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#	**William P. Bahnfleth** PhD, PE, FASHRAE, FASME, FISIAQ	
Title:	Professor of Architectural Engineering and Director, Indoor Environment Center, The Pennsylvania State University, University Park, PA USA	
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Presentation title:	**Thermal Energy Storage in the Era of Sustainability**	

During the 1980s and 1990s, cool thermal energy storage (TES) was a key technology in US utility demand-side management (DSM) programs. Interest in TES declined steeply as incentives disappeared during utility deregulation. Today, the focus of design has shifted from energy cost savings toward sustainability and it is reasonable to ask whether TES has anything to offer in this environment. This presentation will review the essentials of cool thermal energy storage and examine its relevance to sustainable design. Specific issues examined will include the impact of TES on site and source energy consumption, the economic case for TES without the incentives of the DSM era and the role of TES in achieving net zero energy buildings and communities.

CV:

William Bahnfleth is Professor and Director of the Indoor Environment Center in the Department of Architectural Engineering at the Pennsylvania State University (Penn State) in University Park, PA, where he has been employed since 1994. Previously, he was a Senior Consultant for ZBA, Inc. in Cincinnati, OH and a Principal Investigator at the U.S. Army Construction Engineering Research Laboratory in Champaign, IL. He holds BS, MS, and PhD degrees in Mechanical Engineering from the University of Illinois, where he also earned a bachelor of music degree in instrumental performance. His is a registered professional engineer.

At Penn State, Dr. Bahnfleth teaches undergraduate courses in HVAC fundamentals, system design, and controls and graduate courses in chilled water systems, hot water and steam systems, and indoor air quality. His research interests cover a wide variety of indoor environmental control topics including chilled water pumping systems, stratified thermal energy storage, protection of building occupants from indoor bioaerosol releases, ultraviolet germicidal irradiation systems, and others. He is the author or co-author of more than 170 technical papers and articles and 14 books and book chapters. He consults on the design of chilled water thermal energy storage systems and has been involved in more than 20 projects worldwide.

Dr. Bahnfleth is a fellow of ASHRAE, the American Society of Mechanical Engineers (ASME) and the International Society for Indoor Air Quality and Climate (ISIAQ). He is also a member of the Indoor Air Quality Association (IAQA), the International Building Performance Simulation Association (IBPSA), and the Society of Building Science Educators (SBSE). He has served ASHRAE in a variety of capacities, including Student Branch Advisor, Chapter Governor, Technical Committee and Standing Committee Chair, and as Director-at-Large, Vice President, Treasurer, and 2013-14 Society President. His honors include a 1st place ASHRAE Technology Award, Transactions Paper Award, Distinguished Service and Exceptional Service Awards, The Louise and Bill Holladay Distinguished Fellow Award, and the E.K. Campbell Award of Merit for service and achievement in teaching. He is also a recipient of the Penn State Engineering Alumni Society's World-Class Engineering Faculty Award.

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