

# INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR ELECTRIC UTILITIES

March 6-7, 2017  
Renaissance San Diego  
San Diego, CA

# INTRODUCTION TO RATE DESIGN FOR ELECTRIC UTILITIES

March 8-9, 2017  
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EUCI is authorized by IACET to offer 1.4 CEUs for the Cost of Service course and 1.3 CEUs for the Rate Design course.



EUCI is authorized by CPE to offer 16.5 credits for the Cost of Service course and 15.5 credits for the Rate Design course.

## INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR ELECTRIC UTILITIES

### OVERVIEW

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This two-day course will lead participants through the cost-of-service process from start to finish in detail. We will discuss and compare differences among investor-owned utilities, municipal utilities, and electric cooperatives in cost-of-service principles and techniques. Both traditional and unbundled cost-of-service analytical techniques will be discussed. Each participant will complete a sample cost-of-service analysis during the course. Training materials will be provided.

### WHO SHOULD ATTEND

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This course is recommended for policymakers, managers, attorneys, regulators, key accounts representatives, accountants, engineers, and analysts who would like introductory, hands-on training related to cost-of-service concepts and techniques for electric utilities.

### RECOMMENDED BACKGROUND AND REQUIREMENTS

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No prior cost-of-service experience is required, although knowledge of utility system infrastructure, business environment, and operations will be helpful. **To participate in model development, a laptop computer with Microsoft Excel 2003 or later is required. (Please note: Mac's are incompatible with the software being used.)**

### LEARNING OUTCOMES

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- Discuss FERC Uniform System of Accounts
- Identify revenue requirements
- Examine utility case studies
- Discover energy allocation factors
- Define the steps in the ratemaking process
- List cost classifications



*Would highly recommend this course for anyone who is seeking to learn solid fundamental skills in cost-of-service study and rate design concepts.”*

— Staff Counsel, Kentucky PSC



*This class was very beneficial for me. It has given me more of a high-level view of the cost-of-service concepts and techniques.”*

— Regulatory Affairs Coordinator,  
Entergy

## INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR UTILITIES AGENDA

Monday, March 6, 2017

7:30 – 8:00 a.m. **Registration and Continental Breakfast**

8:00 – 8:30 a.m. **Course Overview and Introduction**

- Course objectives
- Course overview
  - Steps in ratemaking process
  - Steps in cost-of-service process
  - Developing cost-of-service analysis – different perspectives
  - Interpreting cost-of-service results

8:30 – 9:00 a.m. **Overview of Cost-of-Service Process**

- Process overview
- Introduction
- State regulatory process
- Local regulatory process
- Federal mandates
- The cost-of-service team
- Stakeholders

9:00 – 10:15 a.m. **Study Preparation**

- Introduction
- Four important considerations
- Common supporting analyses to ensure success
- Financial planning
- Study period selection
- Load research study
- System loss study
- Resource planning studies
- Minimum system studies
- Accounting for direct assignment
- Lighting study
- Load forecasting

10:15 – 10:30 a.m. **Morning Break**

10:30 – 11:30 a.m. **Policies, Objectives, and Strategies**

- Introduction
- Policies
- Objectives
- Strategies
  - Marginal vs. embedded costs
  - Cost unbundling
  - Competitive pricing
  - Time-of-use pricing support
  - Real-time pricing support
  - Varying return on investment
  - Cost recovery through rules and regulations
  - Other strategies

11:30 a.m. – 12:30 p.m. **Group Luncheon**

12:30 – 2:15 p.m. **Revenue Requirement**

- Introduction
  - Steps in rate design process
  - Definition
  - What is included in revenue requirement
- Test year concept
  - Known and measurable adjustments
  - Used and useful adjustments
  - Components
- Utility approach (IOU)
  - FERC Uniform System of Accounts
  - Rate base
    - Components
    - Definitions
  - Return on rate base
    - Weighted average cost of capital (WACC)
    - Cost of debt
    - Cost of equity
- Utility case studies

## INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR UTILITIES AGENDA

### Monday, March 6, 2017 (Continued)

**12:30 – 2:15 p.m. Revenue Requirement (Continued)**

- Utility approach (regulated cooperative)
- Cash approach (municipal)
- Debt service coverage ratio
- Comparison
- Adjustments to base rates
- Introduction to cost-of-service model
- ATTACHMENTS: revenue requirements examples 5-1 through 5-4

**2:15 – 2:30 p.m. Afternoon Break**

**2:30 – 4:00 p.m. Revenue Requirement (cont.)**

- Classroom exercise No. 1: revenue requirement test year adjustment – adding a new load
- Classroom exercise No. 2: revenue requirement test year adjustment – adding a new resource

**4:00 – 4:30 p.m. Cost Allocation Methodologies**

- Introduction
  - Steps in ratemaking process
  - Sample cost allocation methods
- Common approaches to cost allocation
  - Embedded
  - Marginal
- Common approaches to cost allocation
  - Bundled
  - Unbundled

### Tuesday, March 7, 2017

**7:30 – 8:00 a.m. Continental Breakfast**

**8:00 – 8:30 a.m. Review of Day 1**

**8:30 – 10:00 a.m. Functionalization of Costs**

- Introduction
  - Steps in ratemaking process
    - Bundled approach
    - Unbundled approach
- Business unit concept
  - Products and services
  - Allocations
    - Direct
    - Derived
- Classroom exercise No. 3: functionally unbundling costs

**10:00 – 10:15 a.m. Morning Break**

**10:15 – 11:00 a.m. Classification of Costs**

- Introduction
  - Steps in ratemaking process
  - Basic cost categories
- Fixed and variable costs
- Cost classifications
  - Demand-related
  - Energy-related
  - Customer-related
  - Revenue-related
  - Direct assignments
- Classification of functions
- Special studies
  - Minimum systems
  - Zero intercept
- Classroom exercise No. 4: classification of distribution plant



*A great overview for all levels of experience. Materials covered the basics and touched on more complex issues. The speakers had the knowledge and expertise to fully answer all the in-depth questions.”*

– Analyst, Brubaker & Associates Inc.

## INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR UTILITIES AGENDA

Tuesday, March 7, 2017 (Continued)

11:00 – 11:45 a.m.

### Rate Class Determination

- Overview of issues
  - Rate classes
  - Number of classes
  - Type of classes
  - Classes within classes
  - Rate class trends: community solar
  - Cost-of-service support

11:45 a.m. – 12:45 p.m.

### Group Luncheon

12:45 – 2:15 p.m.

### Development of Allocation Factors

- Introduction
  - Steps in ratemaking process
- Demand allocation factors
  - Coincident peak
  - Non-coincident peak
  - Sum of max demands
  - Average and excess
  - Other
  - Utility case studies
- Energy allocation factors
- Customer allocation factors
- Revenue allocation factors
- Direct assignment
- Classroom exercise No. 5: development of demand allocation factors

2:15 – 3:15 p.m.

### Allocation of Costs

- Classroom exercise No. 6: allocated cost-of-service

3:15 – 3:30 p.m.

### Afternoon Break

3:30 – 4:00 p.m.

### Interpreting Cost-of-Service Results

- Introduction
- Subsidization
  - Inter-class subsidization
  - Intra-class subsidization

4:00 – 4:15 p.m.

### Course Wrap-Up

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*Very dynamic and engaging speakers! I learned a lot that added relevance and helped put my daily work tasks in perspective.”*

— Sr. Regulatory Analyst,  
NiSource/NIPSCO

“

*This course is your first step toward a successful rate hearing.”*

— Regulatory Specialist – Rate Design,  
NB Power

## INTRODUCTION TO RATE DESIGN FOR ELECTRIC UTILITIES

### OVERVIEW

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This two-day course will introduce rate design concepts to participants. The course will build upon information discussed and developed in the Introduction to Cost-of-Service Concepts and Techniques for Electric Utilities course. Each participant will work through sample rate design exercises during the course. Training materials will be provided.

### WHO SHOULD ATTEND

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This course is recommended for policymakers, managers, attorneys, regulators, key account representatives, accountants, engineers, and analysts who would like introductory, hands-on training related to rate design concepts for electric utilities.

