

ICREGA'16 Plenary Speech

The future of renewable energy

Presented by: Prof. Dr. Umberto DESIDERI

*Professor and Chair of Thermal Machines
University of Pisa, Italy*

| <i>Date</i> | <i>Time</i> | <i>Location</i> | |
|--|------------------|--------------------|--------------|
| Wednesday 10th February 2016 | 8:30-9:30 | Atria Hotel | Amphi |

Biography

Umberto Desideri joined the University of Pisa in November 2014 as a Full Professor of Thermal Machines and Applied Energy. Since 1992 he has served as Assistant, Associate and Full Professor at the University of Perugia. He earned his M.S. in 1988 in Mechanical Engineering and his PhD in 1993 in Energy Engineering at the University of Florence.

Professor Desideri's research topics have been the following: Innovative and high efficiency fossil fired power generation systems, renewable energy systems, hydrogen and fuel cells, carbon capture and storage, energy saving in industry and residential buildings, tri- and polygeneration, energy efficiency in buildings, LCA and carbon footprint.

Professor Desideri is member of the American Society of Mechanical Engineers. He is Editor of Applied Energy and member of the editorial board of Applied Thermal Engineering, and Associate Editor of the ASME Journal of Fuel Cell Science and Technology.

He has been in the scientific committee and organization committees of the ICAE and ECOS conferences and conference chair of one edition of both conferences and he has served as session organizer for several sessions at the ASME Turbo Expo. He was chair of the Coal Biomass and Alternative Fuels of the ASME/IGTI from 2006 to 2008.

He is member of the ASME Codes and Standard Committee PTC48 "Overall Plant Performance with Carbon Capture, and member of the EU Zero Emission Platform (Taskforce Technology).

He has been founder of two spin-off companies with his former students.

He was member of the Administration board and the Senate of the University of Perugia and Director of the Department of Engineering of the same University.

He is referee for several scientific journals and expert reviewer for different international institutions.

He was scientific responsible for several national and international research projects.

Professor Desideri is author of over 200 scientific papers, 173 indexed on Scopus, in Journals and Conference Proceedings.



Resume

The large deployment of unprogrammable renewable energy systems have created significant problems to the management of the electric grid which has to be stabilized by the insertion of power plants which can provide a stable and reliable electric power. This has changed considerably the energy mix of some countries, such as Italy, in a very short time, and has produced significant changes in the management of the power plants, with special reference to gas turbine combined cycles and coal fired power plants.

Several large size plants are being shut down and investments in power plants has become uncertain. This may cause uncertainty for the future supply of energy and critical consequences on the safety and security of energy supply.

This situation has not improved the cost of electricity for residential and industrial users, since most of the feed-in tariffs costs has been transferred and distributed among all users and it is now as high as 10 billion Euro per year.