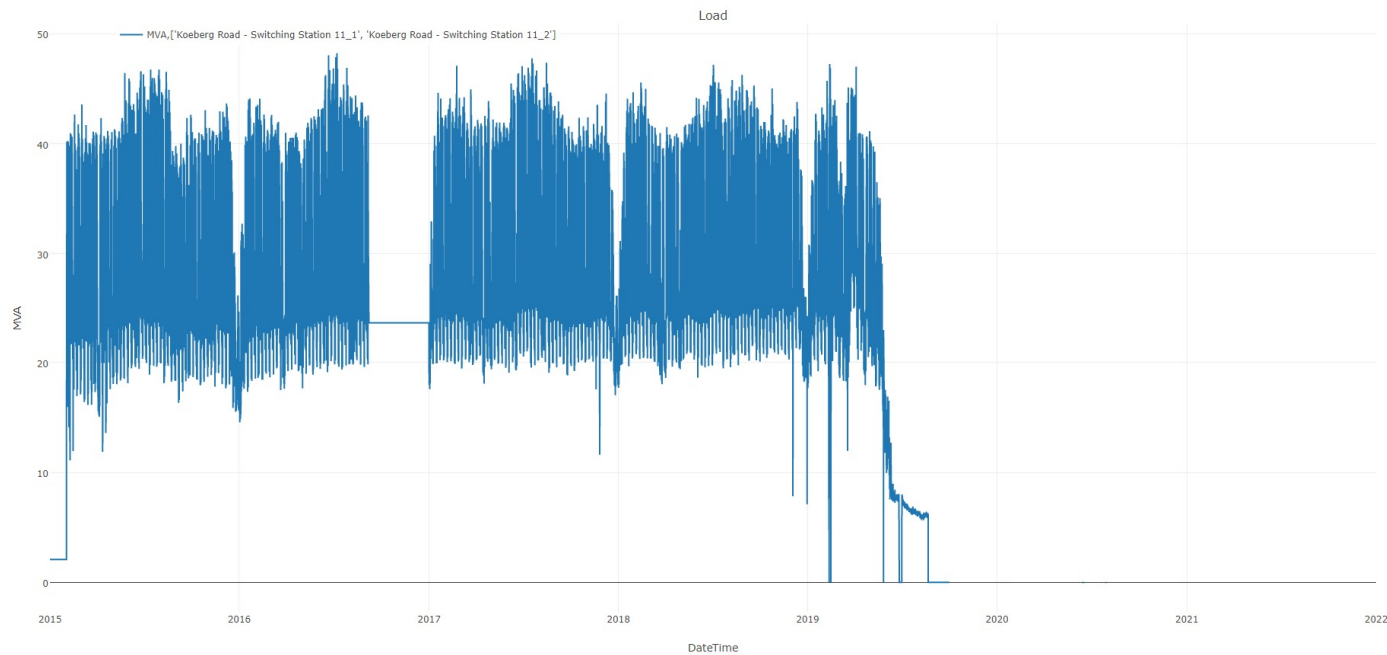


- Might be discrepancies between the Apparent Power and Current graphs
- Current (in Amps) are many times more reliable.
- Be careful when just adding.



