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IEEE PES
Power & Energy Society®



Measurement, Control and Protection in a Smart Grid with a reference to Energy Management Systems

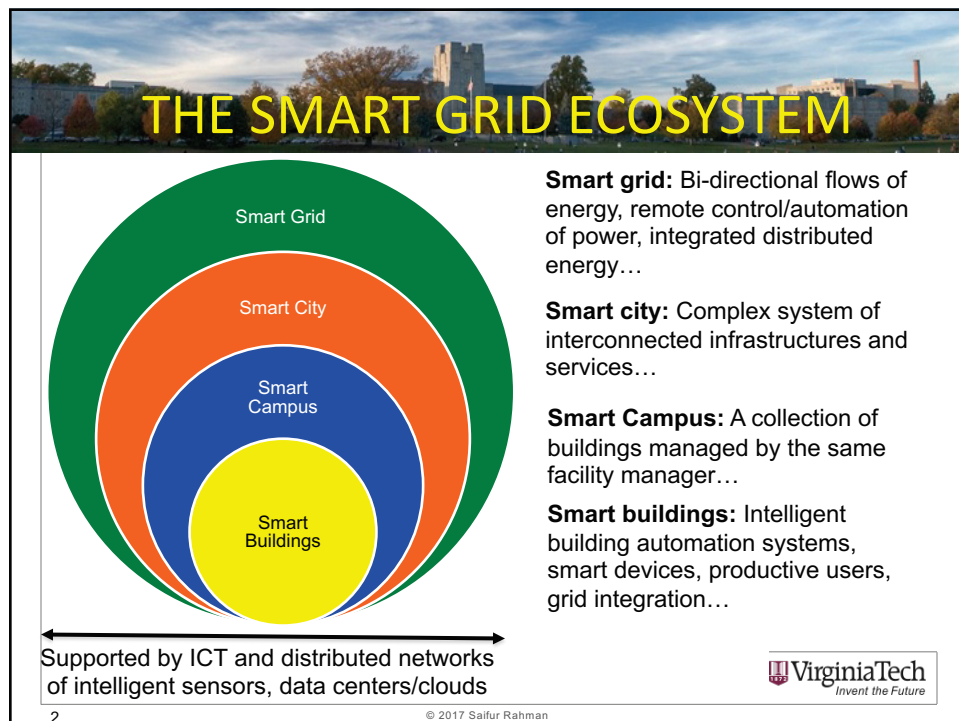
Invited Talk

Professor Saifur Rahman

Director, Virginia Tech Advanced Research Inst., USA
President, IEEE Power & Energy Society 2018 & 2019

IEEE PES PSIM Satellite TC Meeting, China 22 April 2021

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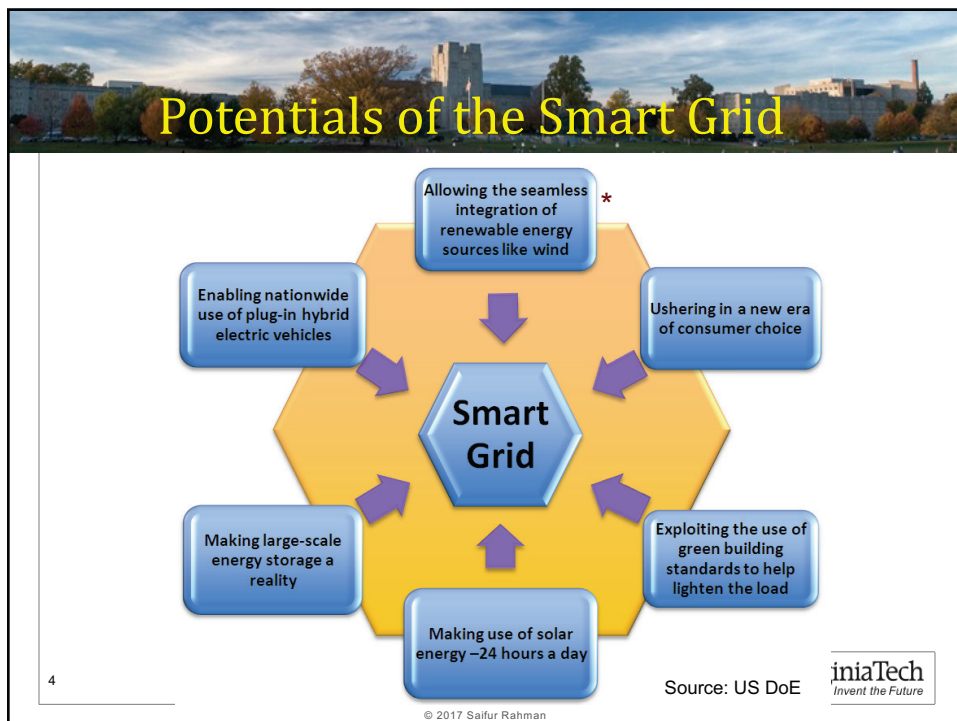
"**Smart grid**" is a concept with many elements where monitoring and control of each element in the chain of **generation, transmission, distribution and end-use** allow the electricity delivery and use to be more efficient.

