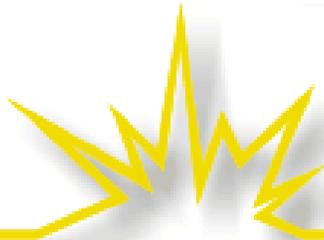


# Frederick Weston

## October 1999

### Pricing Principles and Rate Design

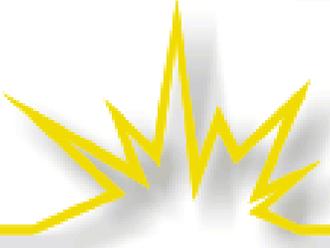


### *The Regulatory Assistance Project*

50 State Street, Suite 3  
Montpelier, Vermont USA 05602  
Tel: 802.223.8199  
Fax: 802.223.8172

Website:  
<http://www.raonline.org>

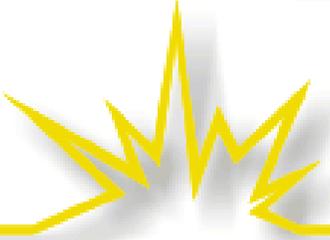
177 Water Street  
Gardiner, ME 04345-2149  
Phone (207) 582-1135  
Fax (207) 582-1176



# Rate Design

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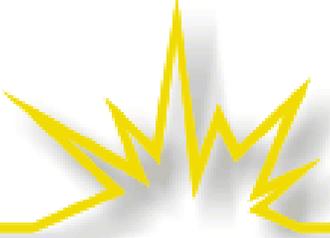
- Objective: to allocate the revenue requirement among a utility's customers
- Simple Rate Designs
  - Price = Rev. Req./Customers
  - Price = Rev. Req./Sales



# Cost of Service

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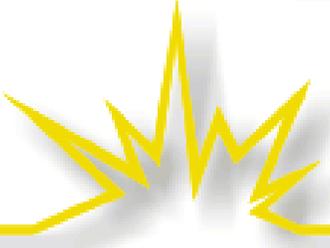
- Principle: Rates should reflect the cost of providing service
- Qualifications
  - Costs should include all relevant costs, private and social
  - Costs should be reasonably or prudently incurred



# Fully Allocated Embedded Costs

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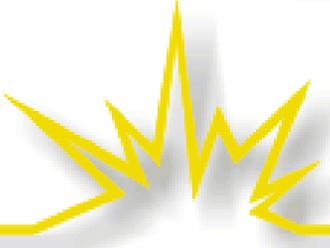
- Advantages:
  - Actual costs
  - Reconciled with the revenue requirement
- Disadvantages:
  - Allocating joint and common costs
  - Does not reflect current market trends



# Embedded Cost Steps

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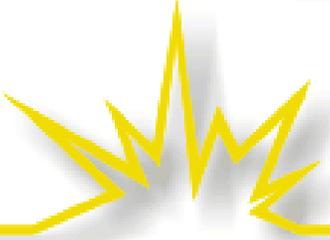
- Categorize
- Functionalize
- Allocate
  - kW
  - kWh
  - Customer



# Marginal Cost Pricing

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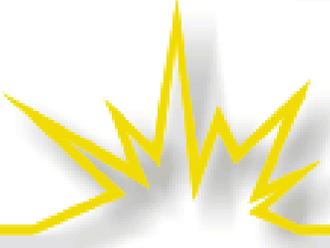
- Equal to the economic costs of providing the next increment of service
  - Long-run v. Short-term
  - Advantages: forward looking, economic costs
  - Disadvantages
    - Definitions more contentious
    - Reconciliation with rev. req.
    - Requires forecasted demand and costs
    - Potential volatility



# Criteria for differential rates

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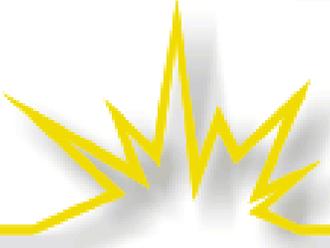
- Value of service
  - Market demand based pricing
  - Potential for pricing flexibility (and monopolistic price discrimination)
  - Ignores cost criteria by service



# Marginal Cost Steps

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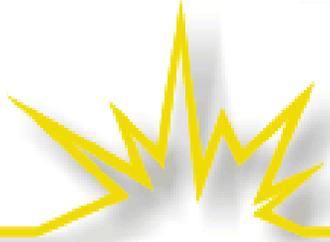
- Categorize
- Functionalize
- Allocate
  - kW
  - kWh
  - Customer



