IEEE PES Multi-Agent Systems (MAS) Working Group

Minutes of Meeting

Date: Monday 21st July, 2007
Venue: IEEE PES General Meeting in Pittsburgh, PA

Chair: Dr Stephen McArthur, University of Strathclyde, UK (s.mcarthur@eee.strath.ac.uk)

Attending:
Steve Widergren, PNNL
David Cartes, Florida State University
Germano Lambert-Torres, Federal Univesity of Itajuba
Toshi Funabashi, Meidensha Corp.
Anurag K Srivastava, Mississippi State Univ
Kwang Y Lee, Baylor University
Leigh Tesfatsion, Iowa State University
Hamid Zareipour, University of Calgary
Hongyan Li, Iowa State University
Zita Vale, Polytechnic of Porto
Karl Schoder, Florida State University
Zhenhua Jiang, University of Miami
Sukamar Kamalasadan, University of West Florida
Mo-Yuen Chow, North Carolina State University
Luis Eduardo Gallego, University National of Colombia
David Gao, Tenessee Tech University
Sanjeev Srivastava, Florida State University
Mats Larsson, ABB Switzerland
Chul-Hwan Kim, SungKyunKwan University
Paul S.J. Lee, Myongji University
Boknam Ha, Korea Electric Power Corp
Alex Flueck, Illinois Institute of Technology
Hugo Morais, Polytechnic of Porto
Sioe T Mak, Aclara Technologies
Preetika Kulshrestha, North Carolina State University
Noel Schulz, Mississippi State University
Ivana Kockar, University of Strathclyde
Jianhui Wang, Argonne National Lab

Minutes/Actions:

1. It was reported that the Multi-Agent Systems Working Group had been awarded the IEEE PES Technical Committee Working Group Recognition Award for its activities.

2. The Working Group published a two-part Technical White Paper in the IEEE Transactions on Power Systems:
    *   S.D.J. McArthur, E.M. Davidson , V.M. Catterson, A. Dimeas, N. Hatziargyriou, F. Ponci, T. Funabashi. "Multi-Agent Systems for Power Engineering Applications - Part 1:Concepts, Approaches and Technical Challenges". IEEE Transactions on Power Systems, Volume 22, Issue 4, Nov. 2007 Page(s):1743 – 1752. Digital Object Identifier 10.1109/TPWRS.2007.908471

    *   S.D.J. McArthur, E.M. Davidson , V.M. Catterson, A. Dimeas, N. Hatziargyriou, F. Ponci, T. Funabashi. "Multi-Agent Systems for Power Engineering Applications – Part 2: Technologies, Standards and Tools for Building Multi-Agent Systems". IEEE Transactions on Power Systems, Volume 22, Issue 4, Nov. 2007 Page(s):1753 – 1759. Digital Object Identifier 10.1109/TPWRS.2007.908472

3. Task Force on Agent Research and Applications in Power Engineering activities:

- Chaired by Ferdi Ponci, USC (ponci@engr.sc.edu)
- This has undertaken an initial bibliographical review of agent research in power engineering, covering 48 papers
- An initial prototype of the web pages to support this are available at:
  http://www.ee.sc.edu/ieeewg
  Login: ieee-wg
  Password: !WG$member!

  These will be extended and developed over the next year. Please feel free to contact Ferdi Ponci about this.

- Thanks were extended to all members of the Task Force: Ferdi Ponci, Leigh Tesfatsion, Zhenhua Jiang, Javier Contreras Sanz, Pavlos Trichakis, Phil Taylor, Xiaming Feng, Toshihisa Funabashi, Zita Vale, Chul-Hwan Kim and Aalhad Deshmukh.

4. Task Force on Agent Ontologies for Power Engineering. This activity will begin over the next year. The Task Force will:
- Work on ontologies per application areas
- Consider linkage with CIM, IEC61850 and other standards
- Make the ontologies will be available via the working group web pages

5. It was **agreed** that the Working Group would propose two panel sessions for the 2009 IEEE PES General Meeting.
  1. Emerging Applications for Smart Grids (we will attempt to have this included as part of a supersession)
  2. Intelligent Control of Marine Electrical Systems (in consultation with the Marine Systems Co-ordinating Committee, through Dave Cartes).

Note: Following the Intelligent Systems Subcommittee meeting and the PSACE technical committee meeting, there is pressure to reduce the number of panel sessions for IEEE PES GM 2009. There are fewer rooms available in Calgary.

6. At the IEEE PES GM in 2009 we will organise a **2-hour** working group meeting. This will allow up to one hour for administration and planning of activities. The second hour will be devoted to discussions of the technology, standards, etc. In 2009, the focus of the discussion will be the tools required to support agent applications in power engineering. The Working Group will then drive towards delivering these through an Agent Development Task Force.

7. Members of the Multi-Agent Systems working group wish to know what areas the other members are active in. This allows contact to be made and enables discussions about agent research and development activities. Therefore, this information will be gathered by email and circulated to all members.

   For information, at the meeting a quick survey was undertaken of areas of activity. The result was that the attendees of the meeting are applying multi-agent systems to:
   - Monitoring and diagnostics
   - Markets – modelling and simulation
   - Integration of distributed energy resources
   - Microgrids
   - Marine systems
   - Distributed control for distribution and transmission
   - Protection
   - Restoration and reconfiguration
   - Power plant control