

ASHRAE

Energy Benchmarking Ordinance



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My Background

Education

- University of Illinois Urbana-Champaign – Bachelor of Science, General Engineering
- University of Chicago Booth School of Business – MBA

Accreditations

- Professional Engineer – Mechanical Engineering
- LEED Accredited Professional

Employment

- Teng & Associates
 - Mechanical Engineering Design
- Equity Office Properties
 - Energy Investment, Operations, Development
- Allstate Insurance Company (Real Estate Group)
 - Tenant Improvement Project Management
- The John Buck Company
 - Operations

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The John Buck Company

JBC Core Business

- Development
- Value-add investments
- Property Leasing and Property Management

Sustainability

- USGBC Member
- JBC is dedicated to implementing sustainable design practices and operational initiatives
- Portfolio consisting of ENERGY STAR® and LEED Certified Buildings
 - 155 N. Wacker Drive
 - ENERGY STAR®
 - LEED CS Gold 2010
 - LEED EB Platinum 2015
 - The Rookery (209 S. LaSalle Street)
 - Built 1888
 - Oldest LEED Gold building in Illinois
 - Oldest LEED Certified high-rise in the world

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Benchmarking

Benchmarking at JBC

- JBC began benchmarking portfolio internally prior to the ordinance via ENERGY STAR®
 - Some benefits, some limitations...

Some Benefits

- Increased awareness of normalized energy use
 - Normalization is important
- Provides a baseline for proper assessment of energy use
- Differentiator in the marketplace
- Launchpad for setting and achieving goals

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Benchmarking

Potential Limitations

- Benchmarking alone achieves nothing
 - Must have a call to action
- Lack of resources
 - Must have capable, committed team (engineers, consultants, property managers, owners, etc.)
 - Must have financial support
- Inaccuracies
 - Benchmarking metric must be accurate
 - Normalization must accurately account for “all” variables
- Lack of verifiability
 - Must be able to retroactively validate energy-saving measures
 - Verifiability increases motivation for further action
 - Value-add measures without validation can be perceived as just an added expense
- Lack of participation
 - Participation is proportional to the usefulness of benchmarking
 - More participation leads to better self-assessment and more effective goal setting

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Benchmarking

ENERGY STAR® and Chicago Energy Benchmarking Ordinance have mitigated many of those limitations, giving way to the possibility of additional benefits.

Action Plan

1. Self assessment
 - ENERGY STAR® is a good tool to gauge against similar buildings
 - Difficult to set goals without first understanding your starting point
2. Goal-setting
 - Audit building and building systems for proposed ECMs (Energy audit, RCx, etc.)
 - Prioritize and quantify ECMs (energy/\$ saved, ENERGY STAR® points gained, ROI, etc.)
3. Support and Resources
 - Must get buy-in from team, stakeholders, and decision makers on how to achieve goals
 - Resources must be allocated appropriately to achieve goals
 - Level of support and resources may require modifying goals (or changing mindsets)
4. Implementation
5. Continual Review and Analysis
 - Validating ECMs with actual data (energy/\$ saved, cost, etc.)
 - Continually implement process improvements and update goals

