

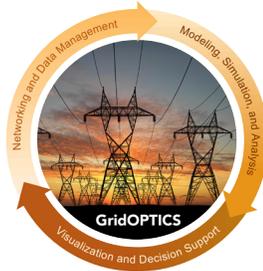


Future Power Grid Initiative Newsletter

November 2011



This month, FPGI hosted its first power grid workshop at the 2011 International Conference for High Performance Computing, Networking, Storage and Analysis (SC11). FPGI researchers also expanded their network by presenting at conferences in the US and abroad and hired new staff.



Introduction by Workshop Chair Daniel Chavarria, FPGI Focus Area 2 lead

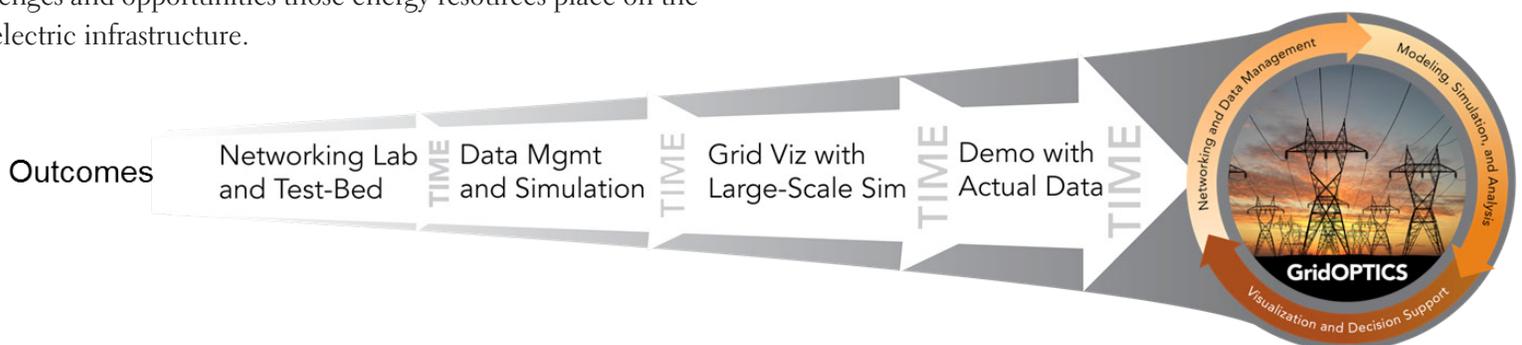
FPGI WORKSHOP AT SC11

On November 13, 2011, FPGI hosted the first power grid workshop in conjunction with SC11 in Seattle, Wash. The all-day event titled “International Workshop on High Performance Computing, Networking and Analytics for the Power Grid” brought together leading experts on high performance computing (HPC) and networking technologies from three national laboratories and leading universities in the United States and abroad, such as Oxford University in the UK and the Ecole Centrale Paris in France. Daniel Kirschen, holder of the Close Professorship in Electrical Engineering at the University of Washington, gave the keynote speech. Researchers presented ten papers and discussed various methods and applications for HPC for the grid, from advanced visualization to weather prediction, to stream computing. The workshop, which was one of the only workshops of its kind dedicated specifically to HPC for the power grid, was attended by more than 50 people.



Attendees at FPGI HPC Workshop

HPC is a critical part of FPGI, particularly because of the need for its stable grid operation in the presence of growing demand for renewable energy such as wind and solar power, the use of demand response via the smart grid, and the challenges and opportunities those energy resources place on the electric infrastructure.



HIGHLIGHTS & NOTABLE ACHIEVEMENTS

- Jian Yin from Focus Area one attended the 23rd ACM Symposium on Operating Systems Principles, or SOSP, in Lisbon, Portugal. Jian presented his research on Scalable Real-Time Data Management for the Power Grid, which resulted in promising discussions with representatives from software companies, universities and ACM fellows.
- Focus Area one's Terence Critchlow attended the North American Synchro Phasor Initiative (NASPI) meeting in San Francisco, Oct 2011. Terence met with colleagues and deepened FPGI's ties with energy professionals from utilities, regulators and the policy side.

Upcoming Papers

- K. Kalsi, F. Chassin and D. Chassin, "Aggregated Modeling of Thermostatic Loads in Demand Response: A Systems and Control Perspective", IEEE Conf. Decision and Control, Orlando, FL, Dec. 2011, accepted.
- K. Kalsi, M. Elizondo, J. Fuller, S. Lu and D. Chassin, "Aggregated Thermostatically Controlled Load Models for Demand Response", submitted to HICSS, Jan. 2012, accepted.
- Thomas Ferryman, Francis Tuffner, Ning Zhou, and Guang Lin, 2011 "Initial Study on the Predictability of Real Power on the Grid based on PMU Data," 2011 IEEE PES Power Systems Conference & Exposition, March 20 - 23, 2011, Phoenix, Arizona, USA. (submitted)
- Guang Lin, Ning Zhou, Thomas Ferryman, Francis Tuffner, 2011 "Uncertainty Quantification in State Estimation using the Probabilistic Collocation Method," 2011 IEEE PES Power Systems Conference & Exposition, March 20 - 23, 2011, Phoenix, Arizona, USA. (submitted)

ABOUT FPGI

The Future Power Grid Initiative (FPGI) will deliver next-generation concepts and tools for grid operation and planning and ensure a more secure, efficient and reliable future grid. Building on the Electricity Infrastructure Operations Center (EIOC), the Pacific Northwest National Laboratory's (PNNL) national electric grid research facility, the FPGI will advance the science and develop the technologies necessary for meeting the nation's expectations for a highly reliable and efficient electric grid, reducing carbon emissions and our dependence on foreign oil.

Contact

For more information, please visit the FPGI website gridoptics.pnnl.gov.

or Contact Initiative Leads

Henry Huang

Tel: (509) 372-6781

zhenyu.huang@pnnl.gov

Jeff Dagle

Tel: (509) 375-3629

jeff.dagle@pnnl.gov

Pacific Northwest

National Laboratory

P.O. Box 999, K1-85

Richland, WA 99352

www.pnnl.gov

UPCOMING EVENTS

- Presentation of the FPGI power networking, equipment, and technology (powerNET) testbed on November 28, 2011.
- Future Power Grid Initiative Mid-Year Review on January 25-26, 2011.



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