

New land area ( $\text{km}^2$ ) required for footprint on the ground, which applies to utility PV+CSP+ST (solar thermal) and geothermal electricity and heat, and for spacing, which applies to onshore wind, among the 150 countries examined. Ocean spacing areas for new offshore wind, tidal, and wave power are also shown as is the new rooftop PV area, which doesn't require new land. No new land for hydropower is needed

