



Integrated Energy Management

APPA INSTITUTE FOR
FACILITIES MANAGEMENT
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TODAY'S PRESENTATION

Course Description:

This course explores:

Energy management means managing your energy-related production and consumption to help meet your institution's vision while maintaining its expected service levels. This requires grassroots involvement of faculty, staff, and students along with an understanding of the restrictions that can confront the energy management program due to your stakeholders' conflicting goals. With many competing political, social, and technical messages bombarding stakeholders, an effective energy management program needs sufficient resources and backing from campus leaders to be effective. Energy Management is not just about conserving energy; it's about understanding what you can reasonably expect to accomplish within your institution's constraints.

Learning Objectives:

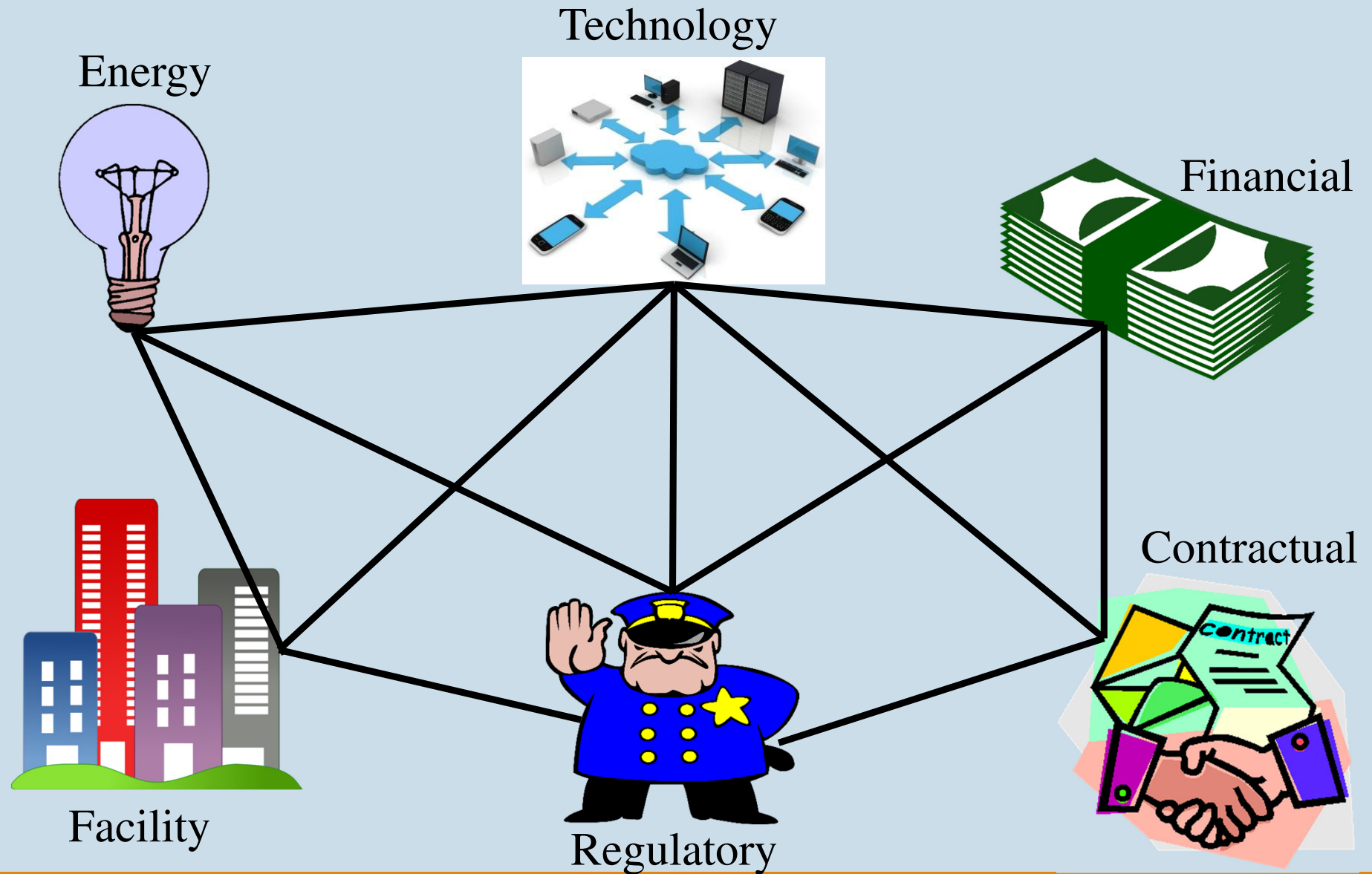
- *Better understand the concepts of energy efficiency, conservation, demand, and management.*
- *Learn about the Integrated Energy Trident*
- *Study the breadth of the energy management function in our institutions.*
- *Identify the various stakeholders, restrictions, and opportunities that must be evaluated to create a viable energy management program.*

What is an *Integrated Energy Strategy*?

“Don’t make short-term decisions without a long term plan.”



