MPUMALANGA POLICY DISCUSSION MAP

User Guide

The Mpumalanga Policy Discussion Map was developed by 1Map Spatial solutions and GreenCape through the support of the Royal Danish Embassy. The map is intended to be used by decision makers as a tool to support Mpumalanga policy discussions, and as an initial assessment map for renewable energy developers interested in project development in the province.

Mpumalanga Energy Policy Discussion Map Widget Contents

Map Widget

The widget gives visitors to the website access to mapped visualisations of the Mpumalanga Energy Policy Discussion Map projects in a simplified, easy to use way.

Quick guide to the Widget icons

Every button on the map displays a tool tip as you hover the mouse over it.
(These icons are elaborated on in the body of this document)

|	Tools, Functions & Controls
🔍	**Search:** Click on this button to start the search for the keyword you have entered in the Search Bar.
👆	**Selection:** Enables you to select a feature on an active layer.
📏	**Measure by line:** Click on this button then use the mouse to draw the path you wish to measure. Double-click at the last point and the length will display next to the drawn lines. To exit this tool, click on the Selection pointer.
📐	**Measure by area:** Measure by area: Click on this button then use the mouse to draw the lines to define the area you wish to measure. Double-click at the last point and the area will display next to the drawing. To exit this tool, click on the Selection pointer.
⚛	**Spatial Analysis:** Click on this button to open the analysis options.
◎	**Spatial Analysis options:** Click on the double circle to open the Buffer Feature Selection Tool. This allows you to define a Primary layer, and a buffer radius, in metres, you wish to analyse. You can then display (overlay) secondary layers to see to impact within the specified buffer zone. (define that if you minimise this window, the button appears below the zoom slider on the left for easy access...)
G	**Google maps:** Click on this button to open Google maps in a new tab, at the same coordinates.
←	**Previous extent:** This button restores the map to the previous view (extent) you were seeing. Repeating this will step you back through your previous views. (Navigation history).
→	**Next extent:** This button moves the map view forward through the history of the extents you have used. Repeat as necessary.
🖨	**Printing:** This button opens a window where you adjust the visible map and choose the orientation, page size, scale etc for the print, which can be save as .pdf, .jpg, .png or saved to the clipboard.
⤢	**Full screen mode:** (top right) This button hides the browser tabs at the top of the screen. (F11 key can also be used in some browsers).
✕	**Exit Full screen mode:** The full screen button is replaced by this which is used to restore the browser tabs at the top of the screen. (esc key can also be used in some browsers).
-25.8180, 30.5734	**Map Position:** (bottom centre) As you move the cursor across the map, this display gives the exact coordinates in decimal digits, of where the cursor is pointing to on the map.
☰	**Legend:** (bottom left) layer legend - this is only visible when you have selected a layer and made it visible. Click on it to open the legend details for the selected, visible layer.

	Zoom: Click on the + to increase the scale of the map, and on the – to decrease the scale
	Zoom Slider: Click on the dark bar in this slider, hold and drag it up to increase the scale of the map display, or down to decrease the scale
	Base layers: Click on this button to open the base layer options available. These include OSM, OSM Human and ESRI World Topo.
	Overview Map: (bottom left) This button shows you a thumbnail image of the larger map with the extent of your visible window indicated on it with a dotted line rectangle.
	Attribution: (bottom right) This acknowledges the source(s), of the information being displayed. Where additional information is available, click on the button opens the full attribution details of the provider in a new tab.
	Layer Switcher: All layers are listed here under group headings. Control which layers you want to appear on the map by selecting layers, making them visible and/or active. The active layer can then have features selected on it using the Select Tool.

The Search Bar

At the top of the map, the search bar provides 3 types of searches.

