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Dr. Fahad Saleh Al-Ismaail

Director/ Assistant Professor

Director – Center for Environment & Marine Studies (CEMS),
Assistant Professor - Electrical Engineering Department (EE),
Research Affiliate - Center of Renewable Energy and Power System (REPS)
Research Fellow – K.A.CARE Energy Research & Innovation Center
King Fahd University of Petroleum & Minerals, Saudi Arabia

Executive Summary:

The Director of the CEMS, Dr. Fahad Saleh Al-Ismaail, is an Assistant Professor in the Electrical Engineering Department, the College of Computing and Mathematics at KFUPM. His research interests include power system planning & reliability, integrated energy resources planning, energy storage system planning and operation, Demand-side management modeling with intermittent resources, uncertainty quantification and representation of renewable energy in the system model, energy efficiency and saving strategies. He is also interested in Energy Auditing, Energy accounting and economics, Integrated model to Energy, Water and Food Nexus and its environmental implications, and Carbon circular economy. Dr. Fahad has published research papers in leading transactions and journals including IEEE Transactions.

Education:

- ❑ PhD Electrical Engineering [Texas A&M University, USA, 2014-2016]
- ❑ MS.C Electrical Engineering [KFUPM, KSA, 2009-2012]
- ❑ Bachelor in Electrical Engineering [KFUPM, KSA, 2003-2009]

Distinguished Projects

- *Project title* “Quantifying the capacity credit as a reliability-based index for a large-scale wind power generation planning using Stochastic Programming”, funded project # DF181035, KFUPM, Dhahran, Saudi Arabia, Role: *PI*.
- *Project title* "Hybrid Wind and Solar Power Generation Allocation using distributionally robust optimization", funded project # SR171004, KFUPM, Dhahran, Saudi Arabia, Role: *PI*.
- *Project title* “Installation, Testing and Commissioning of a Marine Monitoring System (Moored Data Buoys) in Western Arabian Gulf”, Saudi Aramco, Role: *PI*.
- *Project title* “ Environmental Impact Assessment for Exploratory Drilling in the Shallow Water of Red Sea for several wells”, Saudi Aramco, Role: *PI*.
- *Project title* “Installation and Commissioning of a High Frequency Radar Network in the Western Arabian Gulf ”, Saudi Aramco, Role: *PI*
- *Project title* “ Establishment of Marine Life Tracking System in Western Arabian Gulf ”, Saudi Aramco, Role: *PI*.
- *Project title* “Assessment of the Research Capability and Environmental Awareness in the Mangrove Eco-Park”, Rahimah Bay, Ras Tanura, Saudi Aramco, Role: *PI*
- *Project title* “Assessment of using Energy Storage for Smart Grids Applications”, KACST-SEC Joint Research and Development Center for the Distribution Sector, Role: *Co-PI*.
- *Project title* “RTDS Implementation of STATCOM for Power System Stability Enhancement”, Project # IN090019, KFUPM, Role: *Member*.
- *Project title* Investigating the Thermal Effects of Underground Cable in Eastern Province”, KACST, Role: *Member*.
- *Project title* “Energy Conservation Strategies for Heat Dissipating Devices and HVAC System in Saudi Telecom Company (STC) Exchange Rooms”, Saudi Telecom Company (STC), Role: *Member*

Research Summary

- Number of Published Papers: 30
- Citations : 212
- H-Index : 8
- Number of Patents : 2
- Reviewer - IEEE Transactions on Power Systems & IEEE Access

Award and Recognitions

- Research Fellow - K.A.CARE Energy Research & Innovation Center (ERIC)
- Research Affiliate - Center of Renewable Energy and Power System (REPS)
- Reviewer - IEEE Transactions on Power Systems and IEEE Access
- Consultant for KACST & Saudi Electricity Company (SEC)

Skills and Expertise

- IBM ILOG CPLEX Optimizer, GAMS.AMPL, Gurobi
- Power System Planning & Reliability
- Integrated energy resources planning
- Energy storage system planning and operation
- Demand-side management modeling with intermittent resources
- Uncertainty quantification and representation of renewable energy in the system model
- Energy efficiency and saving strategies
- Integrated model to energy, water and food nexus and its environmental implications.
- Carbon circular economy
- Energy auditing, energy accounting and economics