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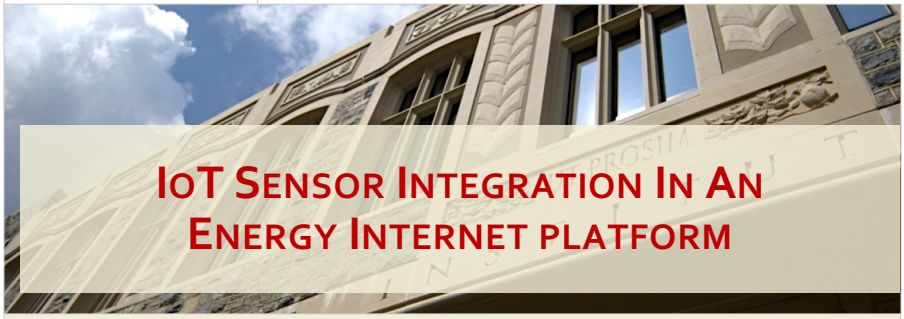

IoT Sensor Integration In An Energy Internet Platform

Keynote Speech

Professor Saifur Rahman
Director, Virginia Tech Advanced Research Inst., USA
President, IEEE Power & Energy Society

IEEE PES ISGT Conf., Chengdu, China, 22 May 2019

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Dr. Rahman with ARI students @ IEEE-ISGT 2014
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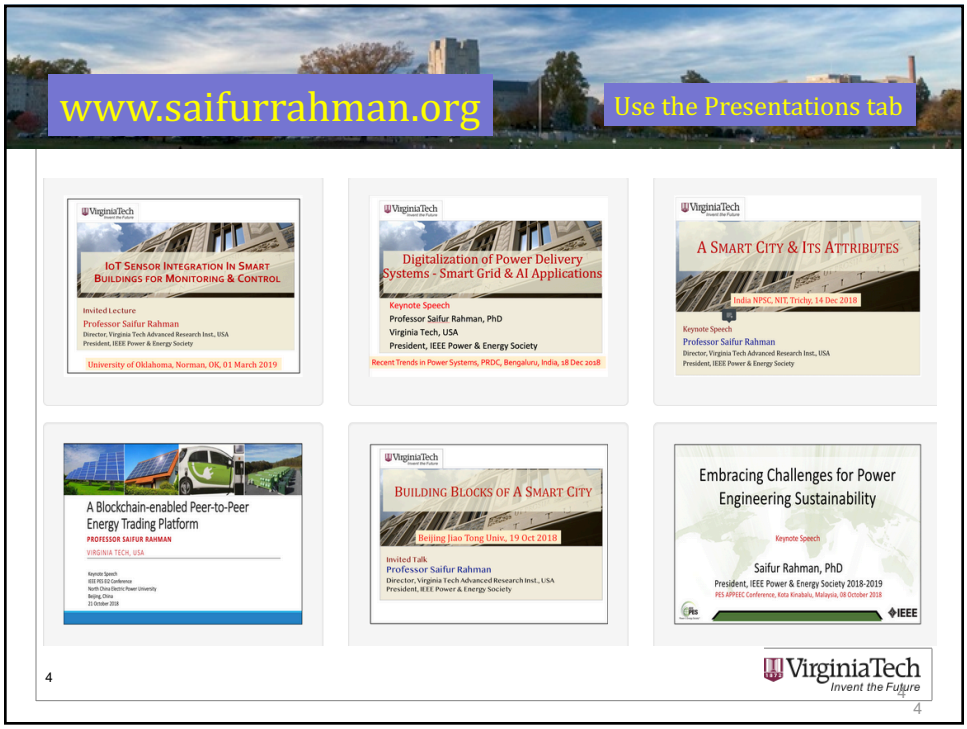
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IoT Sensor Integration In Smart Buildings for Monitoring & Control
Invited Lecture
Professor Saifur Rahman
University of Oklahoma, Norman, OK, 01 March 2019
Digitalization of Power Delivery Systems - Smart Grid & AI Applications
Keynote Speech
Professor Saifur Rahman, PhD
Virginia Tech, USA
President, IEEE Power & Energy Society
Recent Trends in Power Systems, PRDC, Bengaluru, India, 18 Dec 2018
A Smart City & Its Attributes
India NPSC, NIT, Trichy, 14 Dec 2018
Keynote Speech
Professor Saifur Rahman
A Blockchain-enabled Peer-to-Peer Energy Trading Platform
PROFESSOR SAIFUR RAHMAN
VIRGINIA TECH, USA
Building Blocks of A Smart City
Beijing Jiao Tong Univ., 19 Oct 2018
Invited Talk
Professor Saifur Rahman
Embracing Challenges for Power Engineering Sustainability
Keynote Speech
Saifur Rahman, PhD
President, IEEE Power & Energy Society 2018-2019
PES APPEEC Conference, Kota Kinabalu, Malaysia, 08 October 2018
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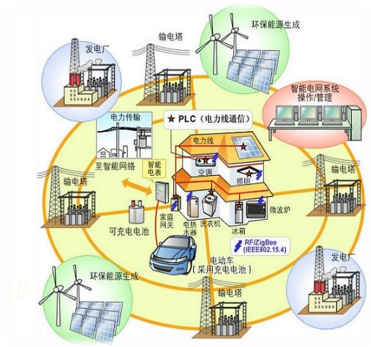
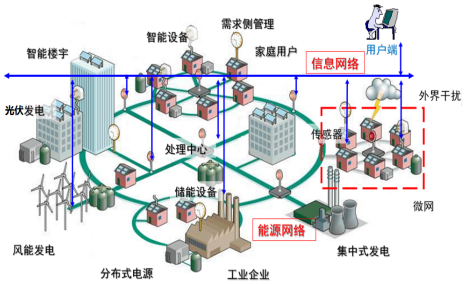
Energy Transition in a Future Power System



