Issues to Consider in Developing a Commercial/ Industrial Lighting Program,

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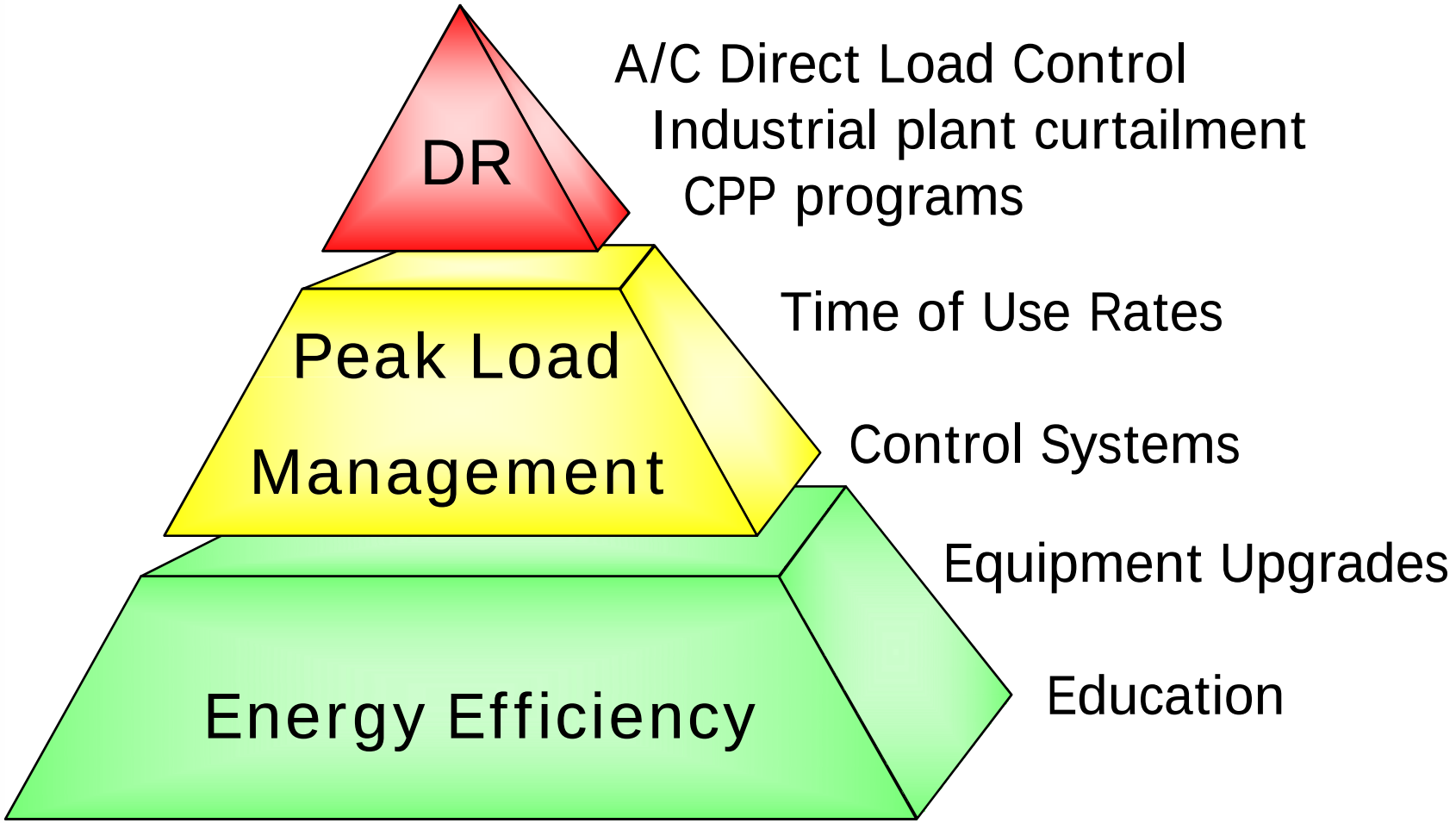
Demand Elements of a Resource Plan



