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Session       **4A - DC: The Power Change Buildings**  
Date           Thursday, May 23, 2013  
Time          3:30 to 4:30 p.m.  
Speaker       Brian Patterson

Over a hundred years ago, there was a famous debate over what form of power, ac or dc, was best for electric power generation, distribution and use. AC won because of the efficiencies brought about by the use of ac wire-wound transformers in long distance transmission and distribution and the heavy use of fixed speed ac motors. But since then, the world has changed. Today we face unprecedented new challenges with global climate change, the rising cost of fossil fuels, the need for a more sustainable built environment and the increasing threat of natural and man caused power disruption.

This presentation will look at the alternative of using (and keeping) dc power in its native form from alternate generation, to distribution, to end use in the buildings with the ultimate goal of a Net Zero Energy balance in a microgrid network format. Discussed will be the motivation and need for new power application standards for the use of higher (380Vdc) and lower (24Vdc) voltages and the further need and development of an eco-system to support those standards. It will give a future view of something being called the Eترنت, a powerful complement to the existing Internet.

Brian T. Patterson is the Chairman of the EMerge Alliance, a 501c non-profit corporation established to create application standards for dc power distribution systems use in commercial buildings. The alliance also promotes the development of an eco-system to support the rapid adoption of those standards that includes building owners and managers, architects and designers, engineers and contractors, policy, regulatory and compliance officials, academic and independent researchers, and original equipment manufacturers and system integrators.

Brian's extensive technical and work history in electronics, fibre optics and building technologies has resulted in his holding many patents in those fields. He is also General Manger of Business Development for the Building Products Division of Armstrong World Industries, a founding member of the Alliance; a member of the IEEE, and an active participant in UL/NEMA/NFPA task groups on dc power, the NIST SGIP DRGS DEWG chairman of the Microgrid subgroup, the DOE sponsored GPIC Energy Hub and GridStar projects, and the DOE Zero Net Energy Commercial Building Consortium. He is EMerge liaison to the National Electrical Manufacturers Association, the Underwriters Laboratories, the NSF sponsored Center for Power Electronic Systems (University of Virginia Technology), the FREEDM Systems Center (University of North Carolina), the Power Electronics Research Group (University of Texas-Austin).



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