

FUZZ-IEEE 2011 Call for Papers

Special Session on Fuzzy Systems on Renewable Energy

● Abstract

Renewable power generation systems in general include wind, photovoltaic (PV), fuel cell and biomass power generation systems. They have been getting more attention recently due to cost competitiveness and environment friendly, as compared to fossil fuel and nuclear power generations. Owing to the relatively higher investment cost of renewable power generation systems, it is important to operate the systems near their maximum power output point, especially for the wind and solar PV generation systems. Thus, maximum power point tracking (MPPT) techniques are often required. Moreover, since the wind and solar PV power resources are intermittent, accurate predictions and modeling of wind speed and solar insolation are necessary, though difficult. Plus, to have a more reliable power supply, renewable power generation systems are usually interconnected with the electrical network. As a result, modeling and controlling the electrical network using smart-grid techniques, such as smart meter, micro-grid, and distribution automations become very important issues. On the other hand, due to the highly nonlinear and time-varying nature with unmodeling dynamics, effective uses of computational intelligence techniques such as fuzzy systems for the controlling and modeling of renewable power generation in a smart-grid system turn out to be very crucial for successful operations of the systems. Hence, topics of interest of the special session on Fuzzy Systems of Renewable Energy would cover the whole range of researches and applications of fuzzy systems in renewable power generations and smart grid systems.

● Keywords

Renewable power generation, maximum power point tracking, smart grid, fuzzy modeling, fuzzy control, computational intelligence.

● Topics of interest (not limited to)

- ◆ Fuzzy modeling of renewable power generation systems
- ◆ Fuzzy control of renewable power generation systems
- ◆ Fuzzy modeling of smart grid systems
- ◆ Fuzzy control of smart grid systems
- ◆ Fuzzy energy management systems
- ◆ Fuzzy distribution systems automation
- ◆ Fuzzy power quality and reliability
- ◆ Hybrid systems of computational intelligence techniques in electrical power system

● Session organizers:

Prof. Faa-Jeng Lin

Dept. of Electrical Engineering,
National Central University,
Taiwan

E-mail: linfj@ee.ncu.edu.tw

Prof. Hong-Tzer Yang

Dept. of Electrical Engineering,
National Cheng Kung University,
Taiwan

E-mail: htyang@mail.ncku.edu.tw