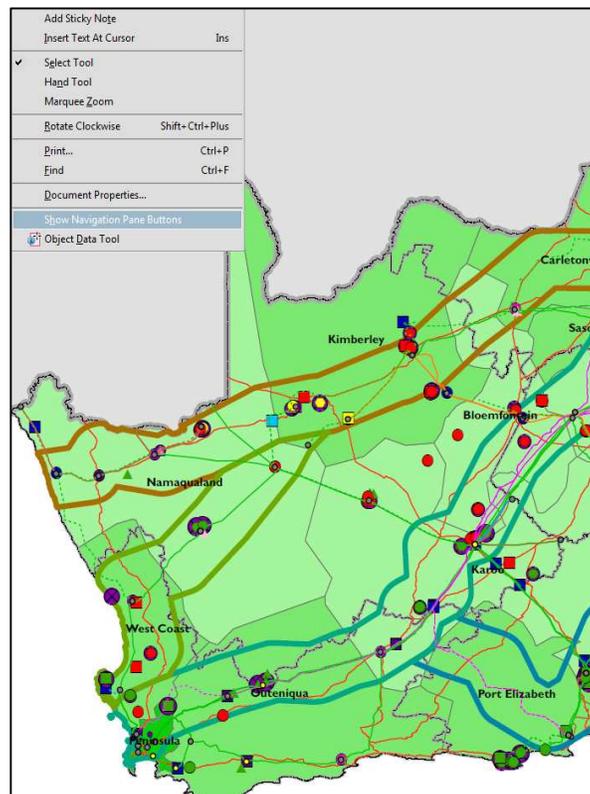


## How to use the GCCA-2022 Interactive Spatial Map

*Note: The interactive PDF map should be opened with Adobe reader version 11 or higher.*

There are two separate maps which show the light load and the midday load results separately but can be navigated identically. These interactive PDF maps contain different layers of information, which can be toggled on and off on the map. These layers include the existing transmission network, the planned transmission projects, the location of the successful IPP bidders for all the REIPPP rounds, the transmission substation supply areas, and the transmission supply areas.

The list of available layers of information is shown in Figure C and D for the light and midday load maps respectively, which is situated on the navigation pane on the left of the the interactive PDF map. If the navigation pane showing the layers is not visible, right click on the interactive PDF map and click “Show navigation pane” on the list as shown in Figure A.



*Figure A: The available layers of spatial information on the PDF map*

A navigation pane will appear on the left of the interactive PDF map with a list of four selection options as shown in Figure B. In the instance that there is a missing selection option then you will need to activate it.

To activate a selection option on the navigation pane, right click on the navigation pane and select the missing layers on the list as shown in Figure B.

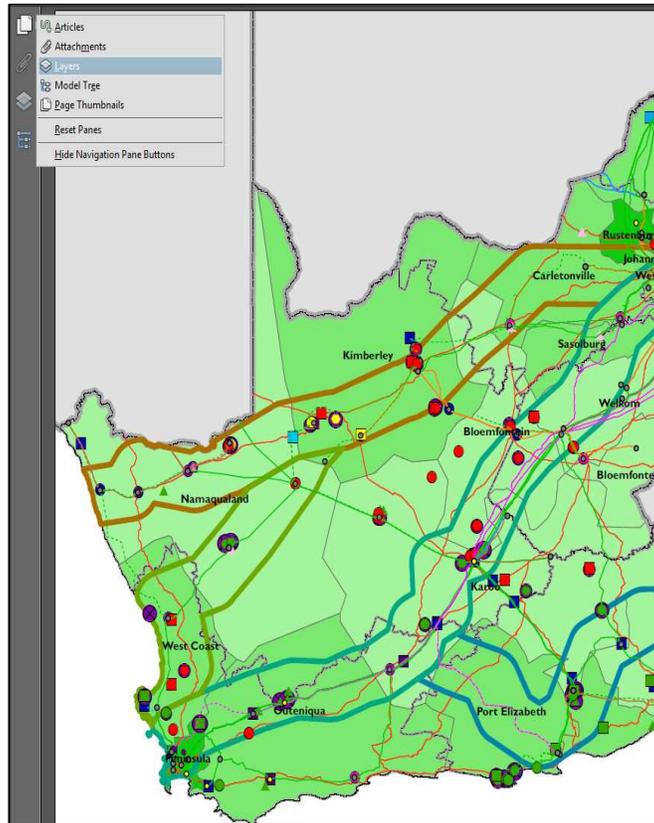


Figure B: The available layers of spatial information on the PDF map

To select the different layers for viewing, the  button on the navigation pane must be clicked to open up the available layers. When opened, the PDF map has all the layers activated. In order to activate or disable a layer on the map, the cursor must be placed on the “eye” button and clicked. The PDF map contains an insert map of the greater Gauteng area to provide better clarity in the congested network diagram and the layers must be selected separately under the “Insert Gauteng” layer option. The main map is under the “South Africa” layer option.