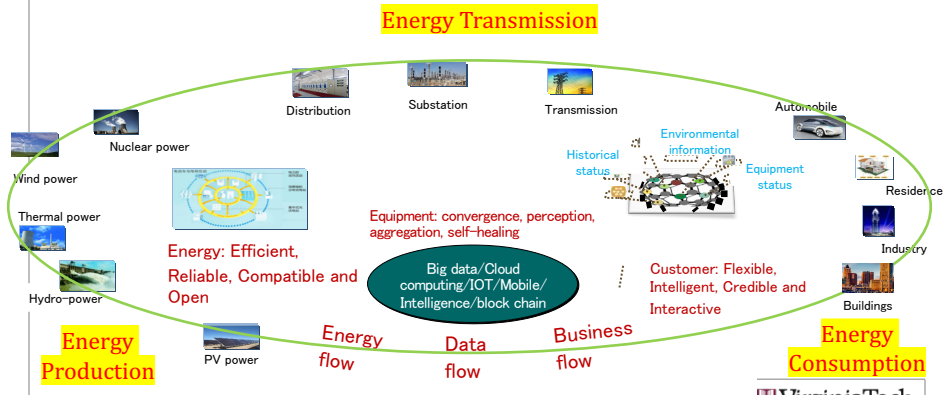
Novel power system



Novel power system integrated
with modern information technology

Source: SGCC

Vision of the Future Grid



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Source: SGCC

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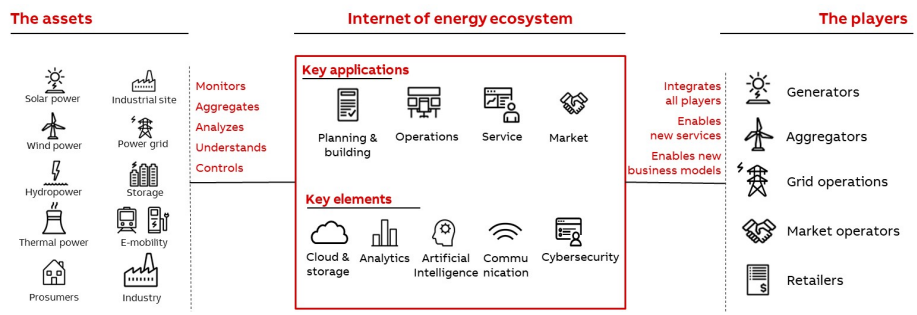
Grid Reliability and Digitalization – Players in the Digital Grid



