Telecom Power Sector Transformation

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Abstract

The considerable problems deriving from the upgrade of industrial revolution in telecom sector (2G till 5G rollout), growth in primary energy consumption and the global climate change-relevant increase in CO_2 emissions from diesel generators- push the governments to find out a new alternative solution for the production of energy and maintaining a high ROI for the private and public sectors.

According to IRENA's latest Global Renewables Attitude in 2020, around 65% of the final energy consumption will be guaranteed by renewable energy sources by the end of 2050. The large part of this energy accounts for electricity generation [1].

From a sustainable perspective, there is an opportunity for energy management in telecom infrastructure with an effective monitoring and control system in order to achieve high energy efficient results, in terms of low system OPEX [2].

The purpose of this study is to describe the different technologies that could be integrated in telecom sites-hybrid solutions-in order to mitigate energy consumption and dependance on high carbon emissions diesel generators.

A new technology consists of fuel cell, solar photovoltaic and batteries energy storage system that could be integrated in telecom sites to provide green power and decrease the dependance on generators except for backup power supply in order to achieve 24/7 power accessibility [3].

Significance: The telecom sector should work on hydrogen importation or production and focus on assessing its important role in the energy transition and its impact in the power systems in terms of high reliability and efficiency and low operation costs compared to diesel generator running cost over the lifetime of the project [4].

Image

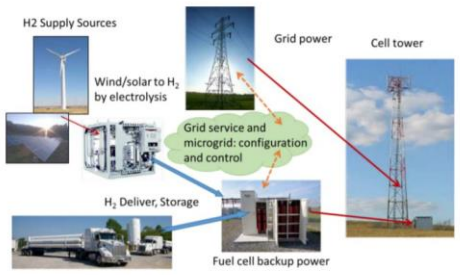


Figure 1. The fuel cell backup power system integrated with a cell tower with renewable (biomass, wind, and solar energy) hydrogen supply.

Figure 1 hybrid power system-telecom site [5]

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References

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