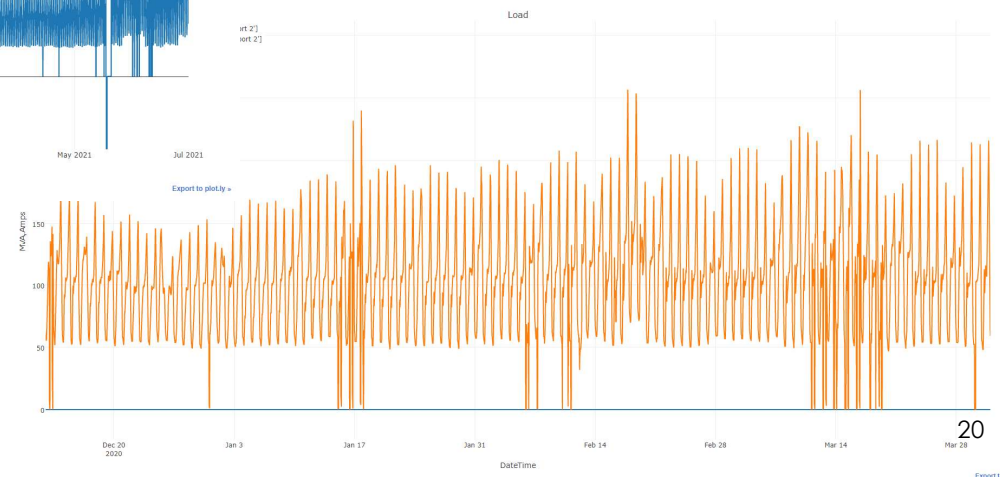
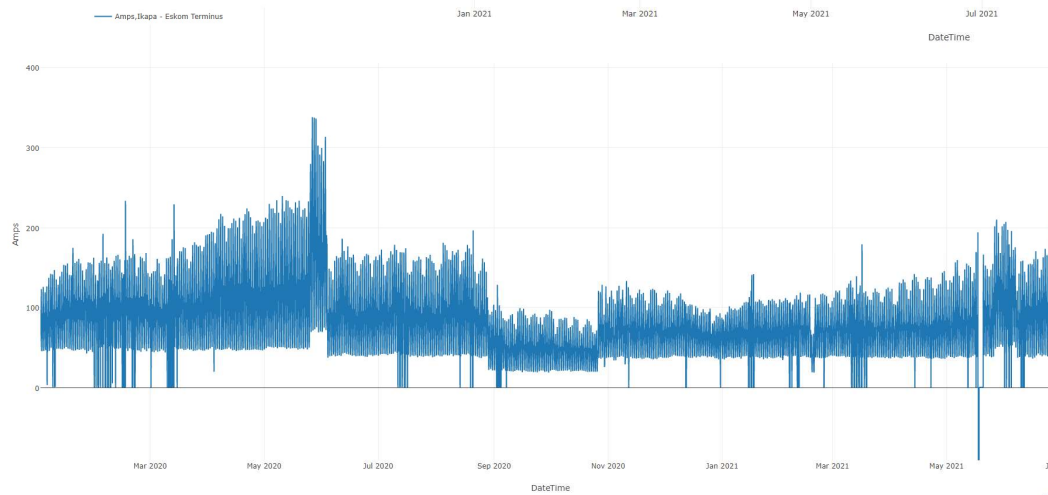
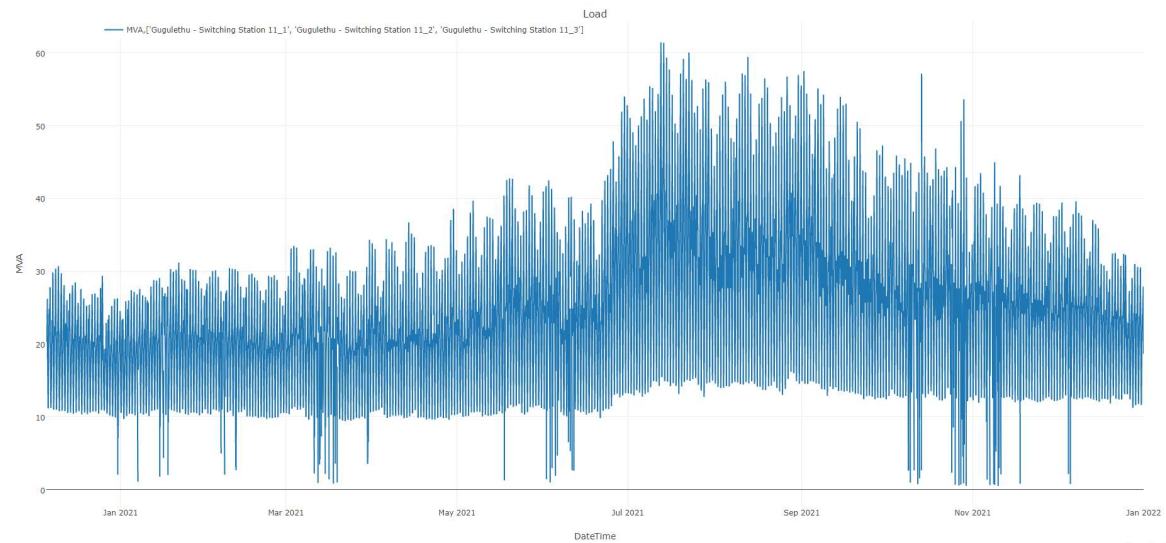
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# Electricity load profiles: Koeberg Rd became Maitland MS



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# Electricity load profiles: Owen & Ikapa added to Gugulethu



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## Other resources

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# Standard for the interconnection of Embedded Generation

[https://resource.capetown.gov.za/documentcentre/Documents/Procedures,%20guidelines%20and%20regulations/Technical Standard for the Interconnection of Embedded Generation.pdf](https://resource.capetown.gov.za/documentcentre/Documents/Procedures,%20guidelines%20and%20regulations/Technical%20Standard%20for%20the%20Interconnection%20of%20Embedded%20Generation.pdf)



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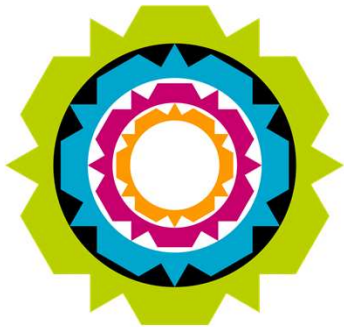
CITY OF CAPE TOWN		ENERGY DIRECTORATE	
Document Type	<b>TECHNICAL STANDARD</b>	Document Number	<b>EEB 705</b>
Title	<b>Standard for the Interconnection of Embedded Generation</b>	Reference Numbers	
Responsible Section	Engineering: Service Connection Planning Protection	Document Status	<b>Current</b>
Technical Reference	Ryno van der Riet	Revision	1
		Review Date	Feb 2023
Compiled			
	Ryno van der Riet (Head: Protection and Telecoms)		
Supported	Manager: Engineering		
	Manager: Infrastructure Operations		
	Manager: Enterprise Asset Management		
	Manager: Electricity Supply		
Approved	Director: Electricity Generation and Distribution	2022-02-14	

## Technical Standard for the Interconnection of Embedded Generation

February 2022



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**Thank You**

For queries contact [electricityipp.enquiries@capetown.gov.za](mailto:electricityipp.enquiries@capetown.gov.za)

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