Click on the Type Selector arrow on the right of the search bar, to choose which search you want to use.
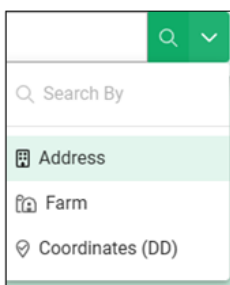
Search by Address

Choose the Search by Address option from the dropdown box and start entering the address in the search bar. As you type, the app offers possible entries that meet your selection. Choose the one you are looking for from the list. You can refine your search by adding province code (e.g. MP for Mpumalanga).
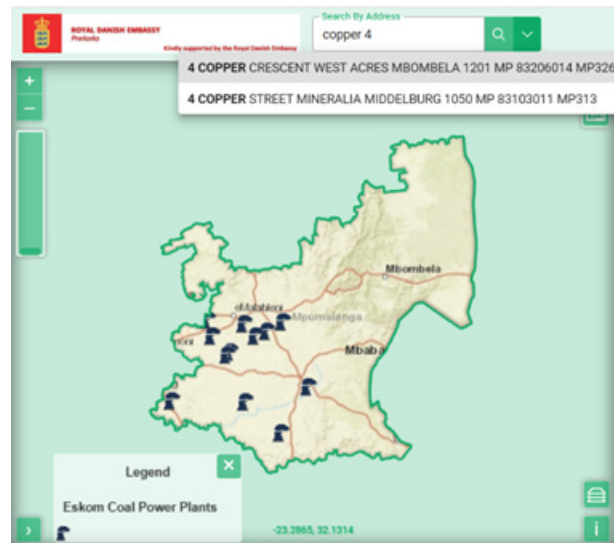
The map Zooms in to your chosen address and displays the property boundaries and an information panel giving details of the property.

At this point you could add additional layers or choose a base layer such as aerial photography, or additional property information layers.
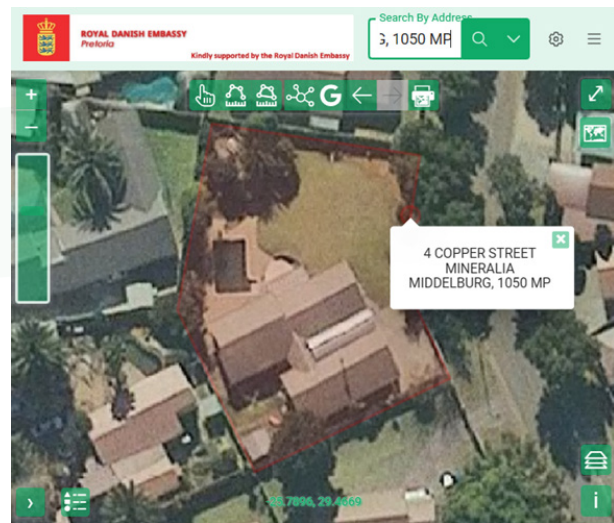
Search by Farm

Click on the Type Selector arrow on the right of the search bar, [⌄] and enter the farm name in the search bar.

For example, **Goedgevonden**

The map Zooms in to your chosen farm and displays an information panel giving the Allotment code, stand and portion number of the property.
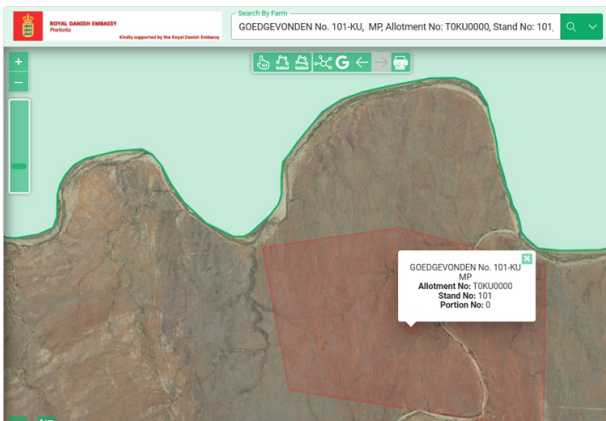
Search by Coordinates

The map Zooms in to your chosen Coordinates and displays an information panel giving the coordinates in degrees, minutes, seconds, as well as a function to get directions to this property which opens a new tab with directions from Google Maps.
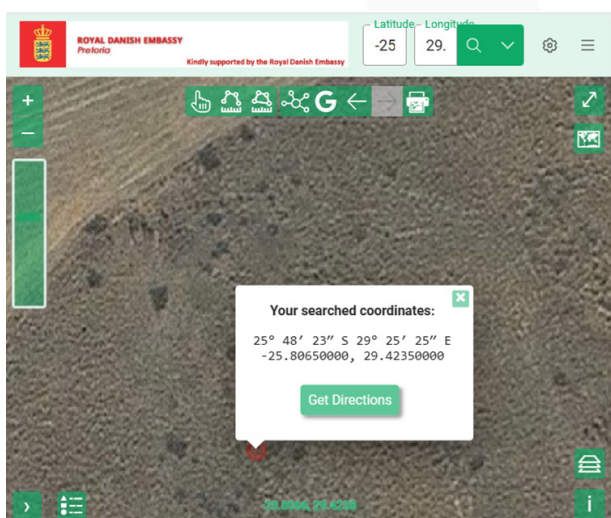
The Layer switcher