Source: ABB

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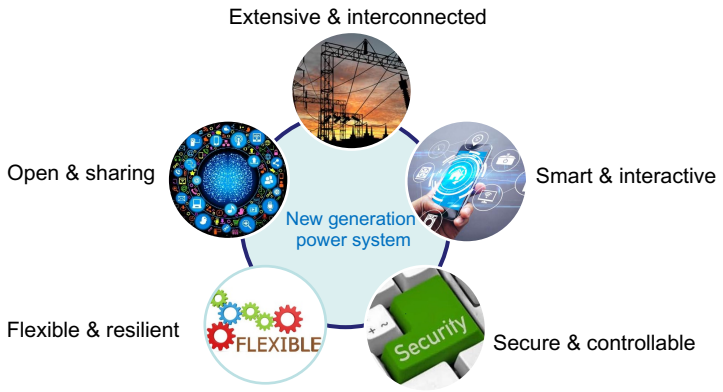
The Novel Power System Ensures Energy Transition



Source: SGCC

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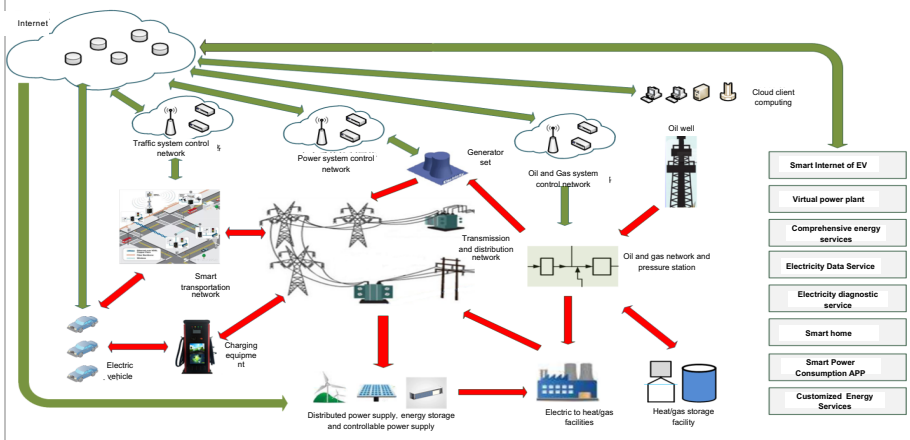
Architecture of the Energy Internet



Source: SGCC

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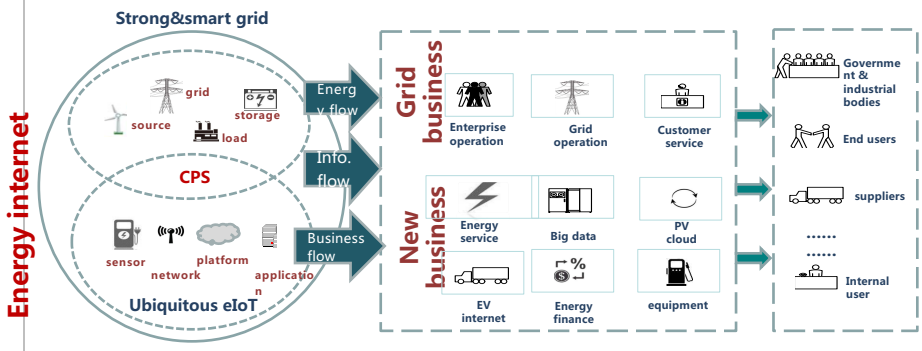
Functions of the Energy Internet

Strong & Smart grid and Ubiquitous eIoT



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Source: SGCC

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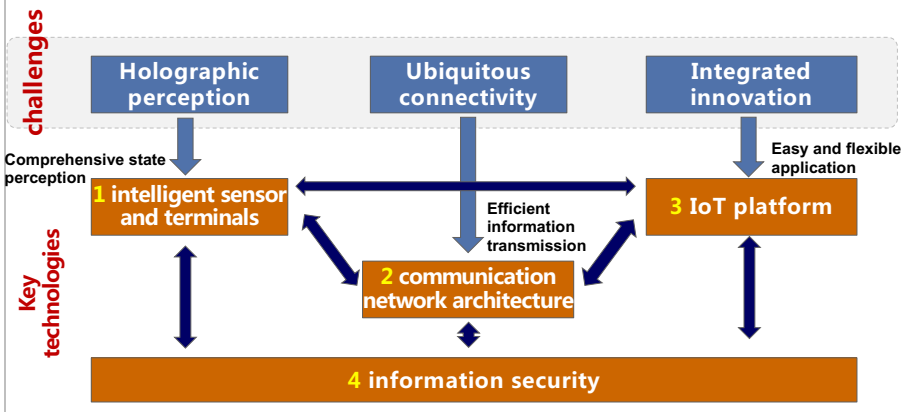
Key Technologies of the Energy Internet



