

# **An all-Africa dataset of energy model “supply regions” for solar photovoltaic and wind power**

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## **Abstract-**

With solar and wind power generation reaching unprecedented growth rates globally, much research effort has recently gone into a comprehensive mapping of the worldwide potential of these variable renewable electricity (VRE) sources. From a perspective of energy systems analysis, the locations with the strongest resources may not necessarily be the best candidates for investment in new power plants, since the distance from existing grid and road infrastructures and the temporal variability of power generation also matter. To inform energy planning and policymaking, cost-optimisation models for energy systems must be fed with adequate data on potential sites for VRE plants, including costs reflective of resource strength, grid expansion needs and full hourly generation profiles. Such data, tailored to energy system models, has been lacking up to now. In this study, we present a new open-source and open-access all-Africa dataset of “supply regions” for solar photovoltaic and onshore wind power to feed energy models and inform capacity expansion planning.

**Index Terms-** Energy planning; Cost-optimization models; Supply regions; Variable renewable energy; Africa

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