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Advanced Measurements & Control

The smart grid requires advanced measurements and control at both component and system levels to successfully integrate **distributed energy resources** into the electric power grid

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Broad Applications

- Building automation
- Demand response
- DER monitoring and control (PV, storage)
- Fault detection
- Illuminance-based control
- Transactive energy

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Measurement & Control Platform

BEMOSS is a Building Energy Management Open Architecture Software solution that is engineered to improve sensing and control of all IoT-enabled equipment in commercial buildings

www.bemoss.org

Monitoring and control:

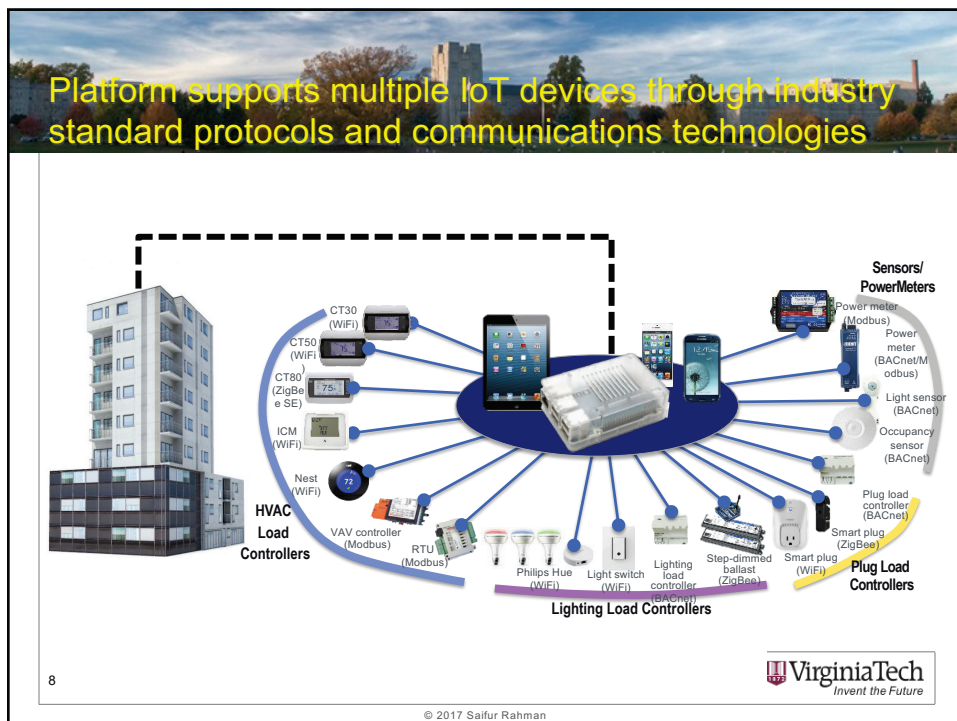
- Heating, Ventilation, AC
- Lighting loads
- Plug loads