On the map, the Main Transmission Substation (MTS) network information is indicated as follows:

Existing MTS	Black circle
Existing MTS with upgrade	Black circle with red outline
New MTS	Yellow circle with red outline
Transmission line voltages	765 kV purple, 400 kV green, 275 kV and 220 kV red
Existing transmission lines	Solid lines
New transmission lines of potential MTS upgrade projects	Dashed lines
Potential upgrade at existing MTS	Phase 1 pink, Phase 2 maroon, Phase 3 dark purple, Phase 4 dark blue, Phase 5 light blue
Potential upgrade at new MTS	Circle in colour of phase
Transmission power corridors	Square in colour of phase
	Colour-coded by name

The MTS supply areas are shaded in one colour with the internal borders of the MTS supply areas indicated.

The supply area 2022 steady-state limit LL and ML levels indicate the overall generation connection capacity of the transmission supply areas for 2022 light load (LL) and midday loading (ML) conditions. They are shaded in green with the intensity of the green relative to their connection capacity. There is a legend which shows the connection capacity values related to each shade of green and this is viewed by selecting the box next to Other 4 so that the eye is showing.

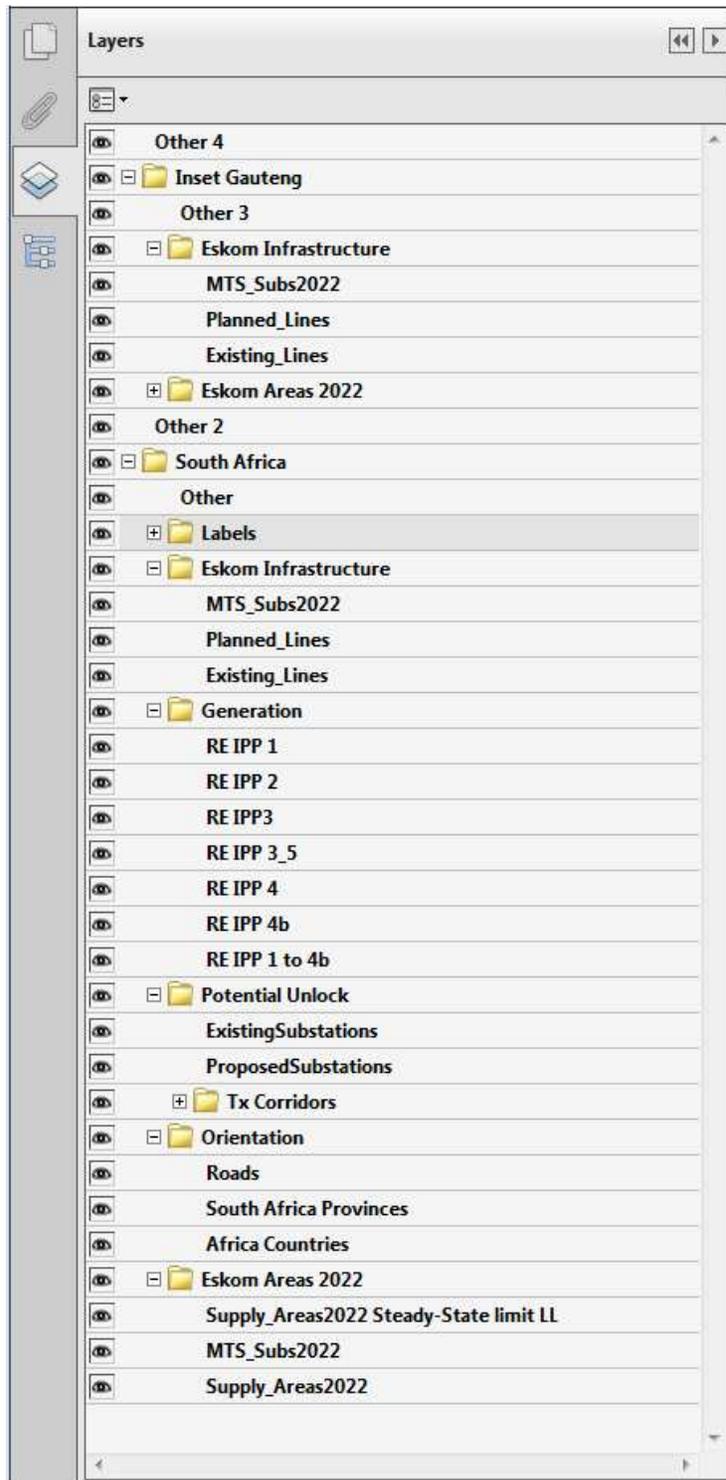


Figure C: The available layers of spatial information on the PDF map

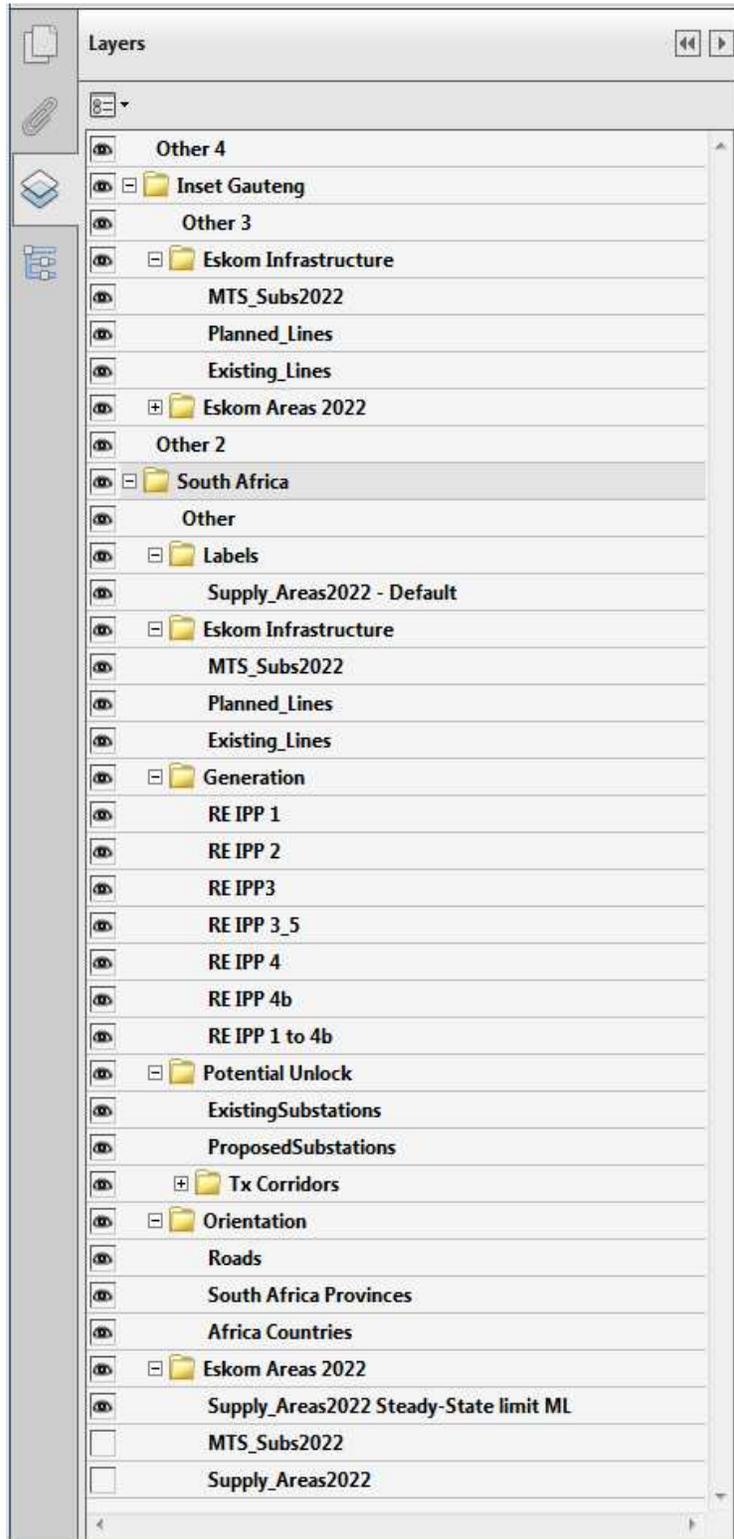


Figure D: The available layers of spatial information on the PDF map

Included in the PDF map document are the GCCA – 2022 update connection capacity values for both light and midday loading conditions and other relevant information in tabular form, which can be accessed under the model tree function. This is activated by clicking on the  on the navigation pane.

The level of the information available is shown in Figure E and F. The required level must be selected, and a drop-down list of the infrastructure will appear. The MTS's are grouped into their respective provinces.

