OnSSET/Global Electrification Platform

Hands-on 1: Exploring electrification investment scenarios using the GEP Explorer[1]

Useful links:

1) The Global Electrification Platform – Explorer (GEP Explorer)

Learning outcomes

By the end of this exercise, you will be able to:

1) Explore electrification scenarios on the GEP Explorer

2) List a few key parameters affecting the costs in the scenarios

Global electrification platform

In this exercise, you will explore electrification investment scenarios using the Geospatial Electrification Platform (GEP) – Explorer. The GEP Explorer allows the user to browse least-cost electrification strategies around the world, interact with country contextual data and many different investment scenarios. Find and access the GEP Explorer here.

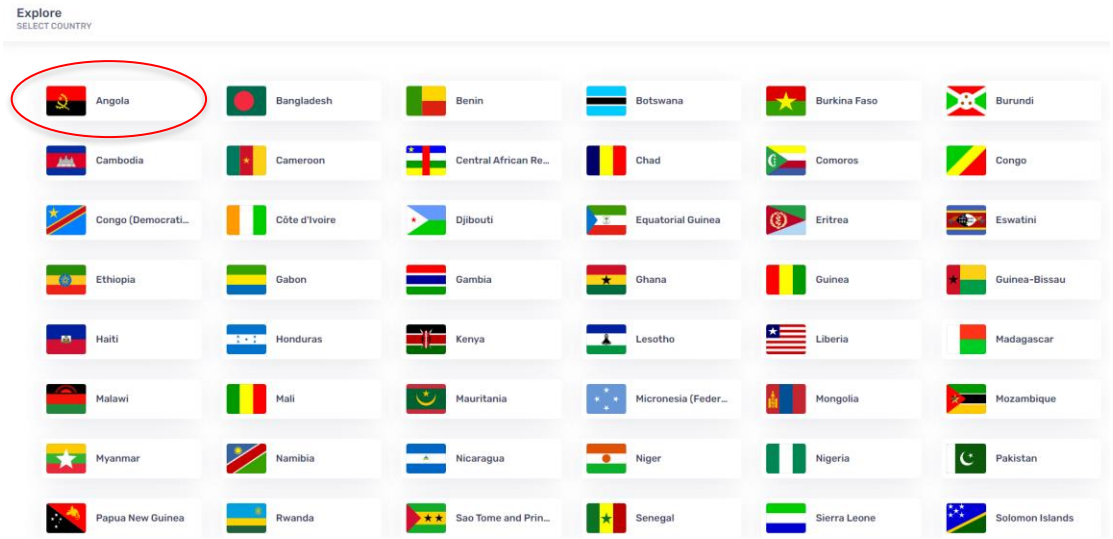
How to use

From the landing page, click on ***START EXPLORING*** to go to the country selection.

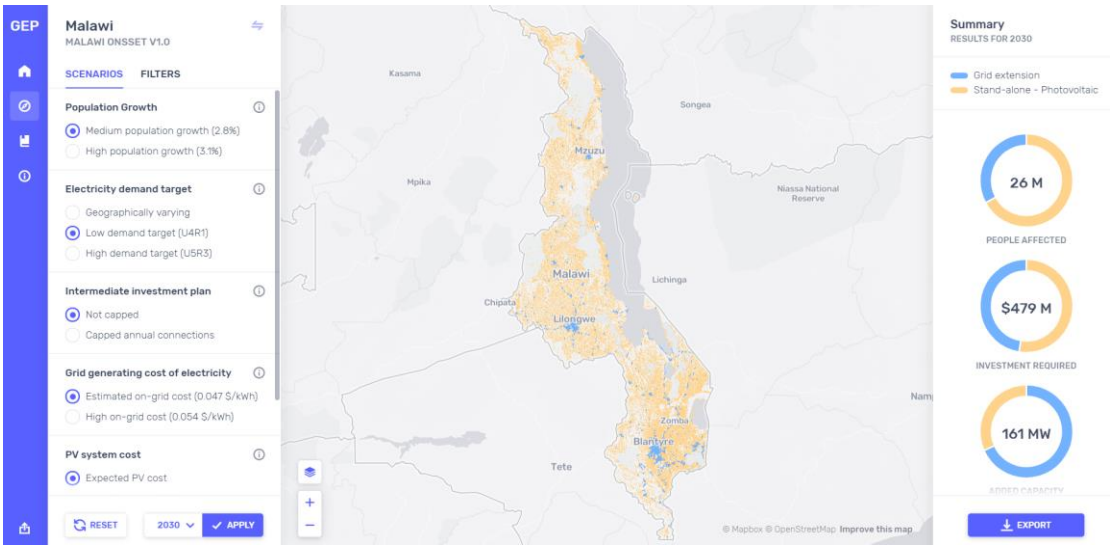
[1] This exercise is an exercise adopted from: Korkovelos, A., Sahlberg, A., Khavari, B., 2019 Exercise 1: Exploring electrification investment scenarios using the Explorer [WWW Document]. OnSSET Teaching Kit. URL https://onsset.github.io/teaching_kit/courses/module_1/Excercise%201/ (accessed 2.18.21).

