Overview

• IIT utility overview
• Team structure
• Background
• Micro-Utility Model
Goals for IIT Utility

• Reduce cost of energy
• Increase efficient use of resources
• Set an example
  – IIT at forefront of sustainable practices
Current IIT Utility Statistics

• $10 Million/year on energy
• 32,000 tons of carbon emitted
• IIT’s commitment to sustainability
  – Technology around for 10 years
  – More $ on marketing than solutions
Objectives

- Current utility management research
- Develop a scalable Micro-Utility Model
- Final recommendation
  - 14 week deadline
  - 1 semester IPRO
Team Organization

- **Team Leader**: Jennifer Guilfoyle
  - **Electric Team**
    - Ryan Murphy*
    - Alok Kashyap P
    - Fatima Chippo E
    - Nizar Zhani E
  - **Gas/Water Team**
    - Juliana Masci*
    - Pat Becker ®
    - Timothy Baldwin P
  - **Steam Team**
    - Sam Martin*
    - Jeffrey Burke ®
    - Nathan Lee P
    - Yomola Shonekan E

**Legend**
- ® Reports Team
- P Presentation Team
- $ Ethics Team
- E Exhibit Team
- *Subgroup Leader
Utility Requirements

- Economically feasible
- Encourage energy reduction
- Maintain service level
Utility Parameters

• Develop an economic rather than implementation strategy
• Scale to IIT’s size and needs
• Pair incentives with control
Background

• Deregulation
  – Reducing size of utility monopoly
  – Creating competition in energy markets

• Government Incentives

• Decoupling
  – Makes energy saving profitable
  – Unlinks the units of energy sold to profits
Solutions Considered

• Utility Taxes
  – Burden to users

• Implementations by IIT Facilities Dpt.
  – Excessive risk

• Performance Contracting
  – Decentralized
Energy Contracting

• Transfer control of utilities
• Maintain same level of service to customer
• Continuously diminish flat fee
• Gain profits from energy reductions
Groups Involved

Contractor
- Experts in retrofitting buildings
- Willing to take economic risk
- Profit from energy reductions

IIT
- Reduces energy resources consumed
- Reduces risk to institution
- Reduces energy costs
Payments and Investment

IIT Utility payment and Energy Service Investment vs. Time

- Red: IIT utility payment
- Blue: Energy Service investment

Million $:

Time (years): 0 to 45
Typical Performance Contract
Contractor Income

Break even at year 14 of contract
Return on Investment

Energy Service Loan

Money in Millions of $'s

Energy Service Profits

Energy Service payment on loan

Time in Years

Utility Services at Illinois Institute of Technology
Conclusion

• IIT saves money from first year
  – $166,000 reduction each year
  – $75 million saved over 30 years
• Resource use drops within five years
  – Half of current usage
• Manage IIT’s financial risk
• Contribute to IIT’s sustainable image