



University of
South Australia



Barbara Hardy
Institute

Mohammed H.
Haque

Research Profile

Research Area Specialisation

Mohammed's area of research focuses on systems in electrical engineering. It encompasses power and energy systems, renewable energy systems, flexible alternating current transmission systems and hybrid generating systems. This research also investigates demand response, integration of renewable sources to electrical power grids and smart grids.

Contributing to a better and sustainable environment

Research by Mohammed aims to provide solutions in the form of intelligent demand management that could more easily accommodate intermittent renewable energy sources. In future, his research should contribute to the design of hybrid generating systems for isolated communities while improving energy efficiency and intelligent demand management.

Research Abstract

Mohammed is currently working on modelling wind generating systems and analysis of the steady state and dynamic power systems with high penetration of intermittent types of renewable sources. With approximately 75% of electrical energy in Australia generated from coal which causes significant greenhouse gas emissions it is essential to reduce dependency on fossil fuels and increase the use of clean and renewable sources to establish a sustainable environment.



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*Great Research
into Sustainability*

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CRICOS provider number 00121B

People

- Our researchers are scientists, engineers and social scientists
- We work collaboratively on real-world issues
- Over 100 researchers and 130 research students

Projects

- Multidisciplinary projects focused on sustainability
- We work in partnership with government, industry and academia
- Extensive testing and evaluation services and consultancy expertise
- Our work is underpinned by community participation and education

With increased penetration of intermittent renewable sources to power grids this raises a number of challenging technical and operational issues for a system that is not designed to cater for such sources.

Research areas of interest

- Steady state and dynamic analyses of power systems
- Renewable and distributed generation and their integration to the power grid
- Smart grid and hybrid generating systems

Barbara Hardy Institute

The Barbara Hardy Institute provides collaborative opportunities to participate in multi-disciplinary research and development while fostering a team environment to apply for competitive research funding.

Keywords to describe Mohammed's research

- Power system modelling and analysis
- Power generation from renewable sources and their integration to power grid
- Flexible alternating current (AC) transmission systems
- Energy efficiency and demand management



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“Intelligent demand management with suitable energy storage and or synthetic inertial may accommodate intermittent renewable energy sources.”