### RECOMMENDED BACKGROUND AND REQUIREMENTS

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No prior rate design experience is required, although knowledge of utility system infrastructure, business environment, and operations will be helpful. **To participate in model development, a laptop computer with Microsoft Excel 2003 or later is required. (Please note: Mac's are incompatible with the software being used.)**

### LEARNING OUTCOMES

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- Discuss pricing interface and implications of risk
- Examine how to develop cost curves
- Review classroom exercises on developing cost curves, solar installation, and designing bundled rates
- List ratemaking guidelines
- Identify special rate provisions

“

*I would highly recommend this course with these speakers for anyone wanting to have a fundamental understanding of rate design.”*

– Staff Counsel, Kentucky PSC

“

*I thought each speaker brought a new, different perspective and found each very engaging and informative.”*

– Attorney, Winstead PC

## INTRODUCTION TO RATE DESIGN FOR UTILITIES AGENDA

Wednesday, March 8, 2017

7:30 – 8:00 a.m.	<b>Registration and Continental Breakfast</b>		
8:00 – 8:30 a.m.	<b>Course Overview and Introduction</b> <ul style="list-style-type: none"><li>• Introduction<ul style="list-style-type: none"><li>• Building on cost of service</li><li>• Overlap</li><li>• Background and requirements</li></ul></li><li>• Instructors</li><li>• The process</li></ul>	9:30 – 10:30 a.m.	<b>Electric Utility Pricing: Trends That Matter</b> <ul style="list-style-type: none"><li>• Fundamental trends affecting electric utility pricing<ul style="list-style-type: none"><li>• Global changes</li><li>• Utility environment</li><li>• Advanced metering infrastructure</li><li>• Customer environment</li></ul></li><li>• Pricing interface</li><li>• Pricing implications of risk</li><li>• Transactional risk<ul style="list-style-type: none"><li>• Decoupling</li></ul></li><li>• Risk management strategies</li><li>• Pricing strategies</li><li>• Storage</li><li>• Solar rate considerations/ value of solar</li></ul>
8:30 – 9:30 a.m.	<b>General Ratemaking and Regulatory Principles</b> <ul style="list-style-type: none"><li>• Introduction</li><li>• Bonbright principles</li><li>• Regulations</li><li>• Factors</li><li>• Objectives</li><li>• Ratemaking guidelines<ul style="list-style-type: none"><li>• Factors</li><li>• Rate adjustments</li><li>• Competing objectives</li></ul></li><li>• Equity</li><li>• Rate levels</li><li>• Social engineering</li><li>• Competition</li><li>• Simplicity</li></ul>	10:30 – 10:45 a.m.	<b>Morning Break</b>
		10:45 – 11:45 a.m.	<b>Electric Utility Pricing: Trends That Matter (cont.)</b> <ul style="list-style-type: none"><li>• Classroom exercise No. 1: special rate design – solar installation</li></ul>
		11:45 a.m. – 12:45 p.m.	<b>Group Luncheon</b>
		12:45 – 2:00 p.m.	<b>Applying Cost-of-Service Results</b> <ul style="list-style-type: none"><li>• Cost-of-service overview</li><li>• Developing cost curves<ul style="list-style-type: none"><li>• Bundled embedded cost</li><li>• Unbundled embedded cost</li><li>• Marginal cost</li></ul></li><li>• Evaluation of competitive alternatives</li><li>• Classroom exercise No. 2: developing cost curves</li></ul>
		2:00 – 2:15 p.m.	<b>Afternoon Break</b>

## INTRODUCTION TO RATE DESIGN FOR UTILITIES AGENDA

Wednesday, March 8, 2017 (Continued)

2:15 – 3:30 p.m.

### Traditional Rate Design

- Rate overview
- Flat rate (energy only)
- Two-part rate (customer/energy or energy/demand)
- Three-part rate (energy/demand/customer)
- Blocked rates
  - Declining
  - Inverted/inclining
- Wright rate
- Relationship between rate design and cost curves
- Classroom exercise No. 3: designing bundled rates

3:30 – 4:00 p.m.

### Unbundled Rate Design

- Unbundled rate overview
- Traditional bundled vs. unbundled
- Unbundling strategies

Thursday, March 9, 2017

7:30 – 8:00 a.m.

