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Energy Services That Work Guidebook: An Energy Efficiency Resource for Public Power

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BCS

APPA American Public Power Association
PublicPower.org

APPA's Public Power Membership

- APPA represents more than 2,000 community-owned electric utilities serving more than 46 million customers
- Each public power utility—operational characteristics, resource profile, and customer class sizes—is unique
- 1,400 public power systems serve communities with populations of 10,000 or fewer
- A 2008 APPA survey of public power utilities found that 54 percent of respondents had time-of-use or incentive rate programs and 43 percent offered load response (peak shaving) programs.

APPA-DEED Program

American Public Power Association Demonstration of Energy-Efficient Developments (DEED) Program

- R&D program funded by and for public power utilities
- Begun in 1980, to invest in the future technologies & best practices of the electric industry. Members use their utilities as laboratories to pilot test innovative technologies and develop resources to improve utility processes and practices.
- Provides project grants and recognition awards to member utilities and other research organizations
- Provides scholarships and research grants to university students interested in public power

Energy Services That Work

Energy Services That Work offers programmatic information for utilities developing energy service programs

In 2009, BCS was selected by APPA/DEED to update the *Energy Services That Work* guidebook

The new, online guidebook features 20 programs across four customer groups:

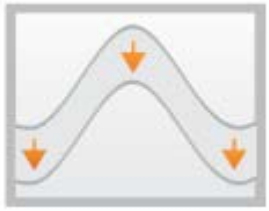
1. Residential
2. Commercial / Community
3. Industrial
4. Agricultural

Energy Service Program Objectives

Why Offer Energy Service Programs?

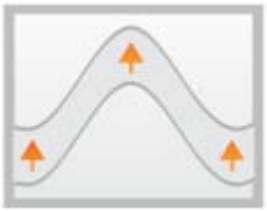
- Reduce costs
- Comply with regulations
- Allow for the lowering of rates
- Increase revenue for:
  - Distribution system operations
  - Maintenance
  - Reinvestment in DSM programs

Peak Shaving



Conservation

Load Shifting



Load Building

Initial Steps Toward Program Implementation

1. Determine Broad Energy Services Objectives
2. Determine Load Shape Objectives
3. Select Programs to Impact Load Shape
4. Perform an Economic Analysis
5. Commit (and Obtain) Resources

Common Types of Customer Incentives

- Free programs
- Rebates
- Bill Credits
- Public Benefits Charge Credits
- Low-Interest Loans
- On-Bill Financing
- Waiving of Fees
- Accelerated Permitting

Cost-Benefit Analysis

- **DSM Potential**
  - Number of customers expected to participate
  - Demand reductions expected as a result of the program
  - Energy savings expected as a result of the program
- **Energy Sales Impacts**
- **Power Demand**
- **Program Administration Costs**
- **Regulatory Considerations**
- **Simple Payback**
- **Present Value**
- **IRR**
- **Macroscopic Analysis**

What's Inside

Each chapter provides the following information:

- Utility and customer benefits
- Economic analysis
- Implementation processes
- Utility resource requirements
- Technologies used during implementation
- Common challenges
- Recommended marketing and outreach activities
- ***Examples of similar energy services programs offered by other utilities***
- Additional open source resources

Example 1

Chapter 6:
Residential Air Conditioning

- **Key Term Definitions:**
  - Seasonal Energy Efficiency Ratio (SEER)
  - Energy Efficiency Ratio (EER)
  - Heating and Seasonal Performance Factor (HSPF)
- **Program Administration and Marketing**
- **Example Economic Analysis**

Why Implement the Program?

- Reduce peak demand
- Reduce lifetime energy use
- Reduce energy bills
- Increase level of home comfort
- Benefit the environmental
- Mitigate fossil fuel price volatility
- Help avoid summer peaks that can lead to blackouts

Example 1: Case Study (Chapter 6)

Duncan Power: GoodCents Program

- 8,800 customers in Oklahoma
- Energy Efficiency Program Resources
  - Energy efficiency conservation analyst (conducts energy audits)
  - $25k budget for energy efficiency rebates
- A/C Rebates
  - Program began in 2008
  - Set rebates after requesting from local contractors the cost difference between an energy-efficient appliance and a standard appliance
- Program Target
  - Existing homes
- Program Payback
  - Three-year payback to the utility

System Efficiency(SEER Rating)	Payment per Ton (Air-to-Air Units Only)
17.00–17.99	$150.00
18.00–18.99	$175.00
19.00–19.99	$200.00
20.0–20.99	$225.00
21.00–21.99	$250.00
22.00–22.99	$275.00
23.00 and more	$300.00

Example 2

Chapter 11: Commercial Energy Audits

What Are the Potential Challenges?

- Raising customer awareness and educating customers
- Establishing the utility as the local energy expert
- Designing an audit program that attracts customers
- Ensuring the quality and accuracy of the audit

What Resources Will Be Required?

- Specially trained audit personnel
- Tools to analyze energy use at the commercial site
- Software tools for engineering study

Technologies

- Blower Door Test
- Infrared Imaging
- Lighting Tests
- Appliance Meters
- Software Analysis

Example 2: Case Study (Chapter 11)

Pascoag Utility District: Business Energy Audit

- 4,500 customers in Rhode Island
- began offering DSM programs in 1998
- DSM programs are funded through the state's public benefits charge of $0.0023 (or 2.3 mills) per kWh
- Business Energy Audit Program
  - Approximately one business energy audit per month
  - Audit report provides projected costs, savings, and expected payback
  - 60 percent rebate on lighting and a 25 to 40 percent rebate on VFDs
- Program Payback
  - System peak before any utility DSM programs was 12.2 MW
  - After DSM program implementation, the peak has not gone above 11 MW (despite growing population and increased availability of electric equipment)
  - Saved money in demand charges from electricity wholesalers

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