

# ENERGY AND MATERIALS RESEARCH

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## Design of energy storage hybrid technology for solar pv integrated with fuel cells

Hitesh Mahajan and Mousumee Muskan Behera  
Gandhi Institute of Engineering & Technology, India

In the present day, every application ranging from those used at home and small offices to hospitals, banks and huge organizations are dependent on electricity. Any power disturbance such as power outage or voltage sag/swell can result in malfunctioning of the equipment; loss in productivity and data and in the case of health care, loss of lives is also possible. Hence, power quality and power continuity is important factors that need to be ensured for critical applications. In views of this, the backup energy system can be used such as batteries, super capacitors, fly wheels, fuel cells, engine generators etc. And with batteries as the major means of storing back up energy, this is not possible. Hence, an eco-friendly means of storing/generating energy has been the goal. One of the steps towards this goal is the usage of fuel cells as the means of providing the backup energy required. In the recent years, people have become more aware of the need and advantages of using fuel cells. In this major project, an analysis has been done of different approaches and techniques for energy storage used in renewable energy technologies. An approach has given for energy storage techniques and how a solar PV system can be used for generating of hydrogen as a fuel for Fuel cells Rooftop Solar PV system which is integrated to a sustainable and smart building going to be constructed in GIET campus.

### Biography

Hitesh Mahajan received his Engineering Degree in Chemical Engineering from Gandhi Institute of Engineering and Technology, India in 2016. He is currently working in R&D department in National Metallurgical Lab in the field of Advanced Materials Research. His research focuses on the innovative energy storage hybrid technology and fuel cells under the guidance of his advisor, Dr. R. Ganguly.

giet12che03@gmail.com

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