

JOINT EVENT

2nd World Congress on **Wind and Renewable Energy** & 5th World Congress and Expo on **Green Energy**

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Concentrated solar power parabolic dish systems using micro gas turbines

Parabolic dish mirrors concentrating solar irradiation at the focal point to drive a thermal power unit offer an option of distributed power generation from the sun which can be hybridized with thermal energy storage or biofuels allowing for an environmentally clean, affordable and dispatchable power generation unit. These are of importance to rural communities with no grid infrastructure or poor grid connectivity. The overall energy efficiency can be significantly increased by utilization of the high temperature exhaust gases in cooling or water desalination. Because of their modularity, they are also suitable to be sited in farm arrangements to produce medium scale concentrated solar power plants for electrical output that may not be economic for conventional concentrated solar power plants. The presentation will provide a brief overview of concentrated solar power parabolic dish systems technology. I will provide a detailed insight into the development of a micro gas turbine (MGT) powered by concentrated solar power addressing the technological and design challenges compared to conventional MGTs. These include the aerodynamic design of turbomachinery, shaft bearing arrangement and rotordynamics, electrical and electronic subsystems as well as control strategies. A major challenge in this technology is the integration of the prime mover with the solar receiver and the parabolic dish and ensuring their smooth and safe operation. The presentation will then address the economic aspects of the system and its market potential worldwide.

Biography

Abdulnaser Sayma is a Professor of Energy Engineering and Associate Dean for Post Graduate Studies at the School of Mathematics, Computer Science and Engineering at City University of London since 2013. He was a Professor of Computational Fluid Dynamics at the University of Sussex from 2006 and a Research Fellow, and Rolls Royce Research Fellow at Imperial College London between 1994 and 2005. He obtained his BSc in Mechanical Engineering from Birzeit University, Palestine in 1987 and an MSc in Renewable Energy from University of Salford in 1990 and a PhD in Computational Fluid Dynamics from the University of Manchester in 1994.

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