World Clean Energy Day 2026

26 January 2026 - T. Dayaram and C. Lennard

World Clean Energy Day is an opportunity for us to recognize that large-scale transitions have always underpinned societal progress. Just as sanitation systems transformed public health, clean energy systems are essential for navigating today's intersecting challenges. The question is no longer whether the transition is needed, but how quickly and equitably it can be achieved.

A useful analogy from an earlier Climate System Analysis Group (CSAG) blog (Learning from history: moving towards clean energy 2012) indicated that the shift toward renewable energy can be compared to the changes resulting from urbanization for large-scale sanitation systems instead of chamber pots. As more people moved into urban spaces the public health demand became large-scale, and the infrastructure required changes to deal with shit differently. Today, rising carbon dioxide emissions present a similar challenge and we need to deal with those emissions differently. Incremental, individual responses cannot fast address a systemic problem. Clean energy must be implemented across cities.

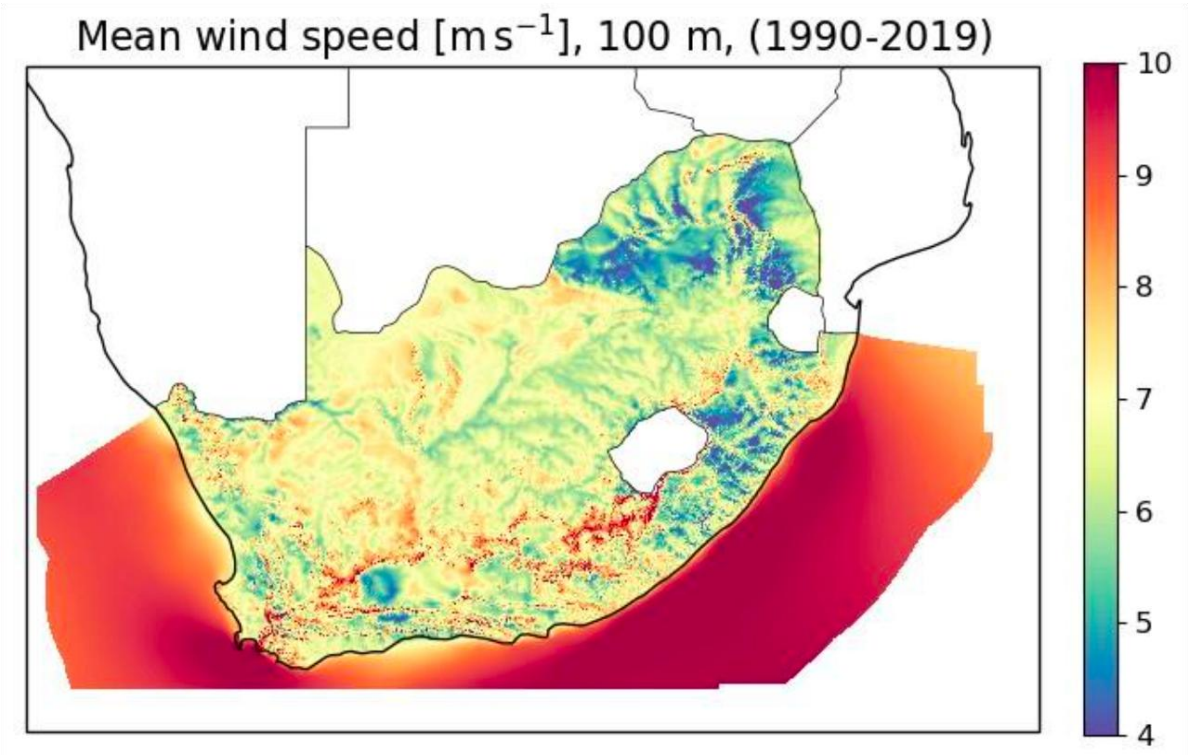
Climate impacts are questioned, feel distant, or abstract for many people. Perception of the problem and subsequent urgency is missing. Sanitation crises were immediate and visible. This disconnect has often contributed to reactive responses rather than proactive investment, with debates framed around short-term economic costs instead of the more serious and impactful long-term societal risk. Political shifts, such as changes in the United States in late 2016, reinforced this pattern globally, see Blowing our TRUMPet. There seems to be a divide in the way growth is framed which excludes the impacts from environmental degradation and climate impacts which continue to accumulate.