### Continental Breakfast

8:00 – 8:30 a.m.

### Review of Previous Day

8:30 – 9:15 a.m.

### Marginal Cost Pricing

- Resources
- Application and use
- Short run and long run
- Marginal capacity costs
- Production cost modeling
- Marginal energy costs
- Marginal transmission costs
- Revenue reconciliation
- Dilemma of reconciliation

9:15 – 10:15 a.m.

### Special Rate Provisions

- Minimum bills
- Demand ratchets
- Power factor
- Service voltage
- Paying for growth
- Customer ownership of facilities
- Energy cost adjustment charges
- Net metering
- Standby rates
- Feed-In Tariffs
- Special contracts
- Others

10:15 - 10:30 a.m.

### Morning Break

10:30 a.m. – 12:00 p.m.

### Time-Based Rates and Demand Management

- Review of EPCRA 2005
- Time-of-use overview
- Real-time pricing
- Critical peak pricing
- Load reduction credits
- Other approaches

“

*The many years of experience of the instructors was readily evident through their excellent responses to student questions and their engaging discussion of the class topics.”*

- Manager of Engineering Services,  
GVEA



## INTRODUCTION TO RATE DESIGN FOR UTILITIES AGENDA

Thursday, March 9, 2017 (Continued)

10:30 a.m. – 12:00 p.m.	<b>Time-Based Rates and Demand Management (Continued)</b> <ul style="list-style-type: none"><li>• Smart metering</li><li>• TOU<ul style="list-style-type: none"><li>• Seasonal</li><li>• Daily</li><li>• Hourly</li><li>• Cost differentials</li><li>• Variations</li></ul></li><li>• ATTACHMENT: examples of rate design 9-1 through 9-6</li><li>• Designing time-of-use rate<ul style="list-style-type: none"><li>• Time periods</li><li>• Cost differentials</li><li>• Price elasticity</li><li>• Changes – class load characteristics</li><li>• Changes – revenue</li><li>• Changes – time-related costs</li><li>• Rate level adjustments</li></ul></li><li>• Demand management</li></ul>
12:00 – 1:00 p.m.	<b>Group Luncheon</b>
1:00 – 2:30 p.m.	<b>Classroom Exercise No. 4a – Residential Rate Design</b>
2:30 – 2:45 p.m.	<b>Afternoon Break</b>
2:45 – 3:30 p.m.	<b>Classroom Exercise No. 4b – Commercial Rate Design</b>
3:30 – 4:00 p.m.	<b>Interclass Transitions and Communicating the Plan</b> <ul style="list-style-type: none"><li>• Introduction</li><li>• Rate form transition problems</li><li>• Promotional and special rates</li><li>• Communicating the plan<ul style="list-style-type: none"><li>• Confidence in data</li><li>• Summarize process</li><li>• Known and measurable changes to test year</li><li>• Do not hide facts</li></ul></li><li>• Example graphs</li><li>• Communications summary</li></ul>
4:00 – 4:15 p.m.	<b>Course Wrap-Up</b>



*Great class to learn the vernacular and basics of rate design. Perfect class for someone moving into this role at their company.”*

– Financial Analyst,  
Green Mountain Power

## **INSTRUCTORS**

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### **Scott H. Burnham** / Executive Consultant / NewGen Strategies & Solutions LLC

Mr. Burnham has over 18 years of experience in consulting, management, cost-of service, feasibility analyses and valuation services. His responsibilities include development of revenue requirements, costs-of-service allocation methodologies, rate design and revenue adequacy studies, utility valuation analyses and other engineering economic analysis. His project feasibility, financing and system acquisition projects have provided clients with a sound financial basis upon which to make decisions on purchasing, selling or modifying facilities. His rate related projects have included those that required the development and review of retail and wholesale electric rates, and rate structures, and analysis of rate riders for interruptible industrial rates, environmental cost adjustment rates, energy / fuel cost recovery and others. He has also assisted industrial customers in rates negotiation and evaluation.

Mr. Burnham has also been involved in feasibility and implementation studies, independent engineering reviews, operation and maintenance reviews, planning studies and valuation studies for generation assets. He has led multiple projects that have focused on determining the value of distributed solar resources to specific utilities. His clients have included municipal utilities, investor-owned utilities, electric cooperatives, and private sector clients.