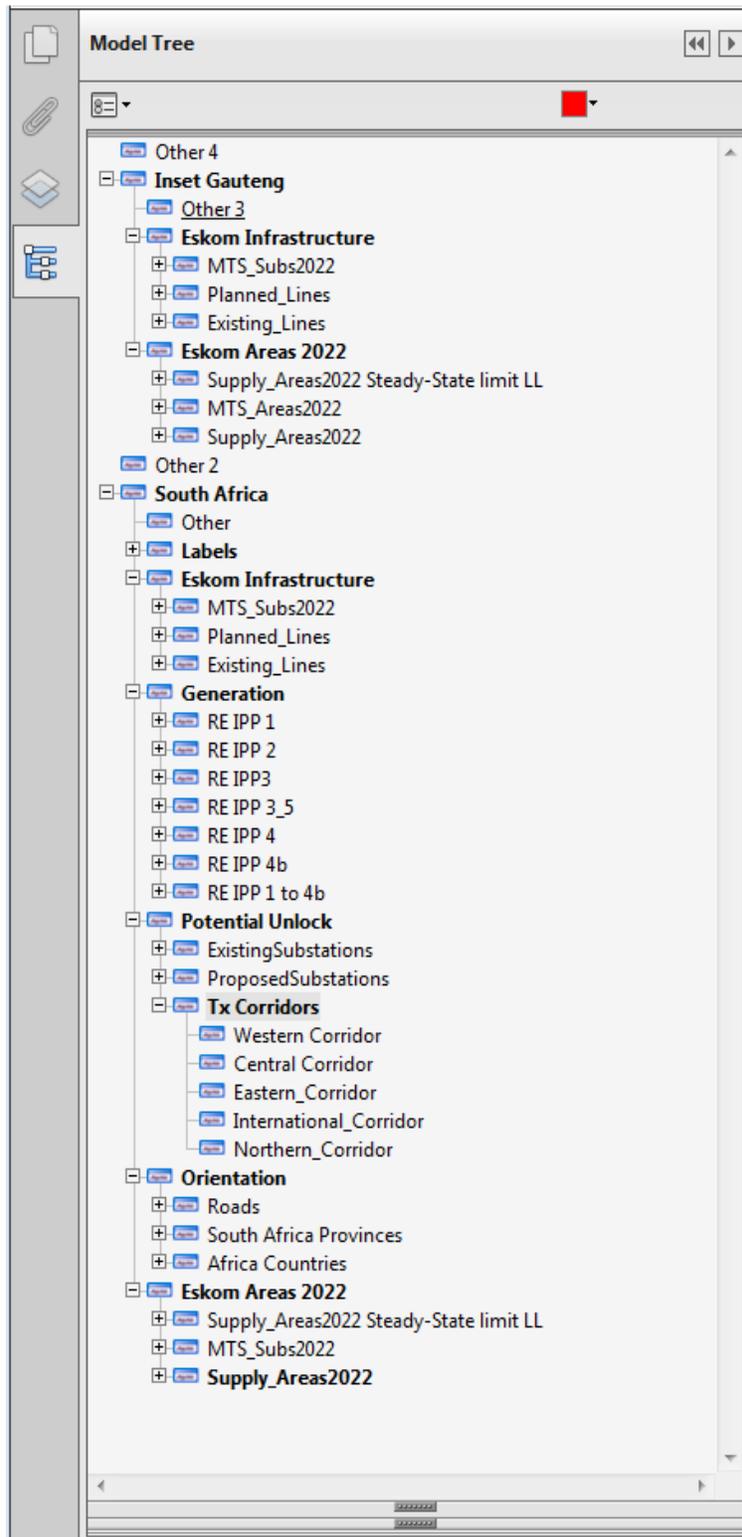


Figure E: The available levels of tabular information in the Light Load PDF map document