To open the Layer panel and access the layers which are available to you, click on the layer button at the bottom right of the map:

Your available layers are grouped together under these headings:

Click on the + to see all the layers in a group. For example Demography:

Now that you can see the layers in a group, you can select one or more so that they become visible on the map.

 You make a layer visible by clicking on the control next to that layer that looks like an eye (crossed out).

 When a layer is visible, the icon changes to an open eye and the categories within that layer are displayed on the map with unique styling, which is elaborated on in the legend.

 To make a layer active, click on the radio button on the right of the layer name and a tick will appear. This will be discussed in more detail later.

Demography Layer Example

Open the Demography group (click on +), open the Census 2011 layer (click on 👁),
In this example the population is mapped, and the density styled by colour from less than 2 500 to more than 90 000 as indicated in the legend.
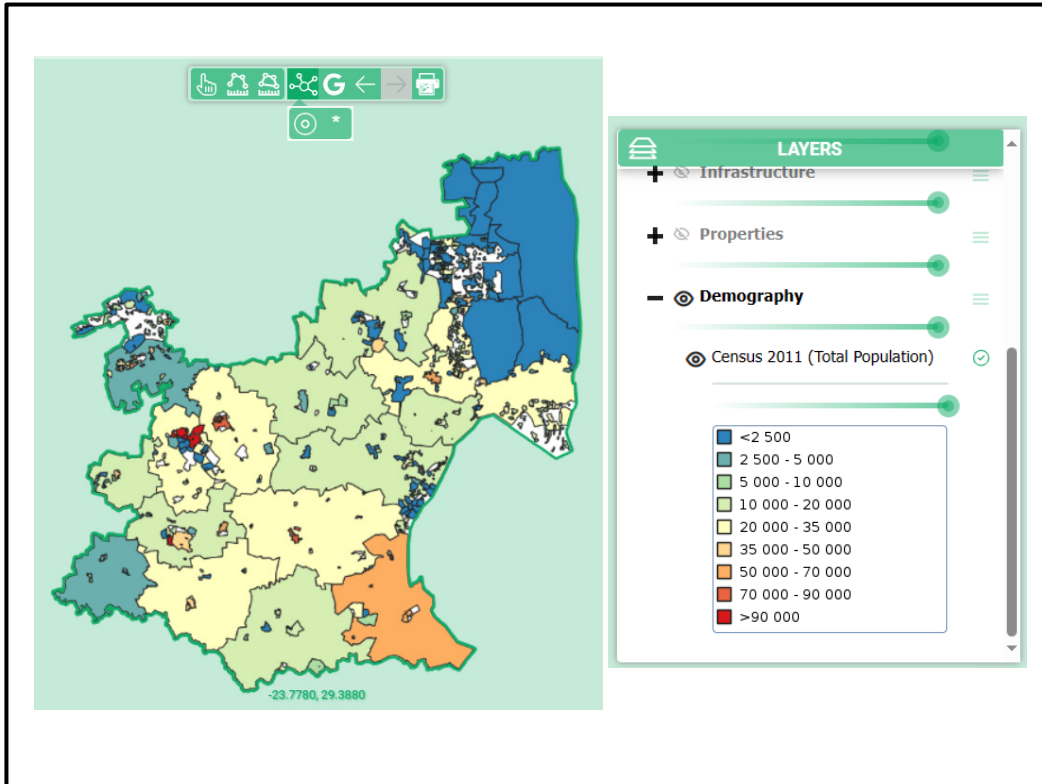
Renewable Energy Example
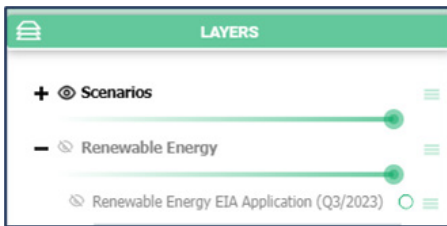
• In this example, the layer "Renewable Energy EIA Application" appears.
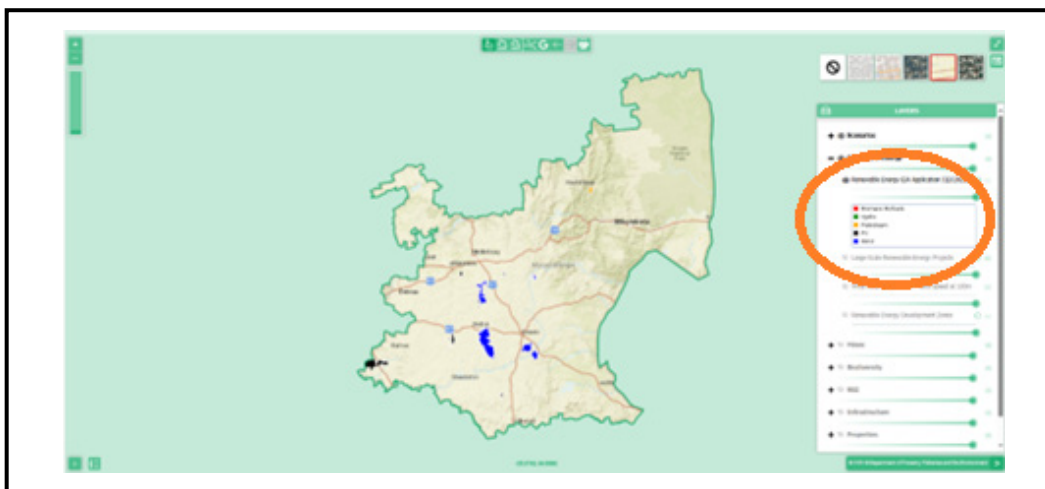
The details of this layer's categories are displayed, and also appear in the legend at the bottom left of the map (Biomass Biofuels, Hydro, etc)