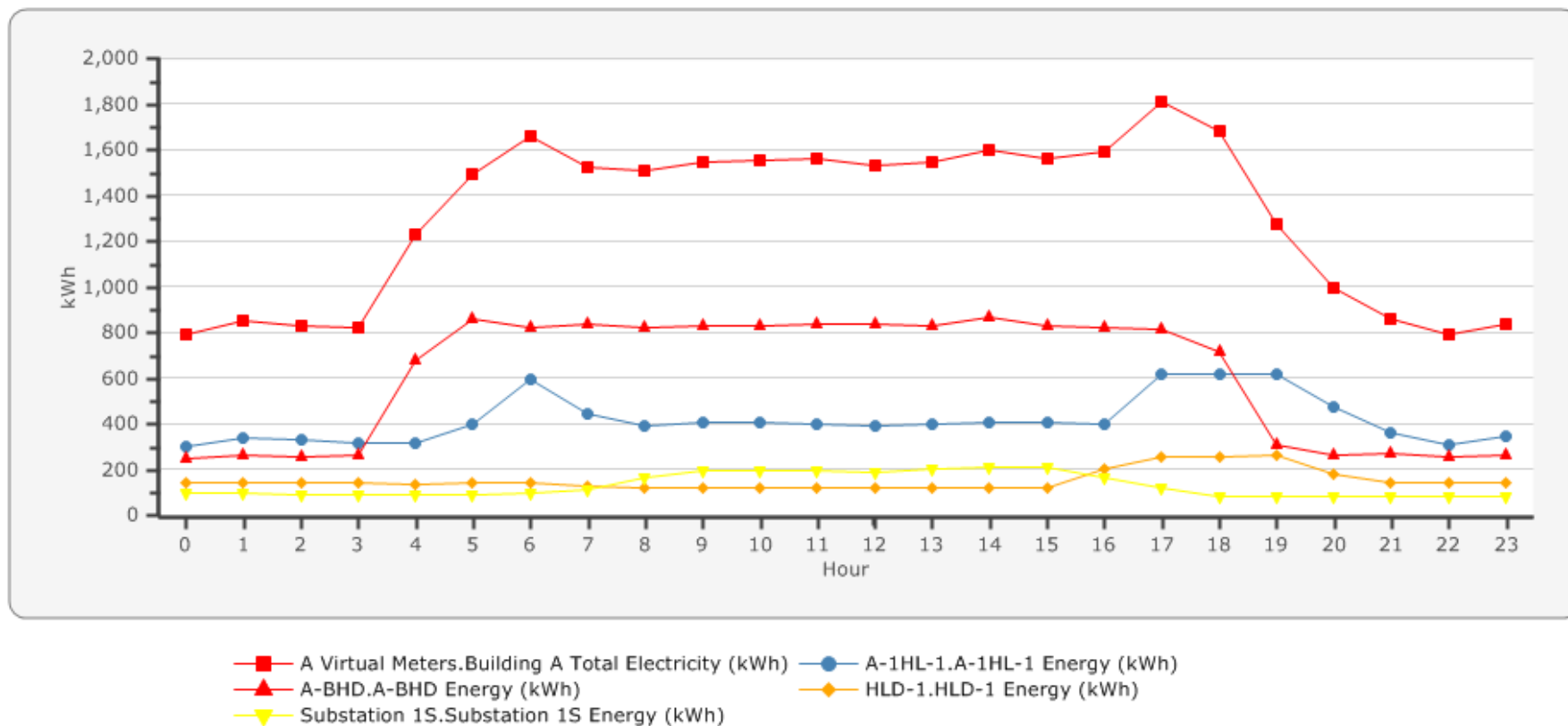
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Energy Efficiency Program

- Energy Conservation
 - Establish system by system Best Practices Database (BPD) by system
 - Develop training and measurement parameters to reduce utility consumption without spending capital
 - Set and enumerate goals
 - Change mindsets
- Energy Investments
 - Evaluate and analyze projects for energy cost savings and return
 - Create performance measurement parameters
 - Implement projects to reduce utility operating costs
- Energy Procurement
 - Solicit procurement proposals
 - Identify creditworthy, qualified vendors
 - Utilize energy use profiles and state regulations to drive RFP strategy and to structure the types of contracts that will be secured.
- Energy Monitoring
 - Interval data (real-time is ideal)
 - Evaluate opportunities to increase efficiency

