Data Driven Approaches to Optimizing Building Energy Performance

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Energy forecasts and optimization need energy data ...

- Energy efficiency planning
- Energy/performance optimization
- Load shedding & management
- Demand response
- Investment
- Smart buildings and communities
- Compliance ...

Demand Forecasting

- Short-term Analysis & Optimization
  - Minutes to days & weeks
  - Rigorous Statistical Forecasts/predictive analytics & machine learning...
- Long-term Analysis & Optimization
  - Months to Years
  - Disaggregated bottom-up; combined physics, agent based and statistical models ....
Depending on optimization, other data may also be needed...

Cost & benefit analysis or risk based optimization require additional data ...

For example, optimize energy-performance function ...

Risk Analysis
- Means
- Ends

Present / Net Present Value Analysis

Real Option Analysis

Financial Risk
Business Risk
Performance Risk
Compliance Risk
Right analytics, right data and value proposition?

Data type and granularity

Analytics tools and complexity

Costs and benefits of the solution approach
Panelists are ...

- J. Granderson, LBNL
  
  *Knowing is half the battle: How emerging energy information systems can drive and verify savings*

- J. Brown, LBNL

- C. Godin, DNV GL

- A. Stryker, DNV GL
  
  *Impact of AMI: Benefits and changes for Energy Efficiency Evaluation*

- M. A. Jafari
  
  *Bottom-up Dynamic Demand Modeling & Integrated Decision Making*