Integrated Energy Strategy Components



Requires Input and Cooperation from All Stakeholders

Executive Leadership

Utilities

Operations

Budgets

Finance

Students

Sustainability

Research

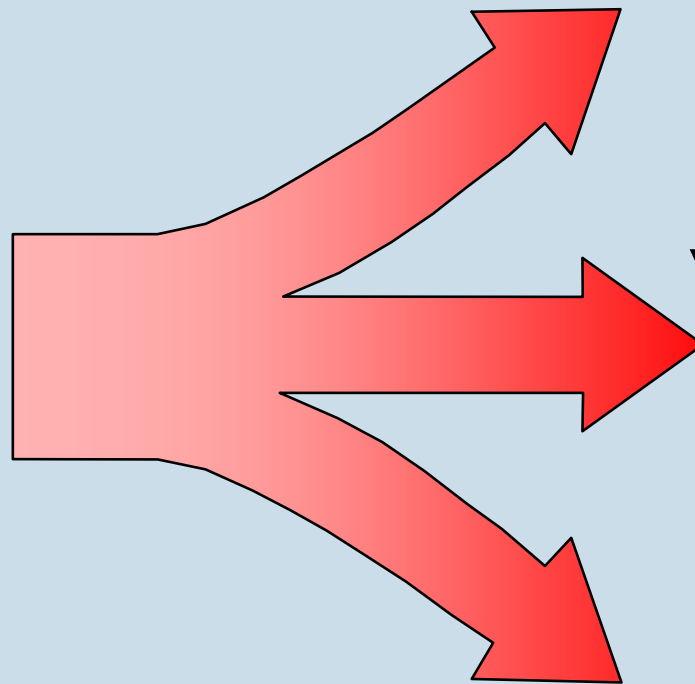
Campus Planning

Academics



The Integrated Energy Trident

Meeting
future energy
needs



“Demand-side”= better
energy management
and conservation

“Supply-side”= efficient
plant production
and distribution

“Price-side”= improved
procurement of energy
and fuels

INTEGRATED ENERGY MANAGEMENT QUESTIONS

How does this fit with our institutional vision?

What stakeholders are affected by the project(s)?

Is this a conservation, efficiency or price/cost project?

Will this save energy?

Will this reduce total life-cycle costs?

How will the funding be provided?

Is this a sustainable concept?

Efficiency vs. Conservation

Efficiency

Technology-based

- Energy efficiency involves the use of technology, requiring less energy to perform the same function.
- Focuses on the equipment or system being used
- An example is installing LED light bulbs throughout a facility

Conservation

Behavior-based

- Energy conservation includes any behavior that results in the use of less energy.
- Focuses on the behavior of people
- An example is turning off the lights when not needed.

Demand-Side

Energy Conservation Awareness Program

Consider using outside consultant trained staff

Must have constant and high level support

Best if part of an energy management institutional policy

Energy Conservation and Efficiency Opportunities

Energy and operations audit

ESCO (energy services company)

Be your own ESCO

Use debt to finance needed changes

GROUP DISCUSSION QUESTION #1

Your president/chancellor has signed on to a sustainability consortium. An idea to exchange fluorescent for LED lamps campus-wide has been proposed.

Is this a price, conservation or an efficiency project?

Will this save energy?

Will this reduce total life-cycle costs?

Is this a sustainable concept?



Supply-Side

Energy Efficiency Opportunities

Energy audit: Provide only the capacity needed

Use debt to finance needed changes

ESCO (energy services company)

Be your own ESCO

Operational changes

Optimization of assets

Efficiency mapping

Synergize

Make versus Buy

KPI/MMV

GROUP DISCUSSION QUESTION #2

You have projected the need for additional district heating capacity to your campus over the next 10 years. Your utilities group has proposed that the campus generate a portion of its power through cogeneration and provide the needed steam capacity from waste heat boilers. Your governing body is considering banning all investment in fossil-fuel related companies. Capital funds are very restricted, but the project could pay for itself over 10 years.

Is this a price, conservation or an efficiency project?

Will this save energy?

Will this reduce total life-cycle costs?

Is this a sustainable concept?

How can it be funded?

Price-Side

Take an active role in the regulatory process

Intercede as an institution

Intercede as an institutional group

Intercede as an industrial group

Recognize the expertise and cost requirements to gain a
“seat at the table.”

Purchase fuel and power on the open market

Recognize the expertise and cost requirements to become
effective in an open market

Make versus Buy decision making tools

GROUP DISCUSSION QUESTION #3

Your institution is currently fueled primarily from natural gas and has been approached by a representative of a consortium that intercedes in regulatory rate cases advocating for green, fossil-fuel-free, alternative energy electrical production. What advice will you give executive management?

GROUP DISCUSSION QUESTION #1a

Your president/chancellor has signed on to a sustainability consortium. The proposal is to install lighting timers and ambient light sensors in classrooms.

Is this a price, conservation or an efficiency project?

Will this save energy?

Will this reduce total life-cycle costs?