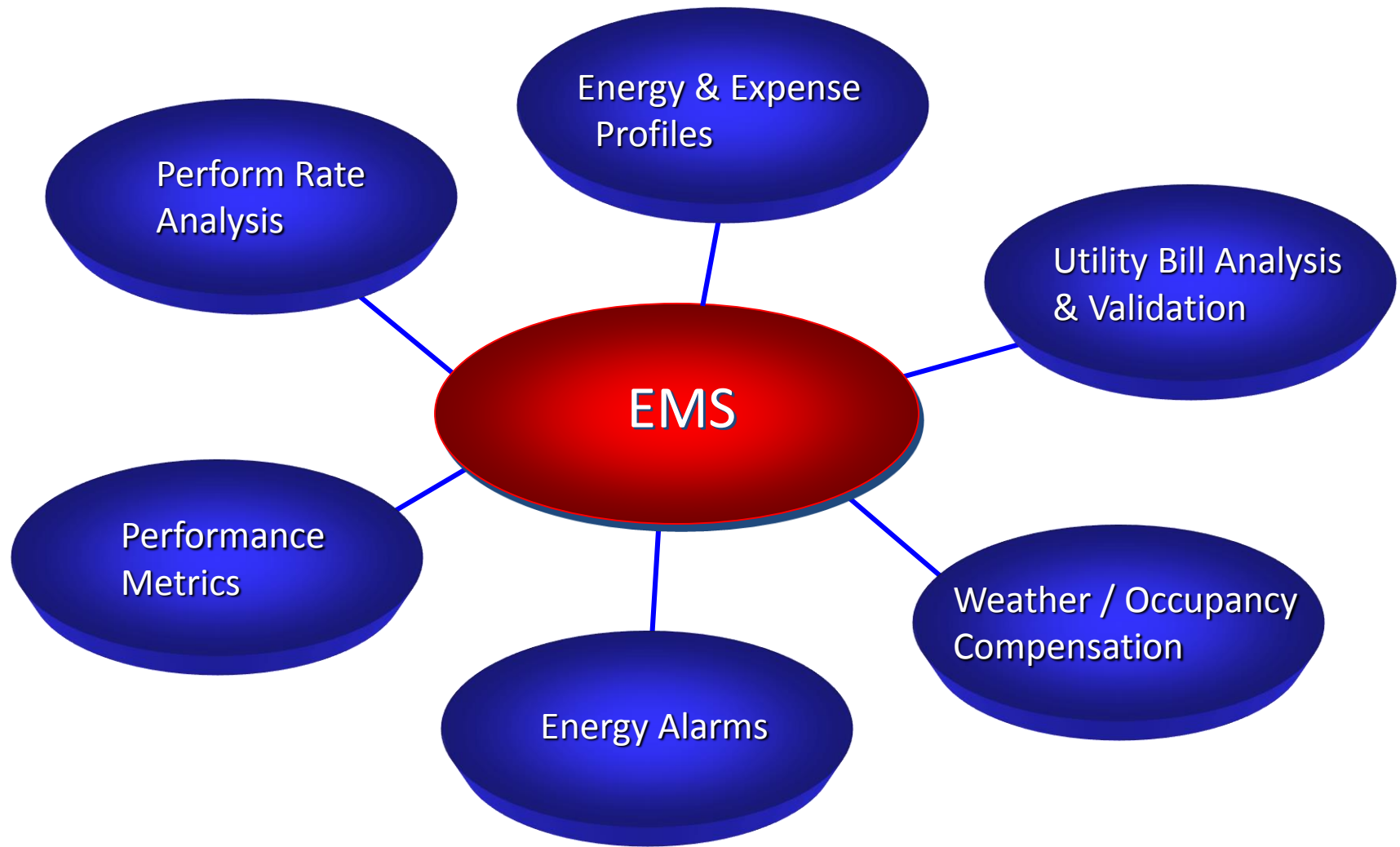
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Energy Efficiency Program – Energy Monitoring System