Yet the call to action is loud:

This is where research and innovation matter. The evolution of energy systems is not only about decarbonisation; it is about sustaining and improving service delivery in ways that have tangible, local benefits. Energy transition is not a future concept, it is a present-day requirement for economic stability, social inclusion, and infrastructure reliability. Individuals are urged to change behaviour, even as structural systems remain largely slower to move toward clean energy. Considering inequality, the delay in mainstreaming clean energy presents higher risk to vulnerable people. For many people, current challenges are already severe, and climate impacts will intensify existing divides between those with resources to adapt and those without.

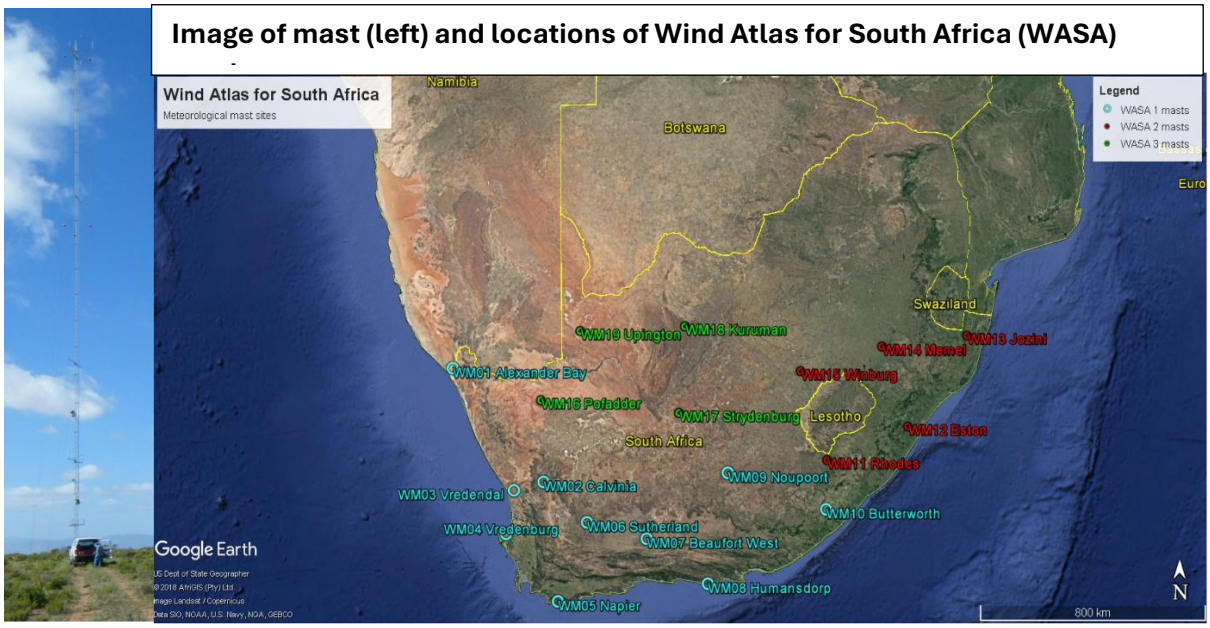
South Africa's renewable energy experience illustrates this clearly. The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), initiated in 2011, has secured more than 9.6GW of capacity and attracted over R292-billion in investment. There is momentum for investment in renewable energy (See Billions flow into renewables as SA races to fix its grid). The article shows that the private sector as 117GW of planned capacity, but that there are limitations in the grid infrastructure and making sure that there is local manufacturing capacity ready for deployment. A take-away being. "A just energy transition cannot be just for those who can already afford it."

Over the past decade CSAG's research has contributed to South Africa's just energy transition. The Wind Atlas for South Africa project (WASA) project continues to improve our understanding of the (vast) renewable energy resources available in South Africa. Through a modelling and validation process extensive wind energy resources, both on shore as well as offshore, have been demonstrated across the country, see Mean Wind Speeds in the image below.



