



# H2Global meets Africa

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## Key Facts

• Period: 01.01.2023 - 31.12.2025

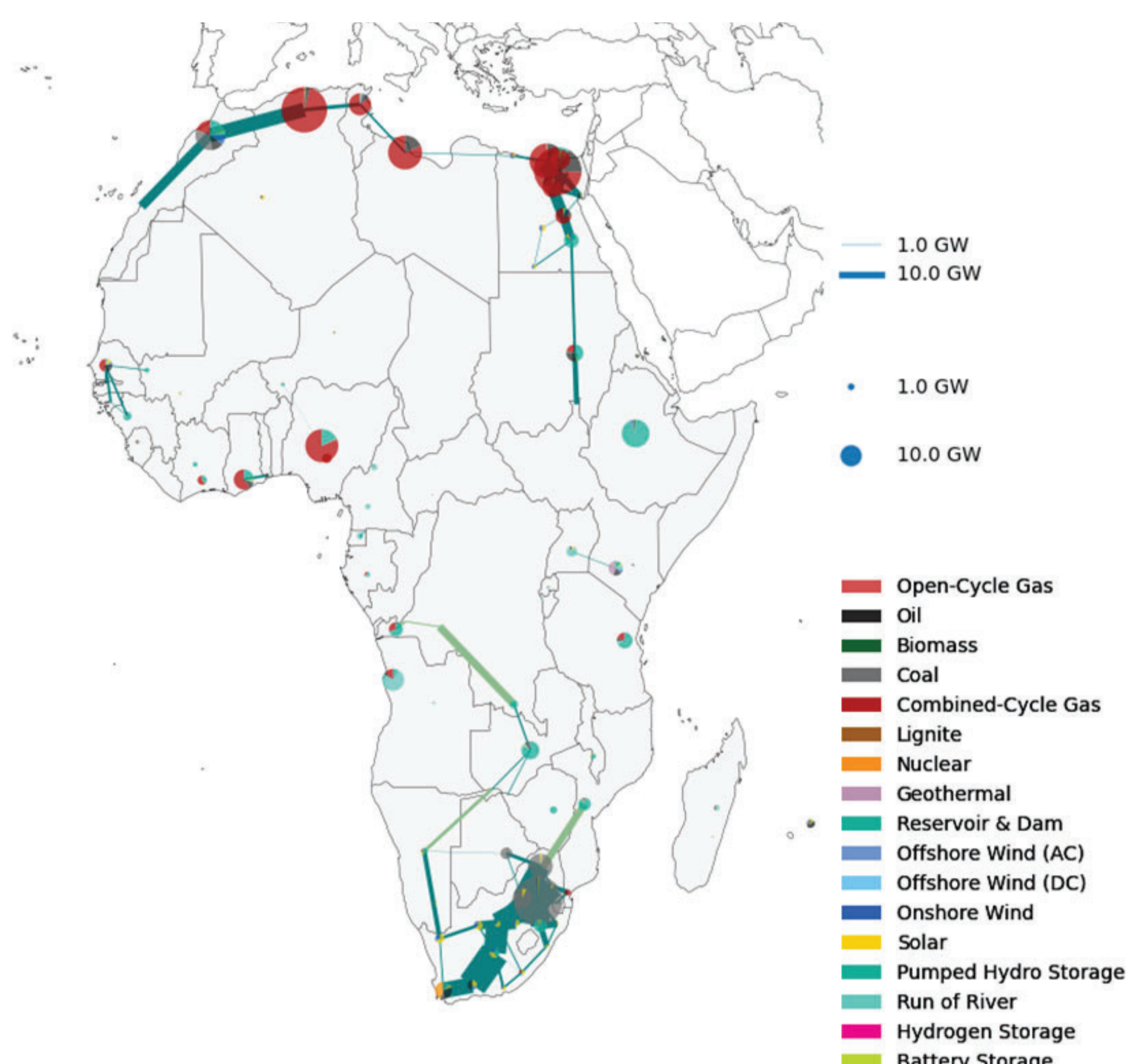
• Budget: 4,2 Mio. €

• Funded by:

• Project partners:



