Electricity generation technology parameters used in the model.

Plant type	Investment cost ($/kW)	O&M costs (% of investment cost/year)	Efficiency	Life (years)
Diesel Genset - Mini Grid	721	10%	33%	15
Mini and Small Hydro - Mini Grid	5000	2%	-	30
Solar PV - Mini Grid	4300	2%	-	20
Wind Turbines - Mini Grid	2500	2%	-	20
Diesel Genset - Stand Alone	938	10%	28%	10
Solar PV - Stand Alone	5500	2%	-	15

Transmission and distribution costs in the model.

Parameter	Value	Unit
Life	30	Years
HV line cost (108 kV)	53000	USD/km
HV line cost (69 kV)	28000	USD/km
MV line cost (33 kV)	9000	USD/km
LV line cost (0.2 kV)	5000	USD/km
Tranformers	5000	USD/50 kVA
Additional connection cost per household connected to gird	125	USD/HH
Additional connection cost per household connected with mini grid	100	USD/HH
T&D losses	18.3% (Nigeria), 19.4% (Tanzania) 23.0 % (Zambia)	of capital cost/year
O&M costs of distribution	2%	of capital cost/year

Other model parameters and assumptions.

Parameter	Value	Unit
National Grid Electricity cost (fuel cost)	0.090 (Nigeria) 0.067 (Tanzania) 0.024 (Zambia)	USD/kWh
Discount rate	8%	-

1. The World Bank. Energy Sector Management Assistance Program. (2016). Available at: https://esmap.org/dlmv698-3545.
2. IRENA. Renewable energy technologies: Cost analysis series, Wind Power. (2012).
3. IRENA. Renewable energy technologies: Cost analysis series; Hydropower. (2012).
4. IRENA. Renewable Energy Technologies: Cost analysis series; Solar Photovoltaics. (2012).
5. Nerini, F. F. et al. A cost comparison of technology approaches for improving access to electricity services. Energy 95, 255–265 (2016).
6. NEA, IEA & OECD. Projected Costs of Generating Electricity 2015. (Organisation for Economic Co-operation and Development, 2015).
7. Taliotis, C., Shivakumar, A., Ramos, E., Howells, M., Mentis, D., Sridharan, V., Broad, O., Mofor, L., 2016. An indicative analysis of investment opportunities in the African electricity supply sector — Using TEMBA (The Electricity Model Base for Africa). Elsevier Energy for Sustainable Development 31, 50–66