Legend

Renewable Energy EIA Application (Q:

- Biomass Biofuels
- Hydro
- Petroleum
- PV
- Wind

Wind Project Exclussion Zones

Just Energy Transition Hotspots
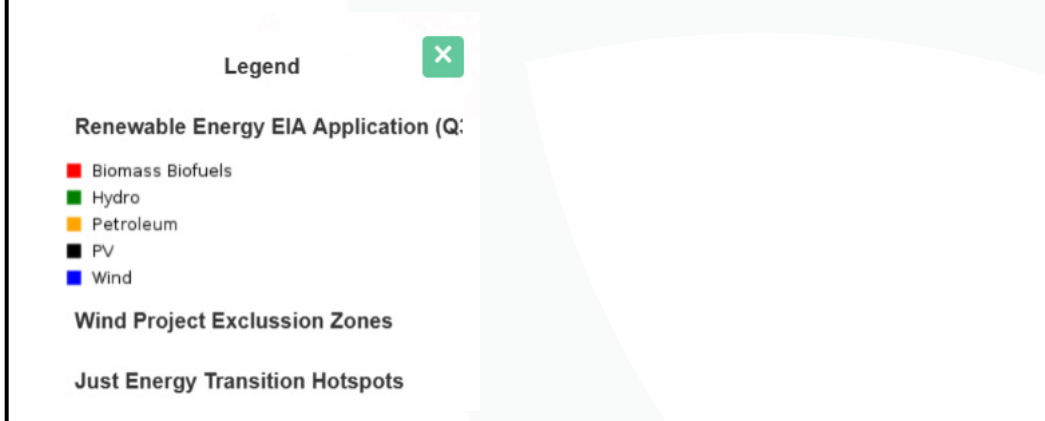
Note: You can make more than one layer visible on your map at a time.