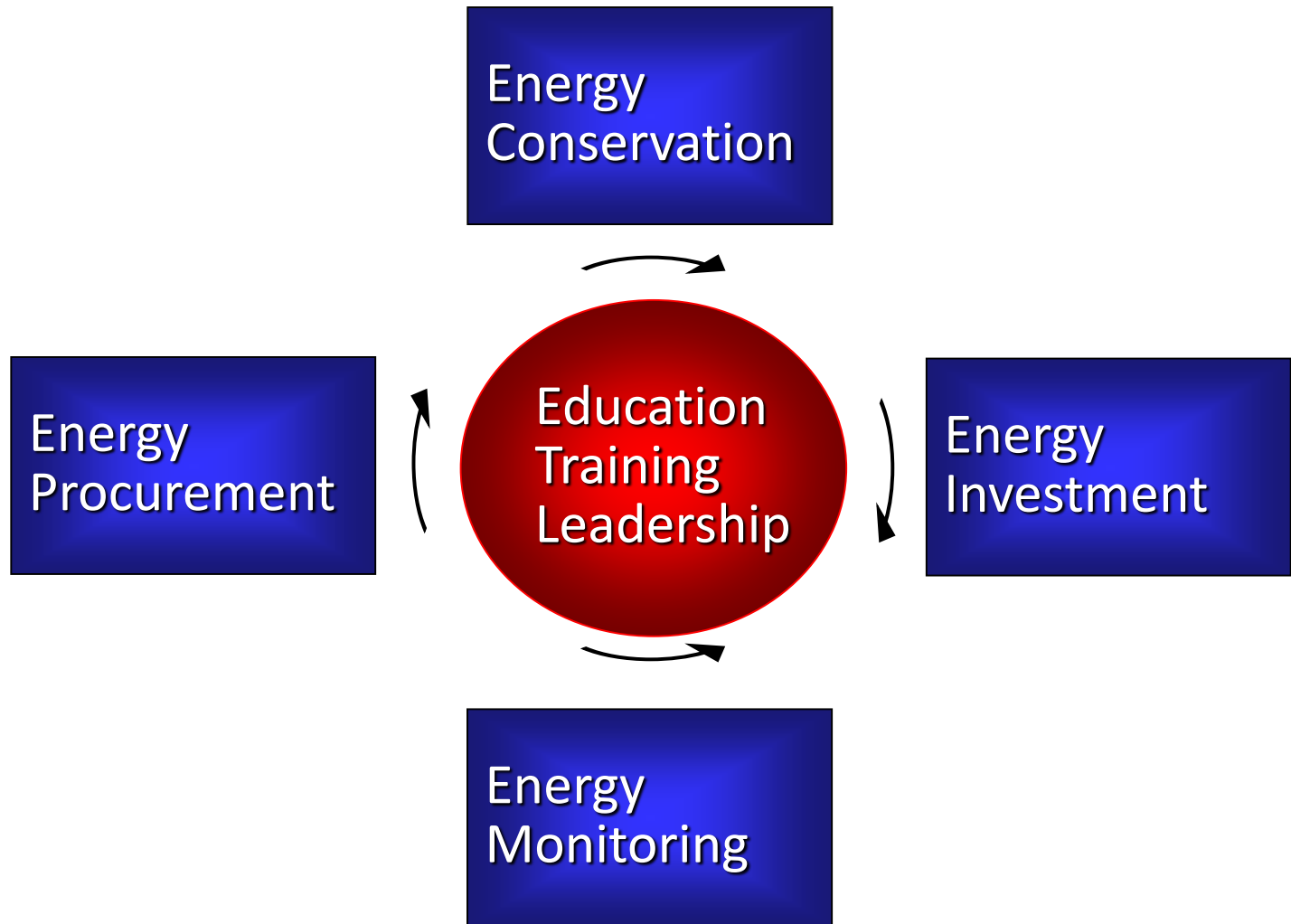
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Energy Efficiency Program – Energy Monitoring System



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Energy Efficiency Program



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Success Story – The Rookery

- Retrofit Chicago
 - Retrofit Chicago is a City of Chicago initiative in which participating commercial buildings commit to reducing energy consumption by 20% within 5 years.
 - The Rookery committed to this program in 2012 and has reduced its annual energy consumption by 10.2% to date.
- Retro-commissioning
 - The Rookery went through ComEd's RCx incentive program which began in 2012 and was completed July 18, 2013.
 - Efficient lighting systems
 - Implemented more efficient automated controls
- Operational Improvements
 - Reduced HVAC equipment operations on weekends
- Annual cost savings of \$37,175 and a reduction of energy consumption of 149.1 kWh annually

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Success Story – The Rookery