# Cost related attributes

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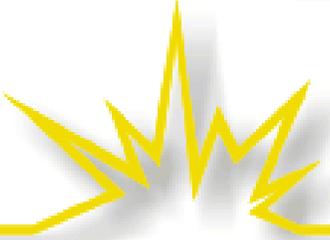
- Efficiency of the rate classes and rate blocks in discouraging wasteful use of service
- Fairness among different customers
- Avoidance of "undue discrimination" in rate relationships



# Practical attributes

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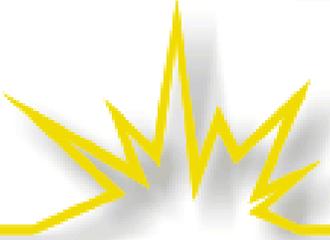
- Simplicity
- Understandability
- Public acceptability
- Feasibility of application
- Freedom from controversies as to proper interpretation



# Differential allocations

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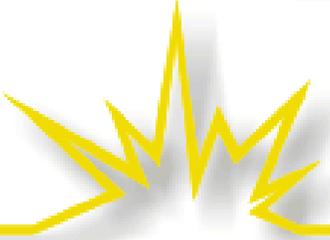
- Based on characteristics of service
  - Presumption that different types of service cause the utility to incur different costs
  - Differentials depending on the amount of service
    - Usage pricing
    - Requires measurement (meters)



# Differential allocations

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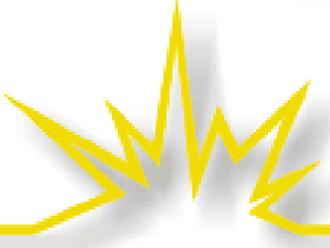
- Differentials based on the type of service
  - Variety of service offerings
  - Service varying by quality or time



# Differential allocations

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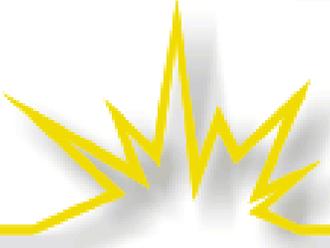
- Based on groups of customers
  - Customer classes designated according to the criterion adopted (value, cost, social objectives)
    - Residential (with or without a low income or elderly segment)
    - Commercial
    - Industrial
    - Street lighting
    - Agricultural



# Social Value of Service Pricing

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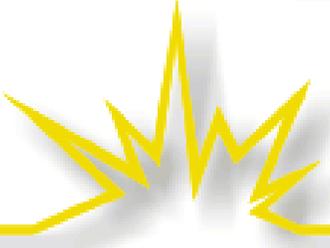
- Assistance to specific customer classes
  - Residential lifeline rate
  - Economic development/business retention rates
  
- Promote social objectives
  - Conservation/environmental considerations
  - Universal service



# Rate Averaging

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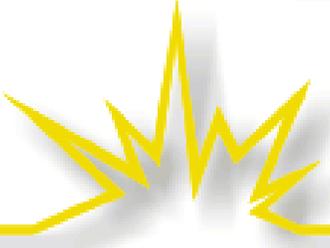
- Within rate classes
- Across geographic areas: rural vs. urban
- Rate averaging vs. subsidy vs. simplicity



# Intra-class allocative patterns

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- Flat rates
- Customer, Demand, Usage components



# Usage Rate Patterns

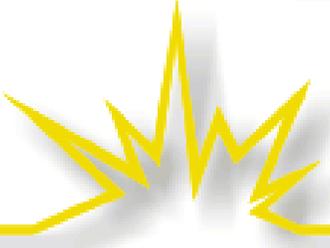
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➤ Flat

➤ Declining block

- Cheaper to serve large customers

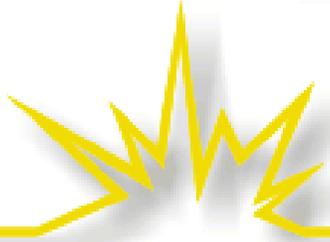
- Marginal cost is less than average cost



# Usage Patterns

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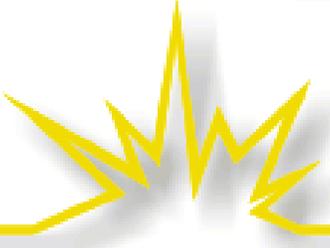
- Inverted block
  - Marginal cost greater than average cost
  - Conservation rate
  - Lifeline rate
- Peak/Off-peak
- Seasonal
- Real-time



# Revenue Related Attributes

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- Effectiveness in yielding total revenue requirements
- Revenue Stability
- Stability of rates
  - minimize rate changes
  - serious problem for existing customers



# Special Contracts

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- Customers with unique cost causing characteristics
- Economic Development, load or job retention
- Problem: selling power below cost yields inefficient use of resources and financially weak utilities