Current Market Trends

Evaluating Green Power Technologies

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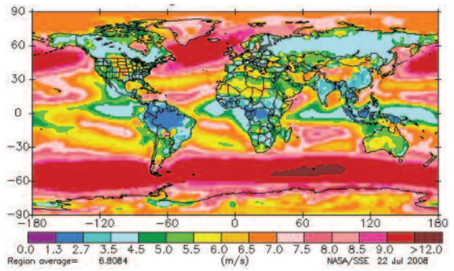
Solar and wind technologies (including solar and wind hybrids) are currently the most attractive technologies for powering base stations. Due to the abundance of sun, commoditisation of solar modules, ease of planning and low running costs, solar is the favoured choice for green power solutions in many regions for small load sites (<2kW). However, due to the fact that CAPEX scales proportionately with load, solar solutions are less economically attractive for larger sites.

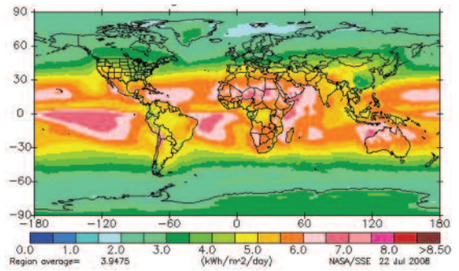
At standard base station loads, the installed cost of wind technology is more economically viable than for an equivalent solar system due to a lower basic equipment cost. However, variability in wind speeds across the globe means that wind only solutions are likely to be restricted to locations such as coastal and mountainous regions where wind is abundant. Hybrid solutions that deliver the benefits of both wind and solar technologies will therefore be more common than wind only solutions at standard base station loads.

Wind Resources



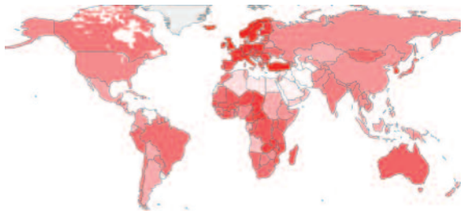
Source: NREL

Solar Resources



Source: NREL

Diesel Price+



Note: *Some estimates have been made
+Forecasts have been made from 2006 prices
Source: GTZ

Going forwards, other niche technologies will continue to develop, some of which are explored below.

Pico-hydro

Pico-hydro refers to very small hydro power solutions – typically less than 10kW – that can harness the power of streams and rivers. It is a mature technology for applications such as rural electrification and has the lowest CAPEX of all solutions. However, the number of locations that are suited to the deployment of pico-hydro power will limit mass deployment.

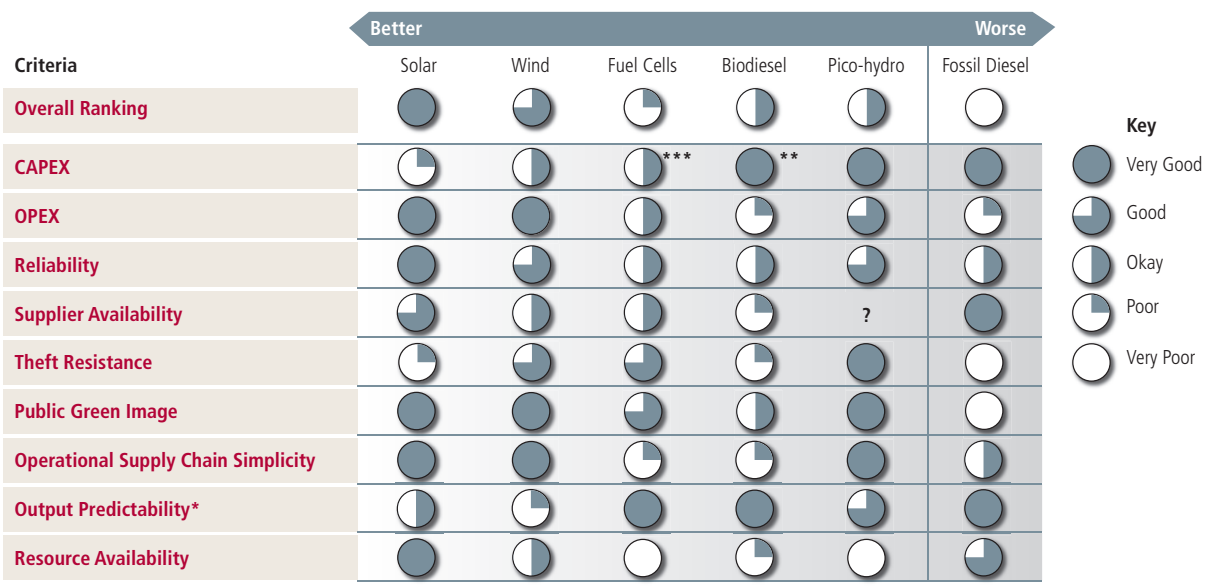
Biodiesel

Biodiesel can be used as a direct replacement for fossil diesel in base station generators. The application of biodiesel to telecommunications must be treated on a case-by-case basis rather than as a universal alternative. The primary consideration for biodiesel will be local access to a supply, and the impact of production on regional agriculture should also be evaluated. Biodiesel application has increased appeal in regions that are not competing with food supplies – semi-arid crops such as jatropha.

Fuel Cells

Fuel cells are a developing technology with limited proven commercial application to provide the entire load for base stations. They are therefore at present primarily considered for limited power load requirements such as an alternate battery solution in unreliable grid power locations. Rapid progress is being made in the use of fuel cells for base stations however, and the GSMA Green Power for Mobile (GPM) programme is continuing to monitor these developments.

The Green Power for Mobile point of view on fuel cells below has been updated as of October 2009.



*Assuming fuel availability is constant **Assuming purchase of biofuel from a supplier ***Fuel cell CAPEX forecast to improve rapidly