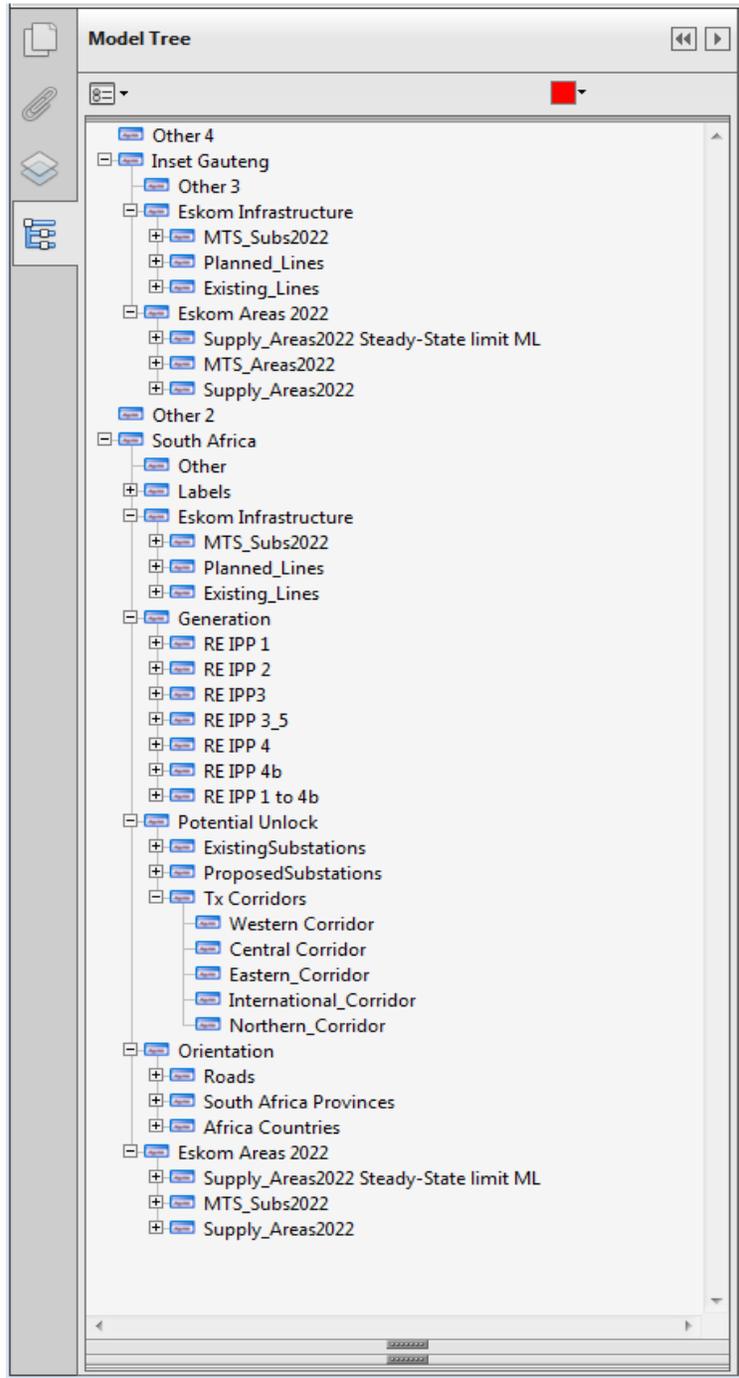


Figure F: The available levels of tabular information in the Midday Load PDF map document

The substation connection capacity limits at each voltage level can be viewed by clicking of MTS Subs2022 expansion tab under Eskom Infrastructure as seen in Figure E and F. A list of substations will appear and selecting the substation will give results in tabular form as shown in Figure G. Clicking on a particular MTS substation will display the available information in tabular form in the window below the list. A red square will highlight the selected MTS substation on the map.

The screenshot displays a software interface with a 'Model Tree' window on the left and a property table on the right. The 'Model Tree' lists various substations, with 'Hermes 400/132' highlighted in bold. Below the list, there is an 'Options' section with a red square icon and the text '<No 3D Model Selected>'. The property table below shows detailed information for the selected substation.

Property	Value
Substation Transformer	Hermes 400/132
Transformer Voltages	400/132
No Of Trfrs 2017	3
Trfr Size (MVA)	500
Installed Transformer (MVA) 2017	1500
Light Load	136
Gx At Light Load	0
Year Of Trfr Upgrade	-
Upgrade Status	-
No of Trfrs 2022	3
Trfr Size (MVA) 2022	500
Installed Transformer (MVA) 2022	1500
REIPPP Gen Allocated (MW)	-
MV Limit (LL) 2022	1606
HV Limit (LL) 2022	2400
HV Area Limit (LL) 2022	2400
CLN Limit (LL) 2022	2650
MV Limit (MDL) 2022	1606
HV Limit (MDL) 2022	2400
HV Area Limit (MDL) 2022	2400
CLN Limit (MDL) 2022	2650
Status	Existing

Figure G: The available generation connection results tabular information in the PDF map

To check the results at CLN level only then this can be obtained by expanding the “Supply\_Areas2022 Steady-State limit LL” (or ML) under Eskom Areas 2022 as can be seen in Figure E and F then selecting the CLN of interest.

If the location of the MTS is not known then after highlighting the name and right clicking an option list will appear. Selecting the “Zoom to Selection” option will jump directly to the location on the map.

This interactive PDF map can be interrogated spatially as desired by potential developers and investors to address their own particular issues regarding their specific IPP projects under consideration subject to the Terms and Conditions.