Source: SGCC

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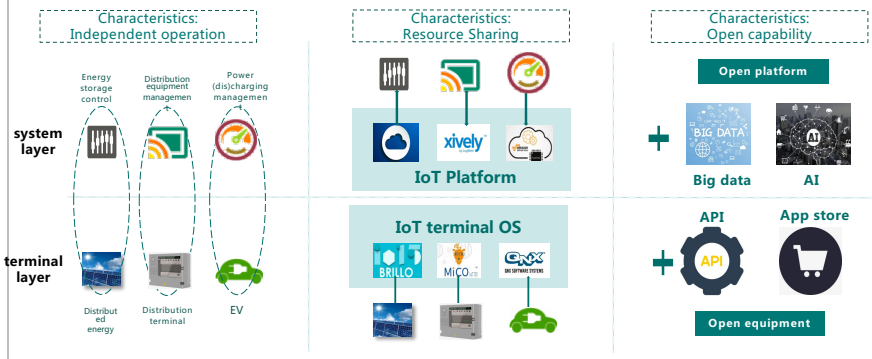
Unified IoT platform
Open to external capabilities

Features:

- Mass connection management, High concurrent processing
- Micro-application services, Open data sharing



IoT vertical application development towards open sharing mode

Source: SGCC

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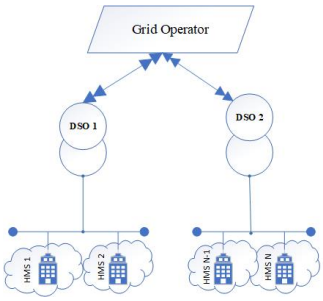
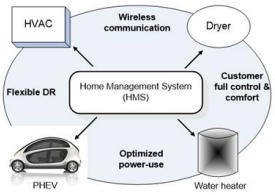
Overlaying on the Current System





Loads at a House Level

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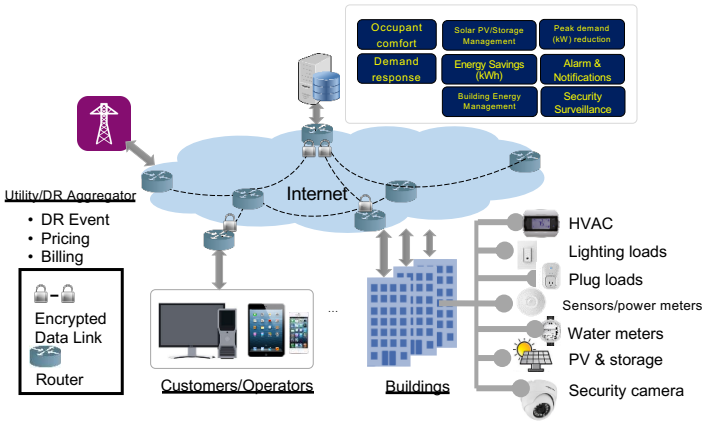
Building Automation Platform



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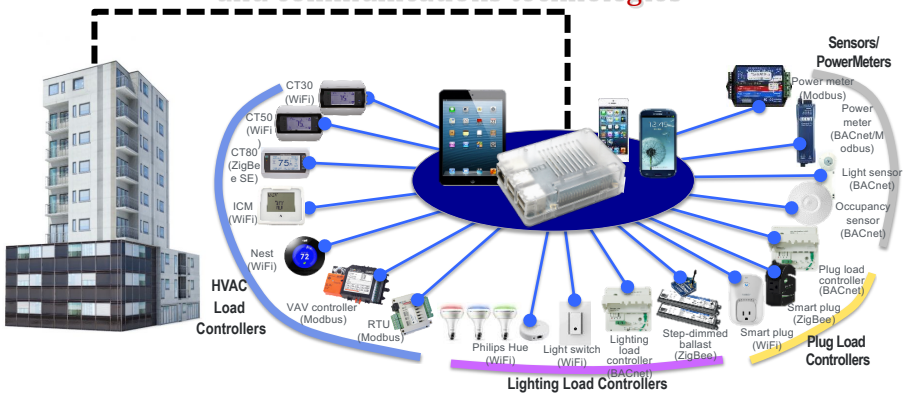
An Open-Architecture IoT Platform for Edge Device Integration