All images are screenshots from https://electrifynow.energydata.info/ with permission from World Bank to use for this hands-on.

Next, click on the country for which you wish to browse electrification investment scenarios. In this exercise, we will be **exploring Angola.**

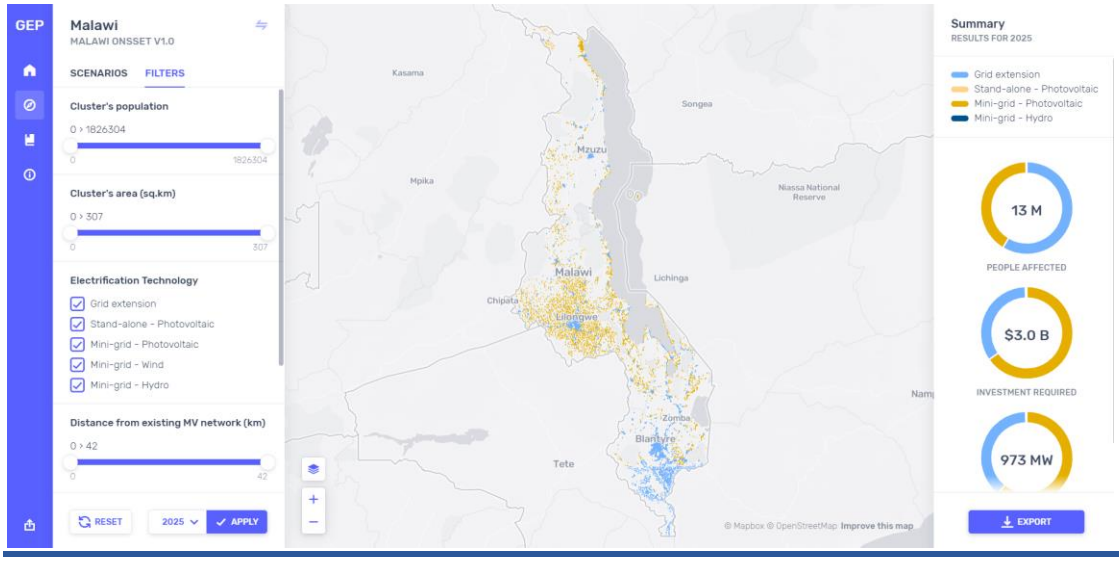


On the country page, there are several things to explore. In the middle are the results for each cluster in the country, the colour indicating the least-cost electrification technology in the cluster. To the right are the summaries for the whole country, displaying the people to receive electricity from each technology, the investments required, and the new capacity required for that scenario. On the left, you can change the scenario. There are 6 Levers available, each with two or three lever options. To change to a different scenario, select another lever option, then press **APPLY**.



Each scenario is run in two time-steps, from 2018 to 2025, and from 2025 to 2030. Next to the **APPLY** button you can set the year for which you want to see the results, either 2025 or 2030. Remember to press **APPLY** to load the new results if you change the year.

Finally, you can also apply a number of filters, e.g., which technology options to display are shown in clusters with specific population ranges and so on. Again, click **APPLY** to apply the filter.



Your task

You will adopt two roles in this exercise: First Type A – The national electrification analyst; and Second Type B – the PV mini-grid developer. You will answer three questions in total.

<u>Type A – The national electrification analyst</u>

Task: In this exercise you are an energy analyst working for the Energy Ministry. One of your co-workers has developed a number of electrification scenarios and published them online.

Find the correct answer for the following questions (these will appear in the MCQ section):

Q1: Which **two Scenarios/Lever combinations** lead to the highest cost of achieving universal access to electricity in Angola by 2030?

Q2: What are the investment costs required in Angola in 2030 to meet this scenario: *high population growth and bottom-up demand target* (and the remaining set to default values) and which technologies are most cost optimal (MG = Mini grid, SA = Stand-alone)?

<u>Type B – The PV mini-grid developer</u>

Task: In this exercise you are an international solar PV mini-grid developer who is considering expansion of your business to the country. You have found the electrification scenarios online and want to use them to see how large the market for PV mini-grids may be.

Find the correct answer for the following Question (this will appear in the MCQ section):

Q3: Which Lever has the largest impact on the people given access to electricity by PV mini-grids in Angola by 2030 (change only one lever at the time, with all other levers set to default values (medium population growth, Top-down demand target low, not capped investment plan, estimated grid cost, expected PV cost, least-cost approach))?