

Why renewable energy sources must power the future's data centres

LONDON, UNITED KINGDOM, July 13, 2018 /EINPresswire.com/ -- In the not too distant future, it's likely that automation and artificial intelligence will be key elements of our daily lives. Additionally, as Richard Branson and Elon Musk battle out who will be first to cover the Earth in wifi, the whole world could be online as soon as 2020. While these technological developments are exciting, they raise interesting and pertinent questions about how we're going to power them.

As we begin to rely more on technology, we'll rely more data centres. However, data centres require a lot of energy. Currently, they represent 3 to 5% of the world's energy usage (the same as the entire aviation industry). By 2025, researchers suggest this figure will have skyrocketed to 20%. If the data centres of the future are to be sustainable and environmentally friendly, we must consider how they can integrate renewable energy sources.

Pressure on data centres to include renewable energy sources is growing. Two major trends are encouraging this: the boom of corporate social responsibility initiatives aimed at carbon neutrality, and the potential for national and international legislation that will cap carbon emissions.

While the data centre industry isn't specifically singled out by these trends, corporations that commit to reducing carbon emissions will quickly realise that their data centres are significant energy guzzlers. If these companies are to reach their carbon targets, they may be strongly compelled to integrate renewable energy sources into their data centres.

However, renewable energy suffers from both pricing and scalability issues, with a lot of energy sources struggling to fully support the requirements of a data centre.

Efficacy of renewables for data centres

If data centres are to consume 1/5th of the world's energy by 2025, failure to include renewable energy sources would make them one of the biggest polluters. So, what are the alternative energy sources they could rely on?

Wind and solar power is limited by the absence of wind or sunlight. While its source is more predictable, tidal power's energy is cyclical and cannot be relied upon as the principal source of energy for a data centre.

Using wood and garbage to fuel centres has potential, but the kinks are yet to be fully ironed out. At the moment, producing energy from wood and garbage is incredibly expensive, and therefore out of reach for many data centre operators. Bigger power generating companies may find these technologies easier to adopt, but the economic viability of using wood and garbage precludes small-scale systems from using them.

Hydroelectric generation from lakes and rivers is a real possibility if water flow is constant and doesn't slow down during dry spells. However, hydroelectric power would only support organisations in close proximity to a water source.

Battery technology has been touted as a solution to the renewables question. Energy could be stored in batteries in order to provide a smooth supply to data centres. However, as the technology is still in its infancy, it is expensive and requires a lot of maintenance.

A hybrid solution

So, with all of the current limitations on renewables, is it worth considering them when looking to power a data centre? The answer is yes.

While renewables may not yet be able to power data centres on their own, they must be integrated into their energy portfolios. In other words, renewables should be viewed as secondary energy sources, rather than primary. While data centres may rely primarily on the grid, including renewables now is a way of minimising the amount of primary sources used. One strategy to achieve this is to use the grid to power a data centre's base load and to use renewables for extra demand.

At this point in time, renewables are not capable of powering data centres on their own. However, they are fully capable of supporting a wider approach to reducing energy usage, and in doing so, helping the data centres of tomorrow to be more sustainable.

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