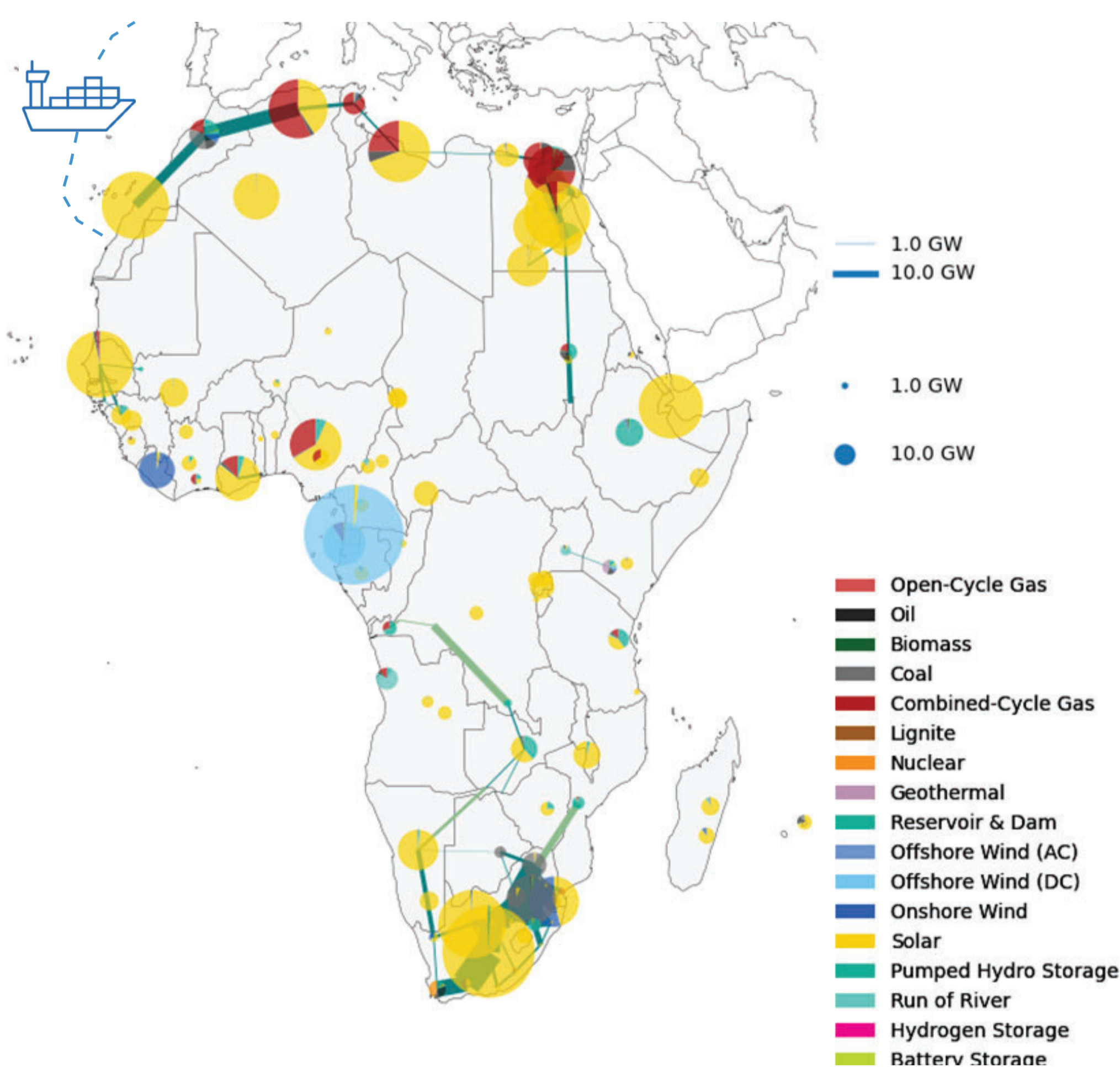
• Associated partners:



Current African energy system - Data source: Created using PyPSA-Earth and github.com/pypsa-meets-earth/documentation/blob/main/notebooks/viz/regional\_transm\_system\_viz.ipynb

## Results

Initial modeling has revealed major **solar** and **wind potential** across the entire continent.