Large-Scale Renewable Energy Project Example

In this example, the Large-Scale Renewable Energy Projects are visible (Solar PV and Bio-Energy shown on the map), as well as the Wind Atlas. Open the Legend to see details of the styling and colours used in the Wind Atlas.
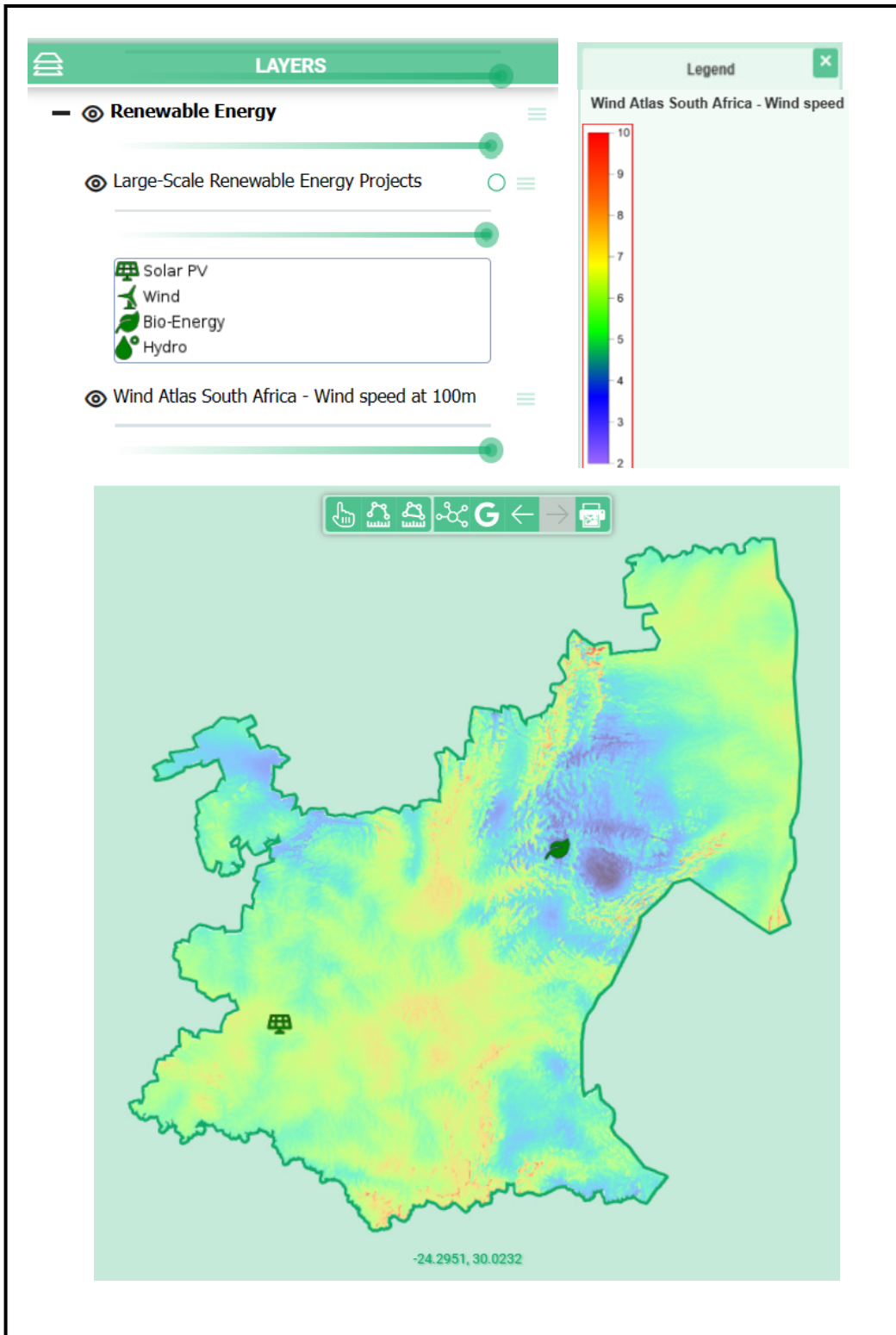
Scenarios

We will look at a scenario to illustrate the value of layer information as used in the Spatial Analysis workflow.
• Open Scenarios
• Make "Wind Project Exclusion Zones" Visible