WiseBldg platform supports many industry standard protocols and communications technologies



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WiseBldg can make an old building smart

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Building – Virginia Tech Building

Alexandria, Virginia, USA

Area: 2500 Sq meter
Energy: 14-25 MWh/mo.
Peak load: 61 kW

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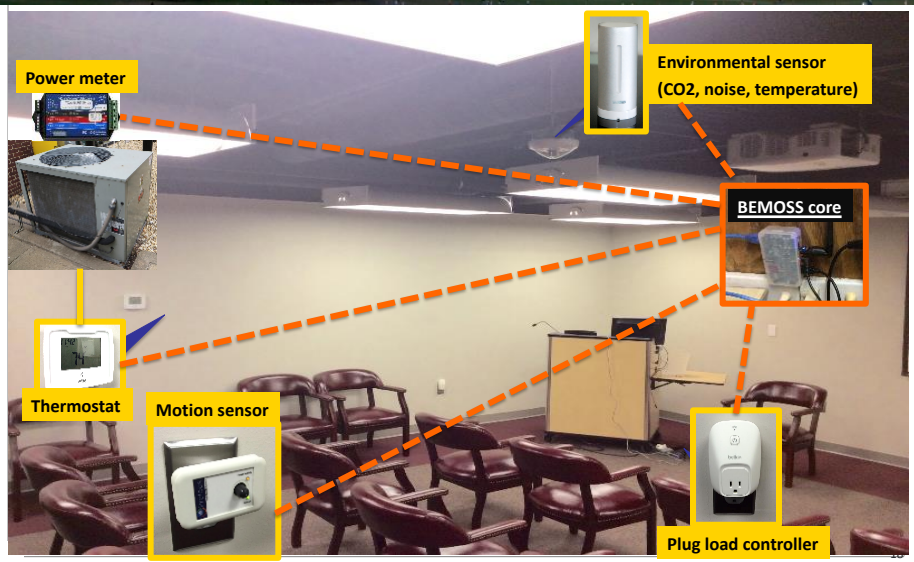
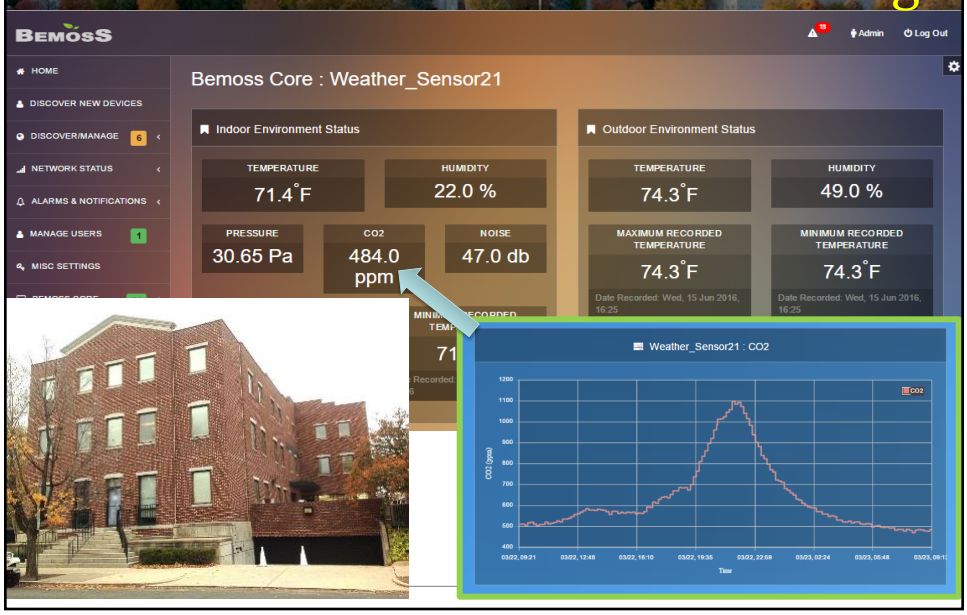
Classroom under Real-time Monitoring