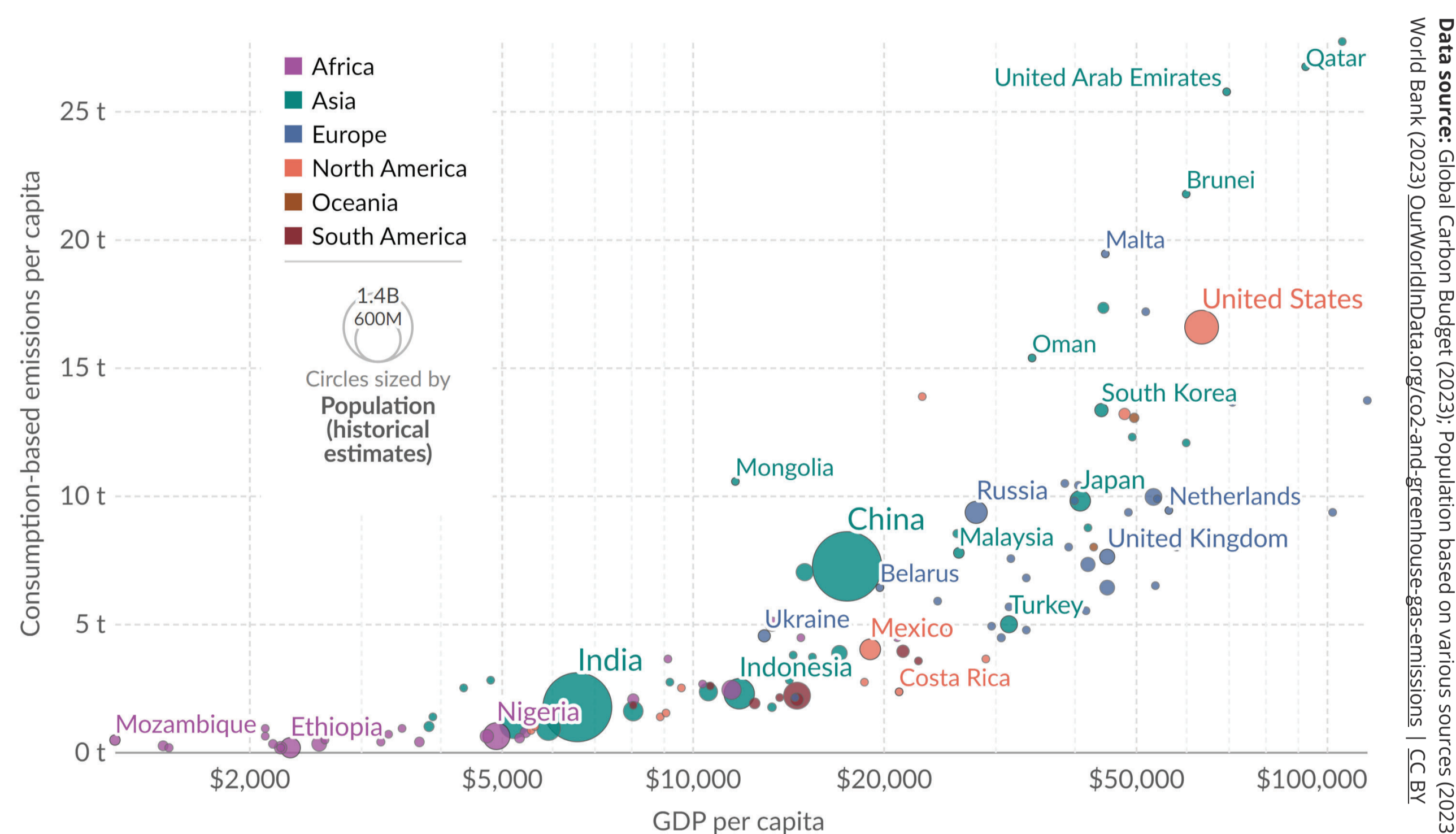
African energy system 2030 - Data source: Created using PyPSA-Earth and github.com/pypsa-meets-earth/documentation/blob/main/notebooks/viz/regional\_transm\_system\_viz.ipynb

Further modeling is currently being carried out at country level with regard to **synergies** and **conflicts** between hydrogen exports and the national energy transition. Initial simulations for Morocco, Namibia and Kenya have already shown a correlation between **high hydrogen exports** and **lower energy prices** for the local population, while at the same time **reducing emissions**.

## Motivation

In order to achieve national and international **climate protection targets** and to **diversify** Germany's and Europe's energy supply and make it more secure, a ramp-up of the **hydrogen economy** both nationally and internationally is of crucial importance. Two factors are elementary for this ramp-up: stable international **partnerships** and a stable legal and **financial framework**.

With a **doubling population by 2050** and an average **GDP per capita of \$2000** (compared to a global average of **\$10,500**) with marginal per capita CO<sub>2</sub> emissions of **0.8t** (compared to **8t** CO<sub>2</sub> in advanced economies), the question for most of the African continent is not **whether** net-zero emissions are possible by 2050, it is **how** net-zero emissions are possible while the economy grows **tenfold** to reach the global average.



## Methodology

The aim of the research project is to enable African partner countries to enter the global hydrogen economy. To this end, a comprehensive **transfer of knowledge** is taking place and specific H<sub>2</sub> / PtX value and supply chains between Africa and Europe/Germany are being evaluated. The transformation of the energy systems in Europe, Germany and Africa will be considered in an integrated manner through **coupled energy system modeling** via **PyPSA-Earth Sec** in order to identify common transformation paths and potentials. In addition, the project will develop measures to promote the market ramp-up of hydrogen in Africa, such as a catalog of criteria and **financing instruments**. Key project results and models will be made available as **open source/open data** and will contribute to promoting the hydrogen sector in Africa and strengthening cooperation between Europe and Africa.