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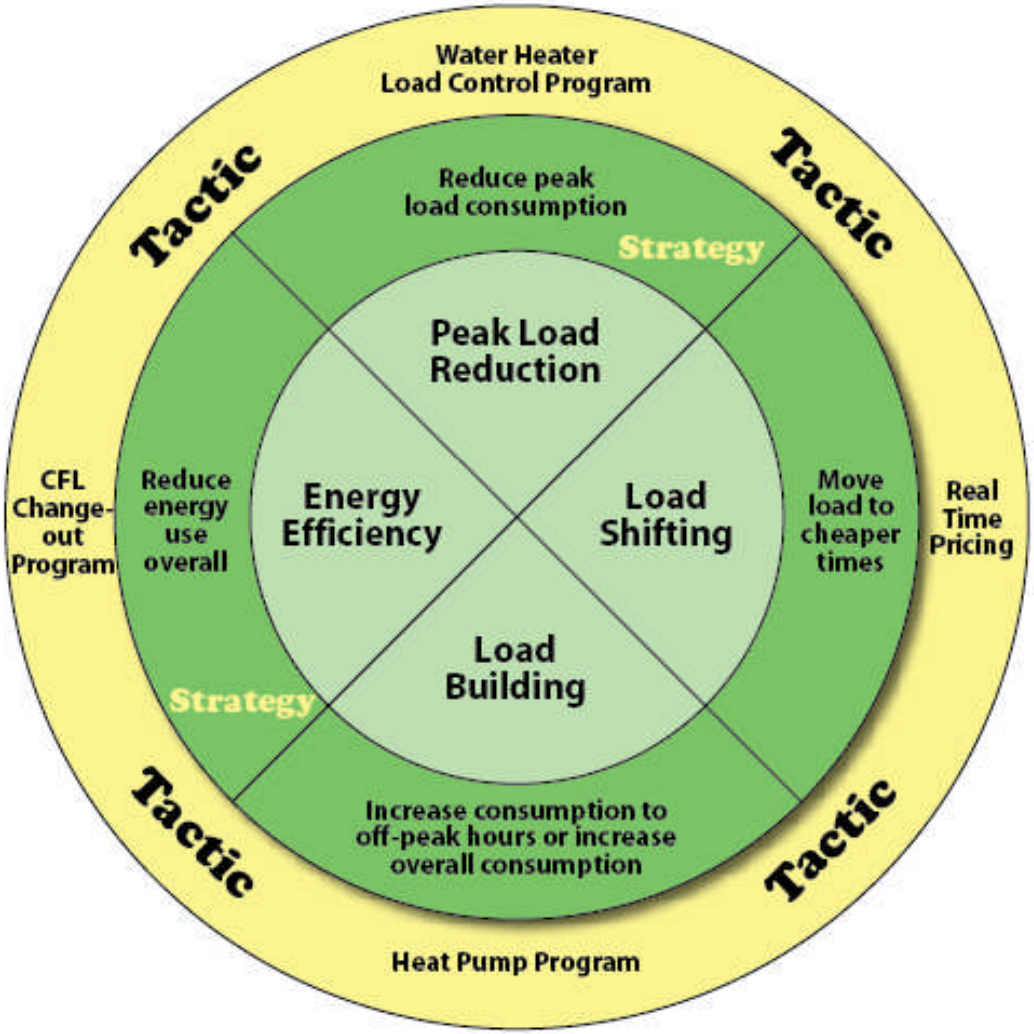
How Load Strategies Link to Program Tactics



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End-Use Strategy

- Load Strategy:
  Energy Efficiency

- Challenge:
  Lower all customer bills with electric technologies

- End-Use Tactic:
  Lighting

Program Planning Process

1. Identify load objectives
2. Identify sectors, end-uses and efficiency measures to target
3. Understand the market for targeted sectors and measures
4. Develop program designs
5. Conduct cost-effectiveness screening
6. Prepare an implementation plan
7. Implement programs
8. Evaluate programs

Customer Recruiting and Enrollment

- Need clear, compelling, and inspirational messaging, communications, and enrollment
- In person presentations backed by Internet content
- Website (program support, analysis tools, enrollment & database, rebate processing)
- Credit Card CD ROMs & Flash Sticks
- Print, as desired and needed

- Support in the initial targeting of likely candidate customers, this can be provided via Web-based analysis and screening tools.