Indoor Environmental Monitoring



Solar PV System Monitoring and Control

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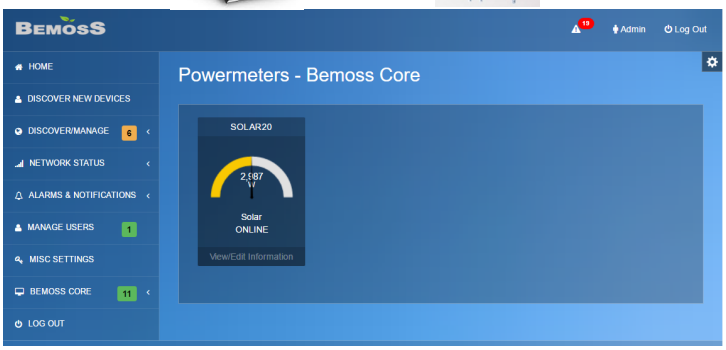
Solar PV and Smart Inverter Integration



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WiseBldg User Interface

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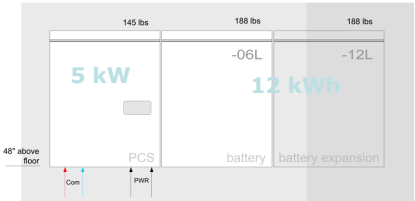
Managing Battery Storage from WiseBldg Platform

Battery Cells LG Chem



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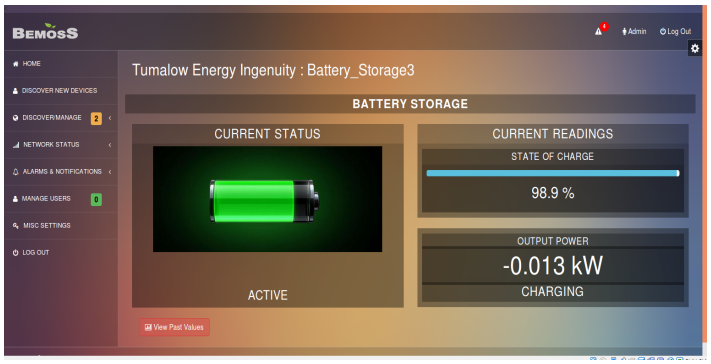
Battery Storage Monitoring & Control



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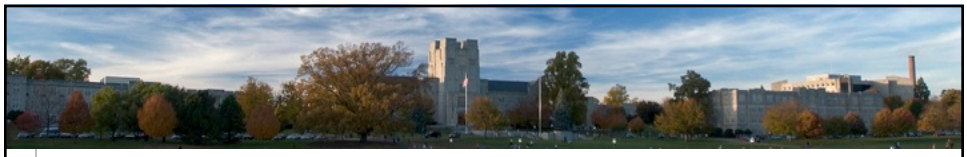
All Buildings should be Smart Buildings

Building Automation Systems (BAS) can slash power consumption and energy bills significantly, but they are too expensive for most buildings.

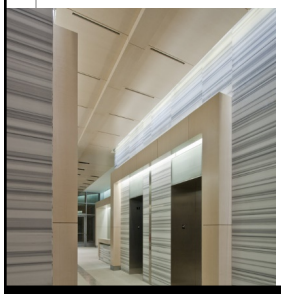
BEM Controls breaks through this barrier.

Our Wise Building (WiseBldg) platform is affordable and works with any existing loads to make any building smart, no matter the size or age.

www.bemcontrols.com



Thank You



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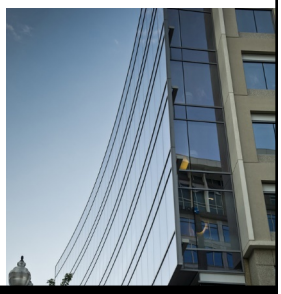

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