

Memorandum

To: DC Demonstration Participants
From: My Ton, Ecos Consulting; Brian Fortenbery, EPRI Solutions
Re: Notes from Tuesday 2 May 06 Bi-Weekly Call
Cc: Bill Tschudi
Date: Friday, 5 May, 2006

This was the second “bi-weekly” calls intended to keep all of the participants of the DC Powering Architecture for Data Centers Demonstration Group informed, coordinated and on track. The next scheduled call is Tuesday, 16 May 06 at 10 AM Pacific/1 PM Eastern.

CALL AGENDA

- 10:00 - 10:05 Welcome/intro, additions & subtractions to the agenda
- 10:05 - 10:35 Safety issues - standards, requirements, and precautions (Brian Fortenbery, Dave Geary & others)
- 10:35 - 10:45 Review of equipment available, equipment outstanding and tracking - including data storage equipment (Brian F & others)
- 10:45 - 10:50 Stakeholders and participants (My Ton)
- 10:50 - 11:00 Wrap up/ choose the next on-site date

WELCOME/INTRO ADDITIONS & SUBTRACTIONS TO AGENDA

- Scott Cherry from Cingular Wireless is a new participant,
- Also Gary Gunnerson, Bill Cready are new, invited participants by Brian Fortenbery
- Bill Tschudi asked for an updated spreadsheet/tracking sheet of equipment

RECAP/REVIEW OF MEETING NOTES

- The April 18 notes refer to the week of May 15 as the week for on-site equipment assembly – this should be corrected – the current schedule calls for the week of May 22.

REVIEW OF SAFETY NEEDS

The group discussed current needs and available expertise. It was determined that the safety needs can be subdivided into two categories – safety within the rack (rack, power buss, and connectors/circuit breakers, data processing units), and safety outside the rack (facility AC conversion UPS, distribution busway, and delivery/breakers).

- **DC Power Supplies:** Internal designs (DC power supplies inside server boxes being provided by manufacturers) are manufacturers’ responsibilities, and they are being reviewed and verified by their respective manufacturers (Sun & Intel).
- **DC Rack:** Inside the rack safety issues are also being reviewed by equipment manufacturers (Sun & Intel), with consultations as needed with other equipment manufacturers (rack/connectors/breakers) representatives, such as APC, Liebert, etc.
- **DC Conversion Outside the Rack:** This is the gray area. Not everyone is in agreement on what safety requirements are needed, and which requirements apply to the current demonstration set-ups at NW10. To insure the safety and integrity of the demonstration, a “Safety Committee” has been formed from the participant group. This committee currently include: Brian Fortenbery, David Geary, Mike Mossman, John Richards, Geoffrey Cope, David Tootle, Peter Gross, Kevin Fellhoelter, Tate Cantrell, Scott Cherry, Gary Gunnerson, and Bill

Cready. This group will review the line drawing and other associated assembly documents that have been put together for the demonstration configurations at the Sun Newark facility and make recommendations as needed.

Items to be reviewed by the committee include:

- o DC Disconnect
- o Safety clearance
- o Connection clearance
- o Electrical/Electronics documentation
- o EMI
- o Physical documentation

There is additional research that can be done in looking at European Japanese protocols for handling HVDC distribution outside the cabinet, as NEBS deals more with 48 VDC.

- **Participating in the “Safety Committee”:** Like the demonstration participants, there are no requirements for participation in the committee, except for interest, willingness to participate/contribute, and direct knowledge.

EQUIPMENT AVAILABILITY REVIEW

Equipment continue to arrive at Sun’s NWK10.

- o The Pentadyne and Satcon units have shipped from SatCon Canada and arrived at Sun
- o The Mitsu UPS unit is being packaged and shipped from Pentadyne.
- o Sun has tentatively confirmed storage units will be available (2TB), pending power supply conversion, and other participants will look into obtaining storage units for the Demo.
- o HP has not yet committed, however, Liebert has offered to provide a 48 VDC rack from their Telco line that can be used if HP or other manufacturers with 48 VDC equipment want to participate.
- o Gary Gunnerson noted that Cisco has DC hub and other networking gear, and he will follow up.
- o Scott Cherry also provided information regarding Cingular’s DC set up.
- o The DC load bank is coming along, and Kevin expects it to ship on time.
- o My Ton will compile a list of equipment on a spreadsheet for tracking and review.
- o NexTek has offered 8 DC light strips to be used for illuminating the equipment (2 for each rack front & back).
- o As there is no other options available, the Shaefer unit has been ordered (through Baldwin), expected delivery is about 4 to 5 weeks from April 15.

NEXT STEPS

- Follow up conference calls – the next one will be on 16 May 06 at 10 AM Pacific/1 PM Eastern. My Ton to provide call information, notes and agenda.
- Next on site date is tentatively planned for 24 May, with 25 May set aside if needed. Note that this will be the week before the EPRI Conference.
- John Nellenbeck will be available the week prior (15 May) and can arrange to get started on the assembly and connection.