Value: Improves energy efficiency and facilitates peak load savings in buildings

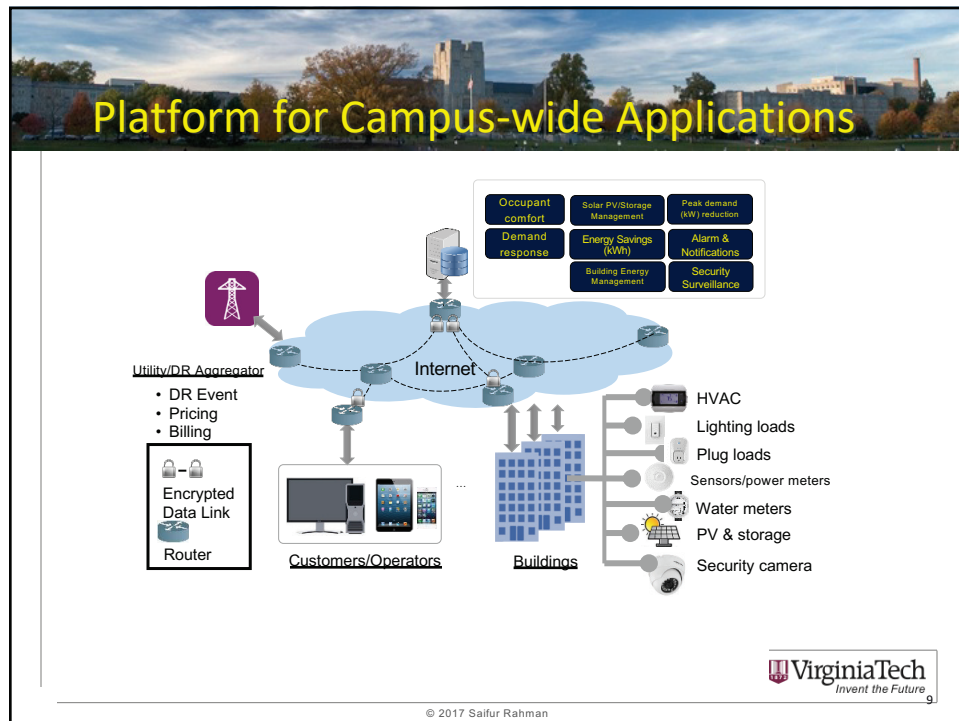

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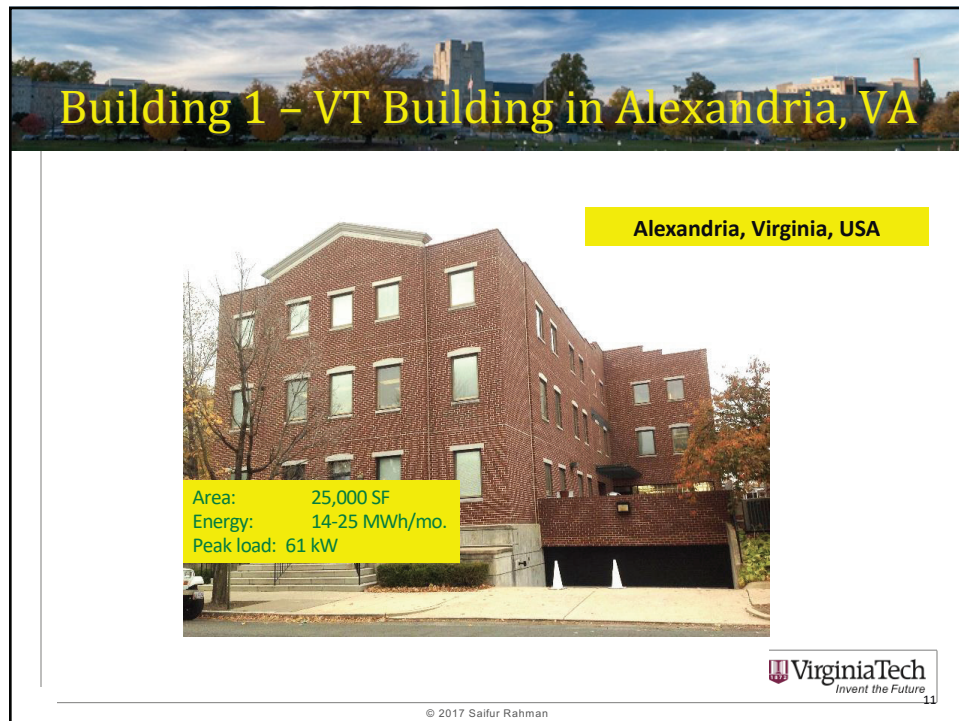
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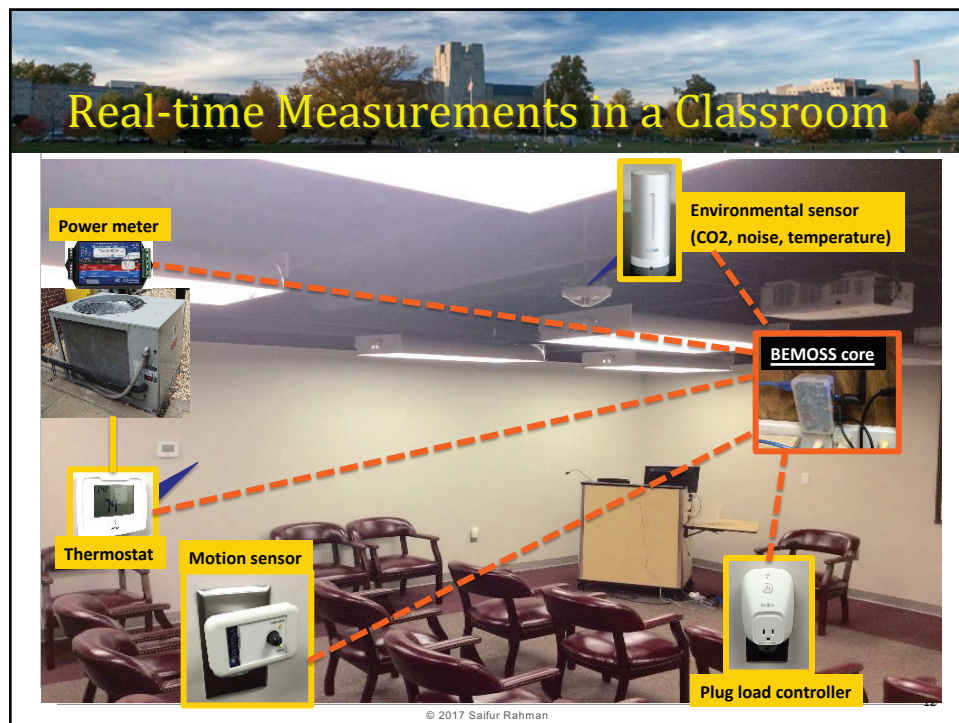
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Solar PV System Measurements & Control



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Measurement Interface



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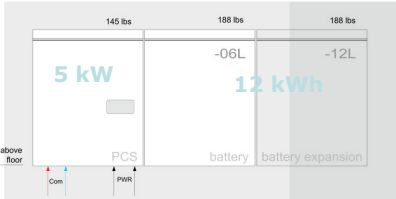
Monitoring & Measurement of Battery Storage



EGUANA AC BATTERY™

- BATTERY READY
- COMMAND READY
- SYSTEM CERTIFIED

Battery Cells  LG Chem



48" above floor

PCS

Com PWR

145 lbs 108 lbs 188 lbs

5 kW -06L -12L

battery battery expansion

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Battery Storage Data Access

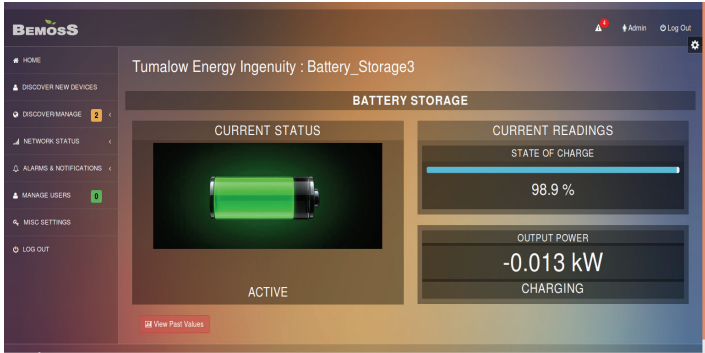


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Measurement & Control




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Thank You

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