Three Exclusion Zones are highlighted (in shades of red hatching) based on the information provided about the categories in this layers.
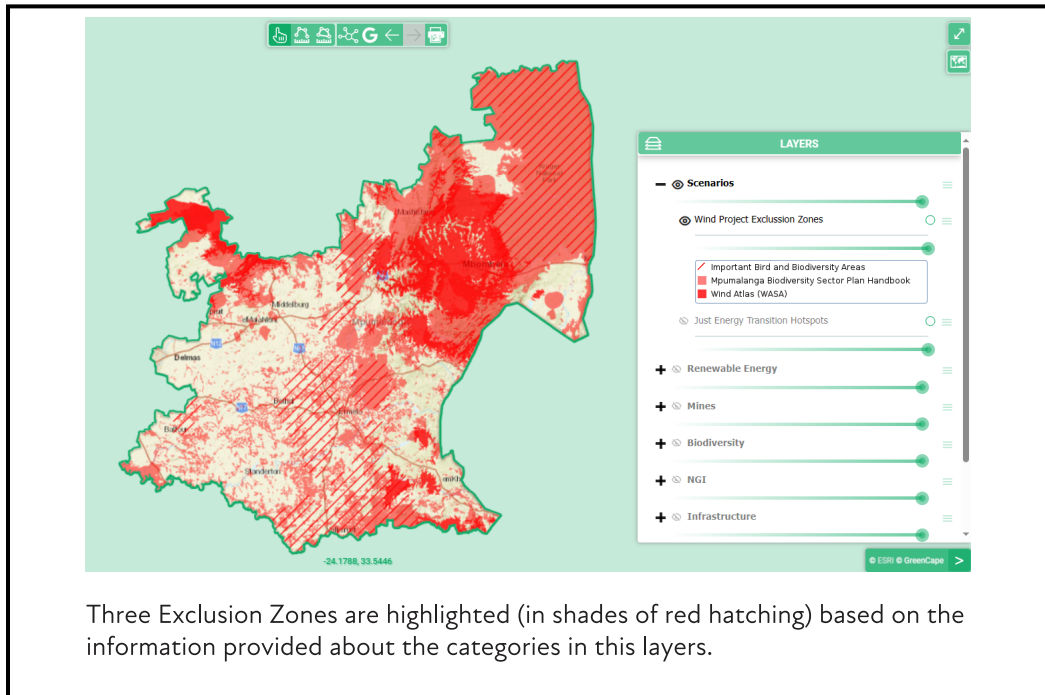
• Make "Just Energy Transition Hotspots" Visible

"Coal Operating Mines" and "Eskom Coal Power Stations" are now displayed as well.
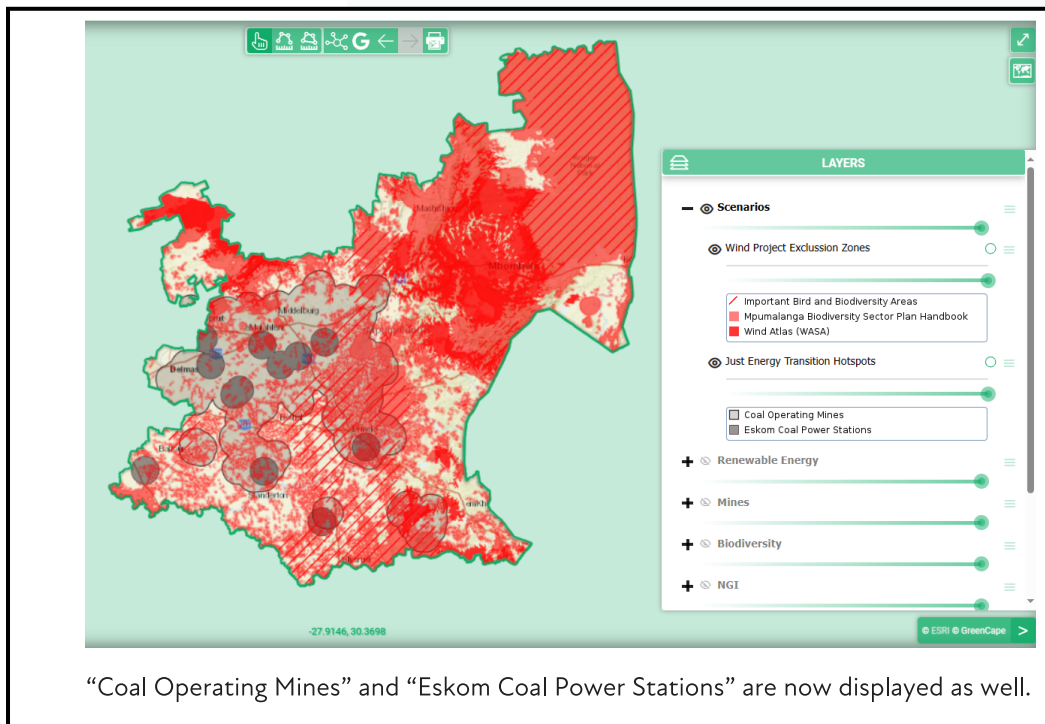
In this scenario you can now zoom in and explore the areas where these areas don't overlap, and identify where new wind farms could potentially be developed. Then look at other key issues like demography, population density and explore the impact using the other layers available in this application.