Communicate Benefits and Opportunities

- Need to focus on both energy and non energy benefits
- Types of effective customer outreach include:
  - Case studies
  - Testimonials
  - Customer/Vendor workshops

Communicate Benefits and Opportunities

- Work to maintain balance between customer satisfaction and program optimization
- Buying the resource from customers creates:
  - Economic development benefit
  - Customer relationship enhancement

Education and Training

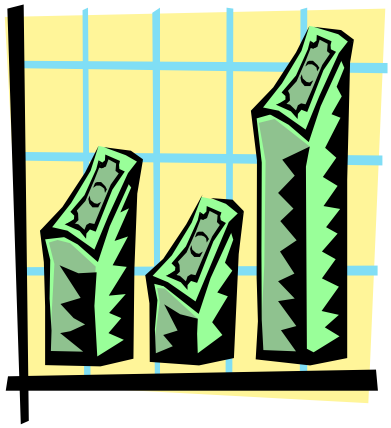
- Staff training
  - Program management training
  - Training of CSRs
- Website Internet Content
  - Strategies and guidelines
  - End-use technology and market segment perspectives to reinforce training

To identify opportunities to save money, we must determine…

- How does the supply side economics work?
- How does the demand side economics work?
- Which technologies (supply or demand) can be applied to “provide economic value” to our members?
- How much can you “afford” to support non-economic “causes”

Ways Utilities Calculate Program Value

- Cost Effectiveness Tests
  - Total Resource Cost Test
  - Utility Cost Test
  - Participant Cost Test
  - Ratepayer Impact Test
  - Determining rebate levels



- Assess Market Potential
- Program Impact Analysis
- Financial Analysis
- Determining Other Benefits like reductions in Carbon Emissions

Defining Costs and Benefits

- The utility benefits are the supply costs avoided (such as generation, transmission and distribution, energy and operations and maintenance) due to demand and energy savings achieved.
- Participant costs are the costs incurred by customers due to participation in the program (such as equipment installation costs).
- Utility costs include the program's rebates, administrative costs, marketing costs and measurement and verification costs. The discount rate is a pre-determined figure, usually relatively low such as 5.5%.
- Costs and Benefits will vary by utility and technology selected.

Summary of Economic Cost Tests

- Total Resource Cost Test (TRC) =
  Avoided supply costs /
  (Participant Costs + Utility Cost)

- Utility Cost Test (UC) =
  (Avoided supply costs) /
  (Utility Costs + Rebate)

- Rate Payer Impact Measure (RIM) Test =
  (Avoided supply costs) /
  (Utility costs + Rebate + Revenue loss)

- The Participant Test =
  (NPV of Benefits to Participants) /
  (NPV of the Participant Costs)

The ratio of benefits to costs >= 1

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Determining Residential Market Potential

(Fill in the Blanks)

Assumptions	
Total Number of Commercial/Industrial Customers	
Percentage of Owner Occupied	
Percentage Planning to install new energy technology	
Percentage of Market Selecting Energy Efficient alternative	
Estimated Annual Market Potential for Retrofit	

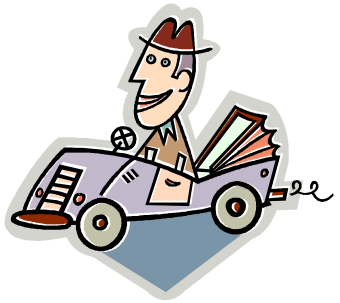
Program Impact Analysis

- Program Impact Analysis often part of a larger evaluation study:
  - Provides an objective comparison of program results against benchmarks
  - Can be used to track progress over time
  - Determines net savings attributable to program activities
  - Identifies areas for program improvement
- Net Savings are calculated after accounting for
  - Free Ridership
  - Free Drivership

Determining Program Impacts

- Free ridership rate is how many participants would have purchased energy efficient equipment without the program
- Free drivership rate is how many participants will install the rebated energy efficient equipment, outside the utility's service territory

- These impacts are best measured through customer survey questions conducted as part of an overall program evaluation



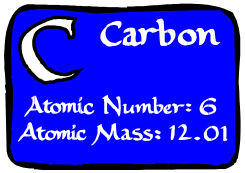
Calculating Costs and Benefits

- Lots of calculators are available from manufacturers/reps
  - GE (www.gelighting.com/na/business_lighting/lighting)
  - TCP (http://www.tcpi.com/commercial/energy_savings_calculator.aspx)
- Other example- BPA

BPA's Lifecycle Lighting Calculator

Example of the Carbon Emissions Calculator

- To determine the carbon benefits of various energy efficiency programs



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Carbon Emissions Example

- Example using estimated carbon emission savings from 1,000,000 kWh
- 1,000,000 kWh = 632 metric tons

1,000,000 kWh savings are equivalent to:

137	Passenger cars not driven for one year- reducing from the highways
OR	
71,982	Gallons of gasoline (using less gas)
OR	
16,205	Number of tree seedlings grown for 10 years (planting trees)

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