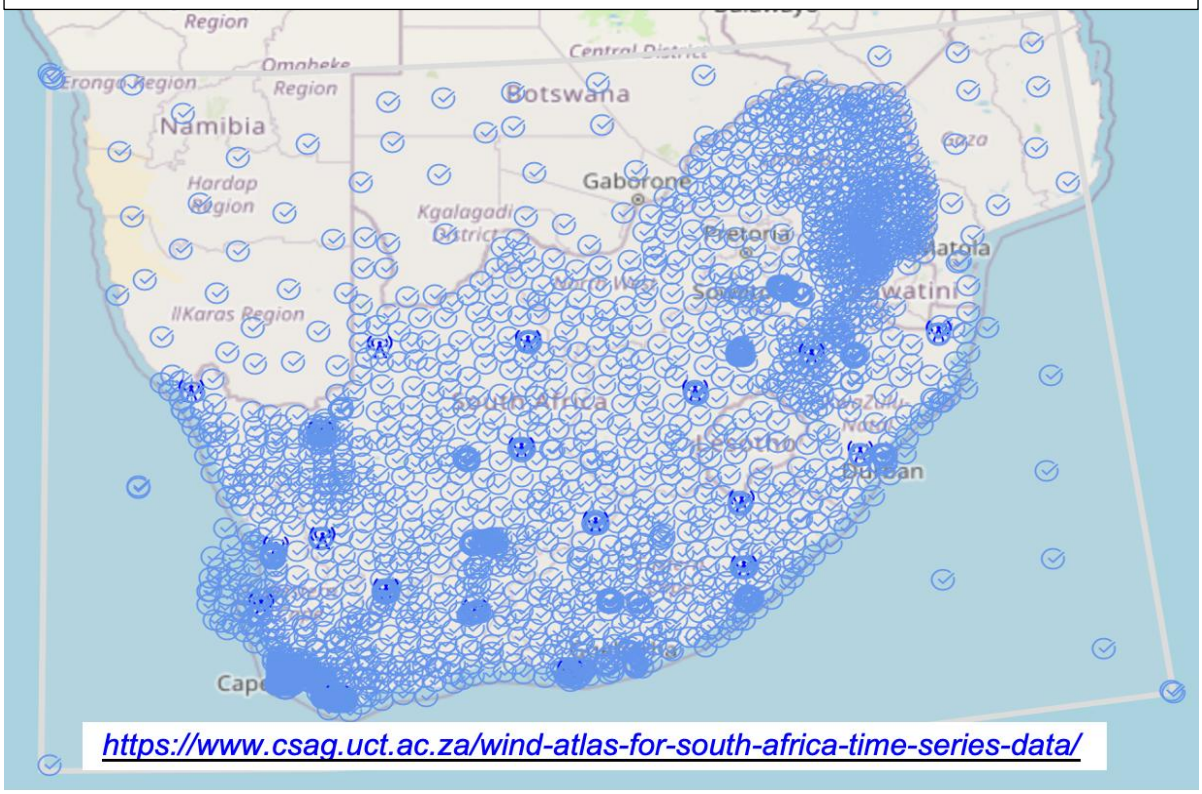
Nineteen wind measurement masts were erected across the country helping to validate high resolution climate modeling, see image of mast and location of WASA masts (below). They produce wind data every thirty minutes for thirty years, every 3.3km across land and coastal waters. Going forward, WASA-phase 4 will update the current wind atlas using an improved methodology and erect masts in the north of the country to better assess the resource here, and for the first time include incoming solar radiation. CSAG will continue to contribute as it has over the past decade. CSAG is also working with developers to understand the potential impact of climate change on the renewable energy resource. As current developments will last until 20250 and many more will come online in the next decades, addressing questions about the impact of climate change on energy yield and infrastructure are crucial considerations in the long-term planning of these developments.

Image of mast (left) and locations of Wind Atlas for South Africa (WASA)



The WASA resource downloads are used across South Africa. Since its release in 2023, the time portal has seen thousands of downloads from a broad range of communities including developers, academics, NGOs and the general public. The map of blue ticks represents a 3.3km location that has been downloaded at least once, but often many times (see below).

Locations of WASA Data Downloads across South Africa



WASA data is freely available! The mast data and live graphs are available from the wasa project website through the WASA time series portal.

*WASA website

**WASA Time Series Portal

The fourth phase of WASA will see an improved methodology and masts erected in the North of the country to better assess the resource. Incoming Solar radiation will also be assessed for the first time! CSAG is working with developers to understand the potential of climate change on the renewable energy resource. Current developments will last until 2050 and many more will come online in the next decades, addressing questions about the impact of climate change on energy yield and infrastructure are crucial considerations in long-term planning of these developments. Challenges of energy security, service delivery, access, inclusion, jobs, and economic transition are deeply interconnected in cities, and there are pressures to keep up with a rapidly growing urban population. Exploring new pathways is often contested, difficult, and sometimes costly. But history suggests that systemic upgrades deliver benefits that far outweigh their initial challenges.

*https://wasadata.csir.co.za/wasa1/WASAData

** series portal - https://www.csag.uct.ac.za/wind-atlas-for-south-africa-time-series-data/