Printing

Click on the Print Map button, last icon on tool bar at the top of the screen.

In the print window that is displayed, enter the print parameters you want
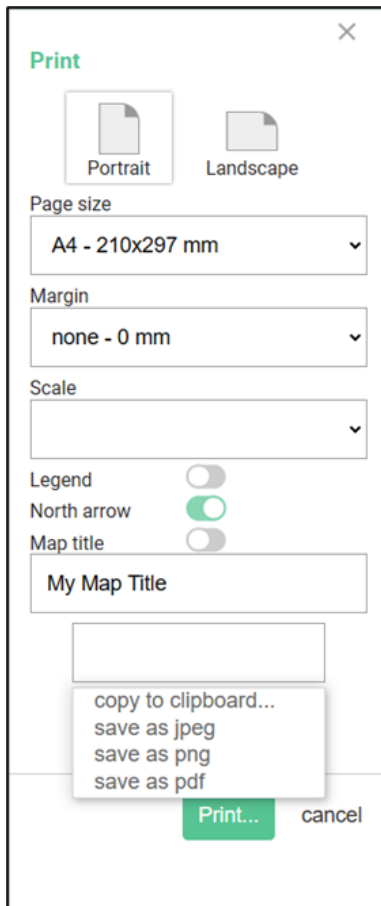
Margin options are 0, 5mm or 10mm

Choose a scale from dropdown list

Include the legend by dragging the slider

Include the North arrow pointer

Give your print a title to appear on the map.

Click on this box to see the dropdown list and and select one.

Click on Print button.

Click on the X in the top right of the Print window to close and return to the map.

This is a thumbnail of the PDF that was saved to local downloads folder, showing the legend.

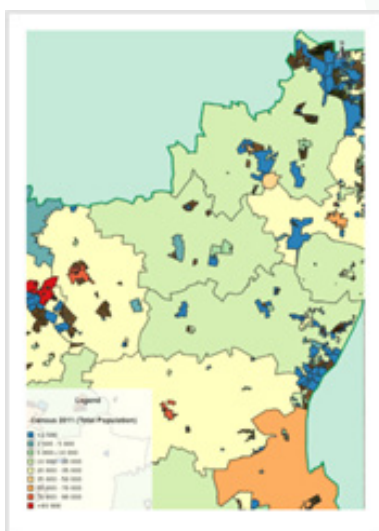# Legend

The legend gives details of the styling used for the data elements that are being displayed for a layer. First, Select a layer.

The Legend will be displayed below the Layer in the layers switcher, and can also be accessed from the icon at the bottom left.

To view what this looks like, see the Demography Layer Example..

Zoom, Pan, Navigate on the map

Maximizing the map on your screen

Because the application runs in a web browser, the top part of your screen continues to display the browser tabs and controls. As you won't use these while you are in the widget, Click on the Full Screen mode (top right of the map)
to hide these. Some browsers make use of the F11 function key and the Esc key to hide and restore these tabs.

Zooming

Zoom to increase or decrease the scale at which you view the map.
Zoom: Click on the + to increase the scale of the map, and on the – to decrease the scale.

Zoom Slider: Click on the dark bar in this slider, hold and drag it up to increase the scale of the map display, or down to decrease the scale. .

The Scroll button on the mouse: Also allows you to increase or decrease the scale.

