VRIJE UNIVERSITEIT BRUSSEL

The faculty of Engineering of the Vrije Universiteit Brussel invites you to attend the public defense leading to the degree of

DOCTOR OF ENGINEERING SCIENCES

of **Sebastian Hendrik Sterl**

The public defense will take place on **Friday, 15th October 2021 at 3:30pm** in room **D.2.01** (Building D, Brussels, Humanities, Siences & Engineering Campus)

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SEASONS OF POWER – STREAMLINING STRATEGIES FOR RENEWABLE ELECTRICITY GENERATION FROM SUN, WIND AND WATER IN SUB-SAHARAN AFRICA

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Abstract of the PhD research

An important transition is underway across the world: we are relying less and less on fossil fuels to power our homes, offices, and industries, and more and more on inexhaustible sources like solar and wind power.

But the sun does not always shine, and the winds do not always blow. For this reason, we need to design our future electricity systems in a smart way, so that solar and wind power do not cause problems to security of supply.

In Africa, where security of supply would require massively expanding currently inadequate power grids in the first place (or having a power grid at all, in some cases), this might seem to be a much larger challenge than elsewhere.

However, as argued in this thesis, this also presents an opportunity for the African continent.

An opportunity to contribute to sustainable development by reducing dependence on large hydropower. An opportunity to leapfrog the fossil fuel-based electricity grids of the "Global North". And an opportunity to become a global frontrunner and role model for large-scale renewable electricity generation.