

Energy Efficient High Performance Computing Working Group  
**April 12, 2011 Meeting Report**

## INTRODUCTION

The EE HPC WG held a meeting on April 12, 2011. This Working Group is composed of members representing major Federal departments and independent agencies, private sector representatives, and members of the academic community. More information can be found at the working group's website, <http://eehpcwg.lbl.gov>. Documents from the group can be found at <https://docs.google.com/leaf?id=0BzyTVVVRdMKpNwVjNTI5YTEtMTIIZi00YTA5LTlkMTYtZmY3ZDIyZjJjZmMy&hl=en>.

**NEXT MEETING June 14th, 9:00-10:00AM Pacific Time**

### Introductions and Announcements: *Dale Sartor*

- EE HPC WG membership has now reached 140 members.

We have invited Anna Maria Bailey to make a webinar presentation on LLNL's power management system. Additional details on specific date and time to follow.

The Speaker's Bureau is up on the website. The purpose is to have an easily accessible mechanism by which to identify speakers for upcoming conferences and webinars that the group could sponsor. If you volunteer, there is no obligation to attend a particular event. All requests will be subject to your approval.

### Conferences Sub-group Update: *Marriann Silveira*

#### SC'11.

*If you have colleagues who would like to subscribe to the SC11 monthly newsletter, they should send an email from the address they want subscribed, with 'subscribe' in the subject line, to:*

[sc-newsletter-request@group.supercomputing.org](mailto:sc-newsletter-request@group.supercomputing.org)

Date: November 12-21, 2011

Location: Seattle, Washington

<http://sc11.supercomputing.org/>

#### Potential EE HPC WG Topics:

- Power Management
- Liquid Cooling
- Getting the Data Center ready for Multi-Petascale and Exascale
- HPC System/Rack Power Budget
- Free Cooling and Heat Re-use Case Studies
- DC Power Demonstrations
- Glass House and Regional Strengths and Weaknesses

- Storage and Networking Energy Efficiency
- EE HPC WG BoF

Deadlines: Panels and Tutorials due: April 15, State of the Practice Abstracts due: May 20, Workshops due May 23, BoF and Disruptive Technologies due: July 22

### **IEEE International Parallel and Distributed Processing Symposium's Workshop on High Performance Power Aware Computing**

Date: May 16, 2011

Location: Anchorage, Alaska

More Information: [http://www.ipdps.org/ipdps2011/2011\\_workshops.html](http://www.ipdps.org/ipdps2011/2011_workshops.html)

### **International Supercomputing Conference**

Date: June 19-23, 2011

Location: Hamburg, Germany

More Information: <http://www.supercomp.de/isc11/>

Deadlines: Tutorials are due February 15 (Natalie is composing an energy efficiency tutorial submission). BoF (Birds-of-a-Feather session) submissions are due April 11. Steve Hammond is going to moderate a panel on sustainability.

### **Second International Green Computing Conference (IGCC'11)**

Date: July 25-28, 2011

Location: Orlando, Florida

More Information: <http://www.green-conf.org>

Deadlines: Papers are due March 18.

### **GovEnergy**

Date: August 7-10, 2011

Location: Cincinnati, Ohio

More information: <http://www.govenergy.gov/>

### **Second International Conference on Energy-Aware HPC Computing**

Date: September 7-9, 2011

Location: Germany

More Information: <http://www.ena-hpc.org/>

More information on upcoming events can be found at: <http://eehpcwg.lbl.gov/events-and-links>

### **Infrastructure Sub-group Update: *William Tschudi and Henry Coles***

The group contacted GreenGrid about trying to develop metrics around shifting infrastructure load to IT or vice versa. GreenGrid has agreed to set up a group to work on this. If interested, please email Bill at [wftschudi@lbl.gov](mailto:wftschudi@lbl.gov).

The subgroup is working on a guideline for defining liquid cooling temperatures for cooling water supplied by facilities. Two ranges have been proposed. One is targeted

for use with dry cooler type technologies. The maximum temperature is 45°C and the minimum is 15°C. The other range is for use with cooling towers, and that temperature range is 27°C – 15°C. The minimums are 15°C or the dew point, whichever is higher. This is to avoid dealing with condensate management.

Up to now, participation has been mostly limited to DOE and DOD users. The next meeting will be open for input from HPC manufacturers. Natalie has identified some key industry people to invite, in addition to those who participated in the industry roadmapping session.

**Compute System Metrics Sub-group Update: *Natalie Bates***

The group has been working for the last year on converging on a common basis for workload and methodologies for compute-based metrics. This is a collaboration between the EEHPCWG, the Top 500, the Green 500, and GreenGrid. Stakeholders include designers and procurement decisionmakers, and the intent is to unite the community on energy efficiency metrics. This effort has come a long way in the last year. The group has agreed to look at workloads that are well-established and are not looking at creating workloads. They have done a sampling of people that made submissions on power measurement and are scrutinizing the methodologies to understand how clearly defined and well followed they are and to identify areas for improvement. Simplification is needed in order to get a higher reporting rate.

Another effort has focused on trying to put an MOU in place between the four organizations. Issues with GreenGrid's legal team have been resolved, and the MOU is moving forward.

## **PARTICIPANTS**

<b>Name</b>	<b>Organization</b>
Henry Coles	LBNL
Adam Lewis	ULA Lafayette
Bill Tschudi	LBNL
Natalie Bates	EE HPC WG
Matt Campbell	SDSC
Jim Crow	LBNL
Dale Sartor	LBNL
Robert Welch	Ameresco
Marriann Silveira	LLNL
Dave Martinez	SNL
Ralph Westcott	PNNL
Kurt Keville	MIT
Bill Kosik	HP
Marriann Silveira	LLNL
Joe Green	UT
Ron Kasl	Univ. of MD
Dave Yates	Bentley University
Christiaan Best	Green Revolution Cooling
Emily Stoddart	Energetics