Shift

+

Another way of zooming into a specific area is to hold down the SHIFT button on your keyboard, click and hold down the left mouse button, and drag a box around the area you would like to zoom into. Release the mouse button and the map zooms in.

Panning

To move around on the map left click anywhere on the map and holding down your left mouse button move the mouse to drag the map to the area you want to see.

Navigation History

The Previous extents that you viewed are saved and you can step back through these using the previous extent and next extent buttons.

Spatial Analysis

We will illustrate this process with an example.

In this example, we will analyse a 20km radius around each of 5 power stations, looking at the impact on 2 Secondary Layer viz. Demography and Underground Mines.
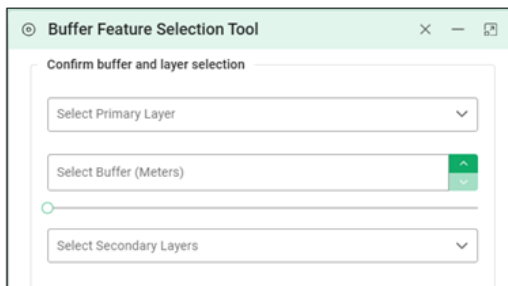
Follow these steps:

1. Click on the Spatial Analysis tool;

2. Click on the double circle to open the Buffer Feature Selection Tool

3. Select the Primary Layer using the dropdown list,

4. Now go to the map and click on each feature (in this example, Coal Power stations). If the Buffer Feature window is obscuring the map where you want to select a feature, click on the heading of the window and drag it out of the way. A red circle will appear around each feature that you select.

5. In the Buffer Feature Selection window, set the Buffer radius that you want analysed around each feature; In this example enter 20 000 as we want to see a 20km radius around the coal stations. You can use the slider to adjust the radius, or the up and down arrows on the right to increase or decrease the number, or type the number in but remember to press Enter for the app to accept what you typed in manually.

6. Select Secondary Layers to see how they are impacted within the selected radius. In this example Census 2011 and DMRE Underground Mines;

7. Finally, click the Submit button. A report is displayed detailing the entries in the secondary layers that are affected by the 20km radius we requested. This can be downloaded by clicking on the download icoN at bottom left of the result window.

Other controls on this window (circled below) are, respectively, Close the window, Minimise the window, or pop it out to cover the full map window to read the table on screen. Minimising the window will display the Buffer Feature icon on the lower left of the screen, highlighted in red. Click on the icon to restore the window.

Base Layers

Base layers are accessed from the icon on the top right.
Click on the base layer image you wish to display.
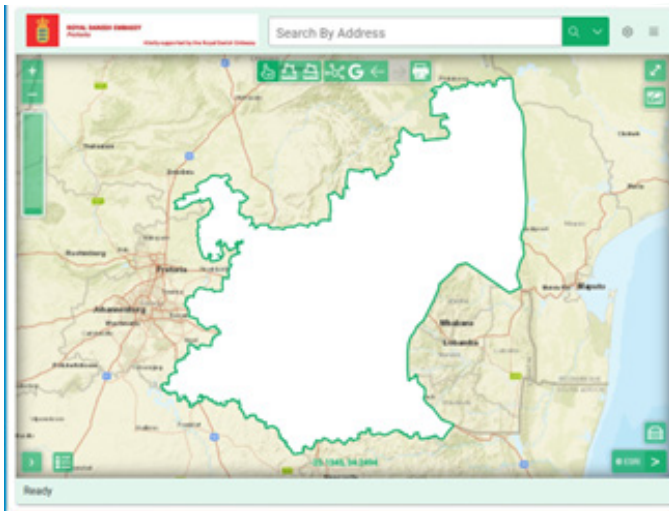The available base layers are;

	None		Aerial Photography (25cm) NGI Partial
	1map		ESRI World Streetmap
	OSM (Open Street Map		ESRI World Imagery

Troubleshooting

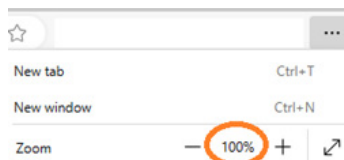**When the Browser Zoom Scale is above 75%**
If you enter the widget and the image shows the whole of Mpumalanga as white,

please access the browser controls at the top right of your screen

and reduce the Zoom to 75%. (This will be addressed asap.)

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