Is this a sustainable concept?

GROUP DISCUSSION QUESTION #1b

Another proposal is to hire an external firm to provide a behavioral-focused energy conservation program. Your engineering director has stated that existing personnel can take on this activity.

Is this a price, conservation or an efficiency project?

Will this save energy?

Will this reduce total life-cycle costs?

Is this a sustainable concept?

GROUP DISCUSSION QUESTION #2a

You have projected the need for additional district cooling capacity to your campus over the next 10 years. Your utilities group has proposed that the needed capacity come from a large cooling storage facility. Existing cooling assets will be run at night to charge the storage which will be depleted during the day. Capital funds are very restricted, but the project could pay for itself over 20 years.

Is this a price, conservation or an efficiency project?

Will this save energy?

Will this reduce total life-cycle costs?

Is this a sustainable concept?

How can it be funded?

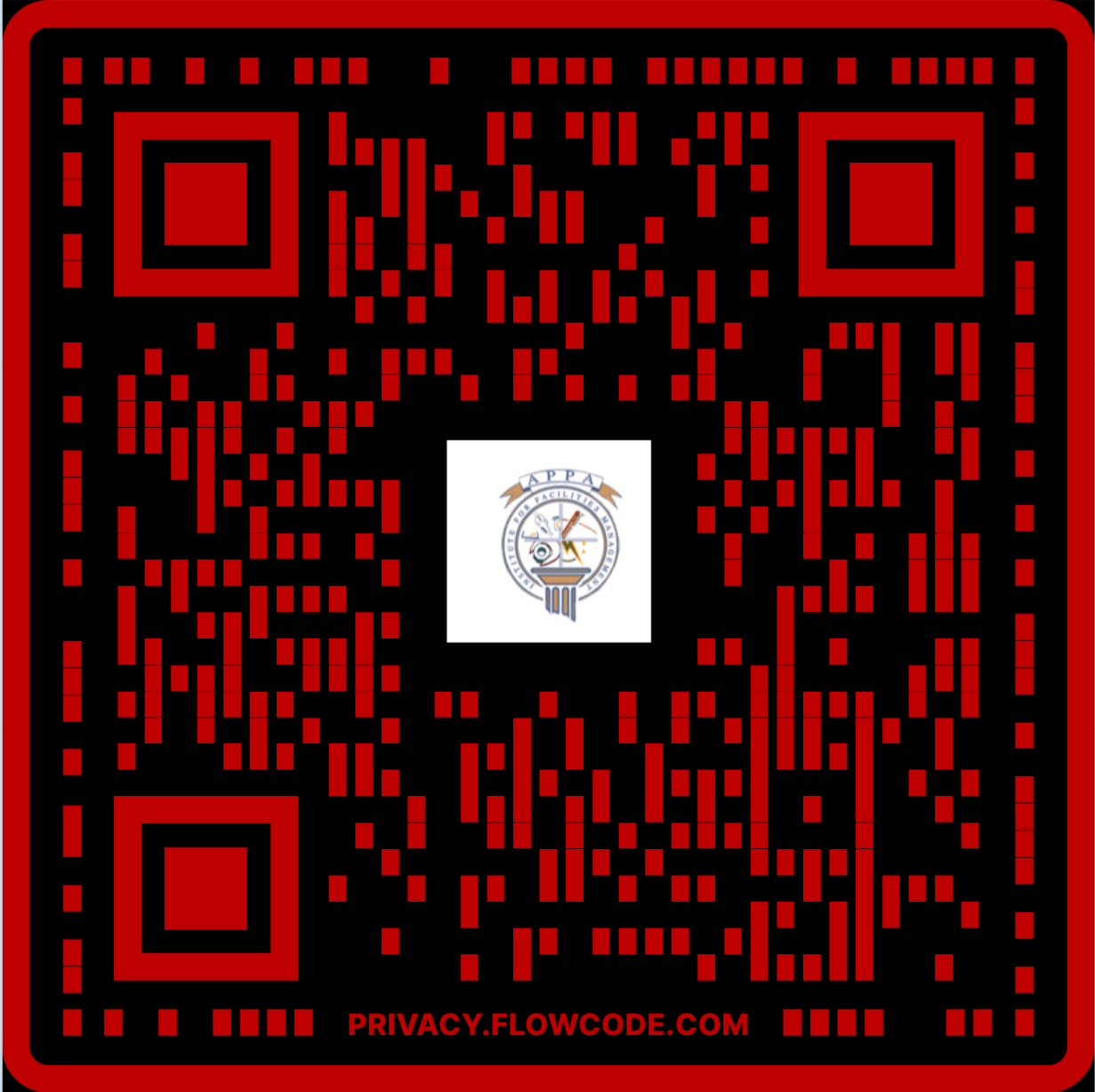
GROUP DISCUSSION QUESTION #3a

Your student senate has passed a resolution that the institution commit to 100% alternative energy in 20 years. What advice will you give executive management?

LOONEY TUNES

END

"That's all Folks!"



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