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### **David A. Berg, P.E.** / Principal / Dave Berg Consulting, LLC

Mr. Berg is a Principal with Dave Berg Consulting, LLC, and has more than 29 years of experience. He specializes in consulting services requiring a combination of technical and financial expertise. His electric industry restructuring and pricing work has assisted utilities in stabilizing their customer base and revenues in an increasingly complicated environment as well as in educating them on the particular industry changes that could affect their operations most significantly. His project feasibility, financing and system acquisition projects have provided clients with a sound technical and financial basis upon which to make decisions on purchasing, selling or modifying facilities. He understands the special issues confronting small and medium size municipal utilities, as well as the joint action agencies serving these utilities. He has also assisted industrial customers in analyzing particular industry issues that impact their operations.

Mr. Berg has also been involved in financial and technical evaluation of power generation projects that utilize alternative fuels. These have included landfill gas, biomass and wind generation projects.

Mr. Berg is a popular speaker both at utility training sessions and state and national conferences, due to his ability to focus on the essential points of complicated issues and to recommend actions appropriate to the audience.

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## INSTRUCTIONAL METHODS

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PowerPoint presentations, classroom discussions, and question-and-answer sessions will be used in this conference.

## REQUIREMENTS FOR SUCCESSFUL COMPLETION OF PROGRAM

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Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

## CREDITS

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EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 1.4 CEUs for the first course and 1.3 CEUs for the second course.



EUCI is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be submitted to the National Registry of CPE Sponsors through its website: [www.learningmarket.org](http://www.learningmarket.org).

Upon successful completion of this event, program participants interested in receiving CPE credits will receive a certificate of completion. EUCI is authorized by CPE to offer 16.5 credits for the first course and 15.5 for the second course.

## EVENT LOCATION

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A room block has been reserved at the Renaissance San Diego, 421 W B St., San Diego, CA 92101, for the nights of March 5-8, 2017. Room rates are \$189, plus applicable tax. Call 1-619-398-3100 for reservations and mention the EUCI course to get the group rate. The cutoff date to receive the group rate is February 5, 2017, but as there are a limited number of rooms available at this rate, the room block may close sooner. **Please make your reservations early.**

## PROCEEDINGS

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The proceedings of the course will be published, and one copy will be distributed to each registrant at the course.

## REGISTER 3 SEND 4TH FREE

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Any organization wishing to send multiple attendees to these conferences may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.



Please make checks payable to: "PMA"

## EVENT LOCATION

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- BEST VALUE: BOTH COURSES: INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR ELECTRIC UTILITIES AND INTRODUCTION TO RATE DESIGN FOR ELECTRIC UTILITIES**  
 MARCH 6-9, 2017: US \$2495  
 EARLY BIRD ON OR BEFORE FEBRUARY 17, 2017: \$2295

**OR CHOOSE A SINGLE COURSE BELOW:**

- INTRODUCTION TO COST-OF-SERVICE CONCEPTS AND TECHNIQUES FOR ELECTRIC UTILITIES**  
 MARCH 6-7, 2017: \$1495  
 EARLY BIRD ON OR BEFORE FEBRUARY 17, 2017: \$1295
- INTRODUCTION TO RATE DESIGN FOR ELECTRIC UTILITIES**  
 MARCH 8-9, 2017: \$1495  
 EARLY BIRD ON OR BEFORE FEBRUARY 17, 2017: \$1295

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

Print Name

Job Title

Company

What name do you prefer on your name badge?

Address

City

State/Province

Zip/Postal Code

Country

Telephone

Email

List any dietary or accessibility needs here

### CREDIT CARD

Name on Card

Account Number

Billing Address

Billing City

Billing State

Billing Zip Code/Postal Code

Exp. Date

Security Code (last 3 digits on the back of Visa and MC or 4 digits on front of AmEx)

**OR** Enclosed is a check for \$ \_\_\_\_\_ to cover \_\_\_\_\_ registrations.

### Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before February 3, 2017 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of conference cancellation, EUCI's liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at (201) 871-0474.