

**Iniziativa promossa
nell'ambito della attività di**



Commissione Volontaria
Elettrica



Centro-Sud Italia
Chapter PELS/IAS



Dottorato di Ricerca
Dipartimento di Ingegneria Elettrica
Facoltà di Ingegneria
Sapienza Università di Roma

7 e 9 GIUGNO 2010

Seminari

Alternative Energy:

**United States and Global
Perspectives**

**Power Quality and Distributed
Generation including IEC and
IEEE Standards**



**Aula 40 – 39
Ore 16.00**

**Dipartimento di Ingegneria Elettrica
via delle Sette Sale 12 B Roma**



Alternative Energy

United States and Global Perspectives **7 giugno Ore 16.00 Aula 40**

Energy, in various forms, is the fuel for modern global industry. While each local, regional, and national area has different specific objectives, there is one major similarity that cuts across all boundaries—each involved party is interested in cheaper energy that is protective of the environment. Energy could be in the form of petroleum products for transportation, natural gas for industrial processes, or electric power. In the context considered in this lecture, the focus is on electrical energy used in industrial, commercial, and residential facilities.

Electrical energy has become a three-fold issue and this lecture topic touches on each of them. Firstly, electrical energy is a technical issue. There are numerous possibilities for alternative energy production, each with its own set of advantages and disadvantages. Secondly, the production of electrical energy is a political issue. Many governments have formally or principally adopted the Kyoto Accord (or its key features) regarding control of climate change and environmental activists often create significant political pressure to carry out their agenda. Thirdly, electrical energy is an economic issue. In most cases, alternative energy sources are not cost-competitive with conventional electrical energy sources with government subsidies (political) nor are they suitable for major power production (technical). It is clearly impractical to consider any one part of the issue while neglecting the other aspects.

These three categories of issues related to alternative energy are clearly manipulated by involved parties in order to achieve some (perhaps unspecified) end result. The end-user is often at the mercy of the press and other media outlets when it comes to reasonable information regarding what is really true and what is perhaps being exaggerated for some purpose. This lecture will focus on United States energy policy in a critical sense with particular

attention paid to stated goals and objectives for managing climate change coupled with what is economically feasible in terms of alternative energy sources. These goals and objectives, and any measurable progress toward them, will be compared with other international activities so as to maintain an overall global perspective.

Power Quality and Distributed Generation **including IEC and IEEE Standards** **9 giugno Ore 16.00 Aula 39**

The technical issues associated with the impact of alternative energy on electric power quality will be discussed. In the event that alternative energy sources do in fact become widespread at some future point, there is significant potential for many assumptions regarding power system analysis to become no longer credible. In the particular area of electric power quality, significant standardization at the regional, national, and international levels has taken place over the last 20 years, and utility and end-use companies rely on standardized rules, regulations, and procedures in order to operate their respective system in an equitable and reliable manner. The inclusion of significant alternative energy sources in any evaluation of electromagnetic compatibility stands to significantly alter the assumption set to the point that it is no longer valid—what then should utility and end-use companies do in order to maximize system performance and minimize costs on a total societal basis?

This lecture will focus on the assumption sets that support various power quality standards and point out areas where unintended (and possibly undesirable) conclusions may be reached if alternative energy sources are not properly taken into account. While this portion of the lecture is not intended to offer final solutions, it should help to make all involved parties more aware of the issues so that necessary changes can be made before unfortunate circumstances arise.

Gli atti dei seminari saranno disponibili sul sito:
<http://labduee.ing.uniroma1.it>

Nel quadro delle iniziative didattiche - scientifiche del Dottorato di Ricerca in Ingegneria Elettrica e del corso di Distribuzione ed Utilizzazione dell'Energia Elettrica il *Prof. Ing. Mark Halpin* terrà due seminari "Alternative Energy: United States and Global Perspectives" e "Alternative Energy: Power Quality and Distributed Generation including IEC and IEEE Standards" mirati anche a dare un contributo al confronto tra Nord America ed Europa sulle problematiche degli impianti elettrici.

Introduzione:

Prof. Ing. Carlo Mazzetti

Coordinatore Corso di Dottorato in Ingegneria Elettrica

Prof. Ing. Giuseppe Parise,

AEIT Sezione di Roma, Commissione Elettrica Volontaria Ordine Ingegneri di Roma, Member at Large dell'Executive Board dell'IEEE-IAS, Fellow IEEE.

Relatore

Prof. Ing. Mark Halpin

Distinguished Professor della Auburn University Alabama USA (www.auburn.edu) e qualificato esperto dell'ANSI/IEEE (Institute of Electrical and Electronic Engineers) (www.ieee.org) nel settore degli impianti elettrici, Past Presidente dell'IEEE/IAS Industry Applications Society, Membro dell'United States National Committee of the International Electrotechnical Commission (IEC) (www.iec.ch), Fellow IEEE.