

Full-Spectrum Energy Management

Presented by
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AGENDA FOR TODAY'S PRESENTATION

- **WHAT** is “Full-Spectrum Energy Management”?
- **WHY** do it?
- **WHEN** should it be done?
- **WHO** should do it?

Benefits of Full-Spectrum Energy Management

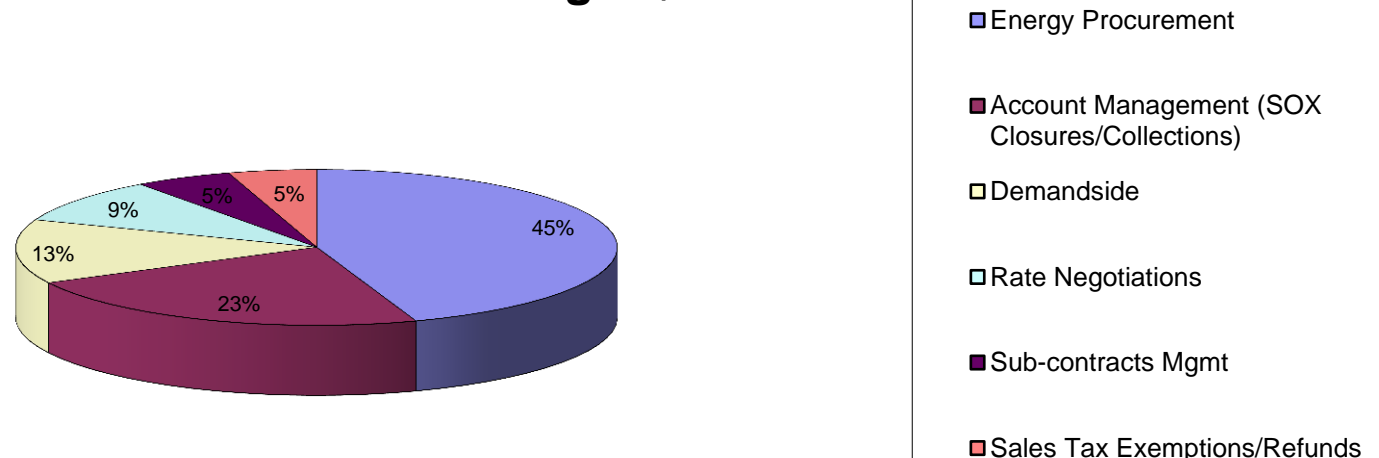
- **Life-cycle Cost Reduction**
 - ☐ Existing Facilities
 - ☐ New Facilities
- **Environmental Sustainability**

Telecom Case Study

Results

- Saved \$55.6 million through Full-Spectrum Energy Management (5% of five year spend)
- Won the 2008 Corporate Energy Management Award for the region from the Association of Energy Engineers

2005-11 Cost Savings: \$55.6 Million

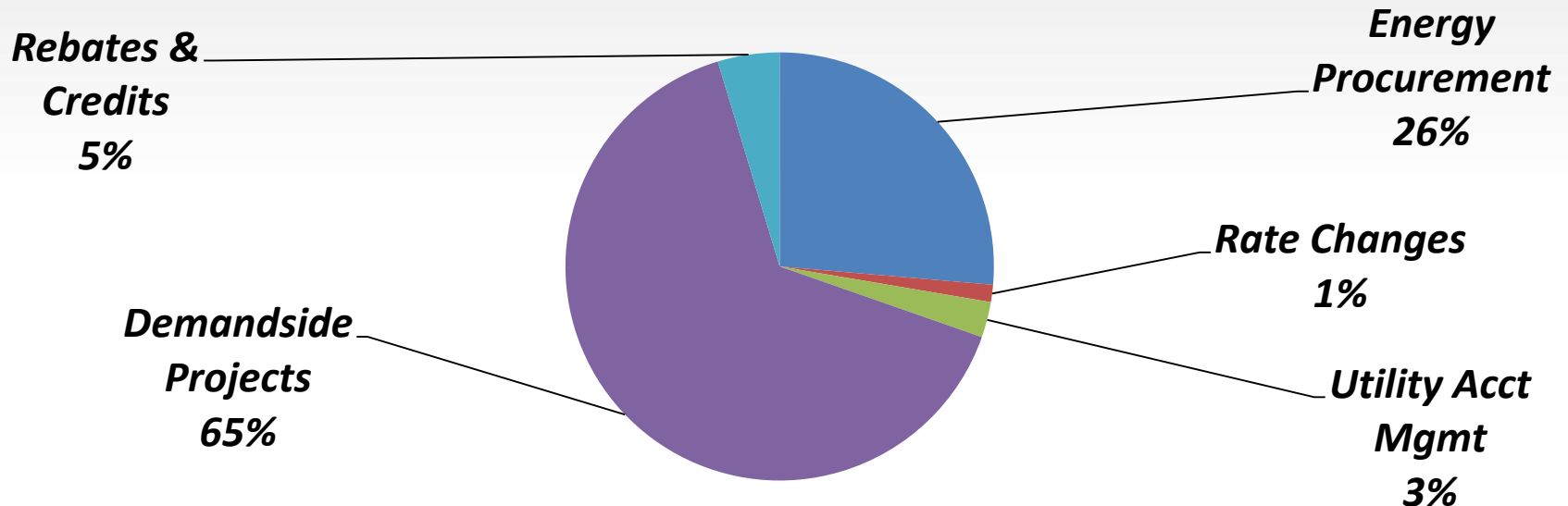


Retail Case Study

Results

- Projected savings of \$115 million during 2011-2018 (8% of spend)
- Carbon Dioxide reduction of 258,000 MT/Year
- Won the 2011 & 2012 Corporate Energy Management Award for the 12-state region from the Association of Energy Engineers.

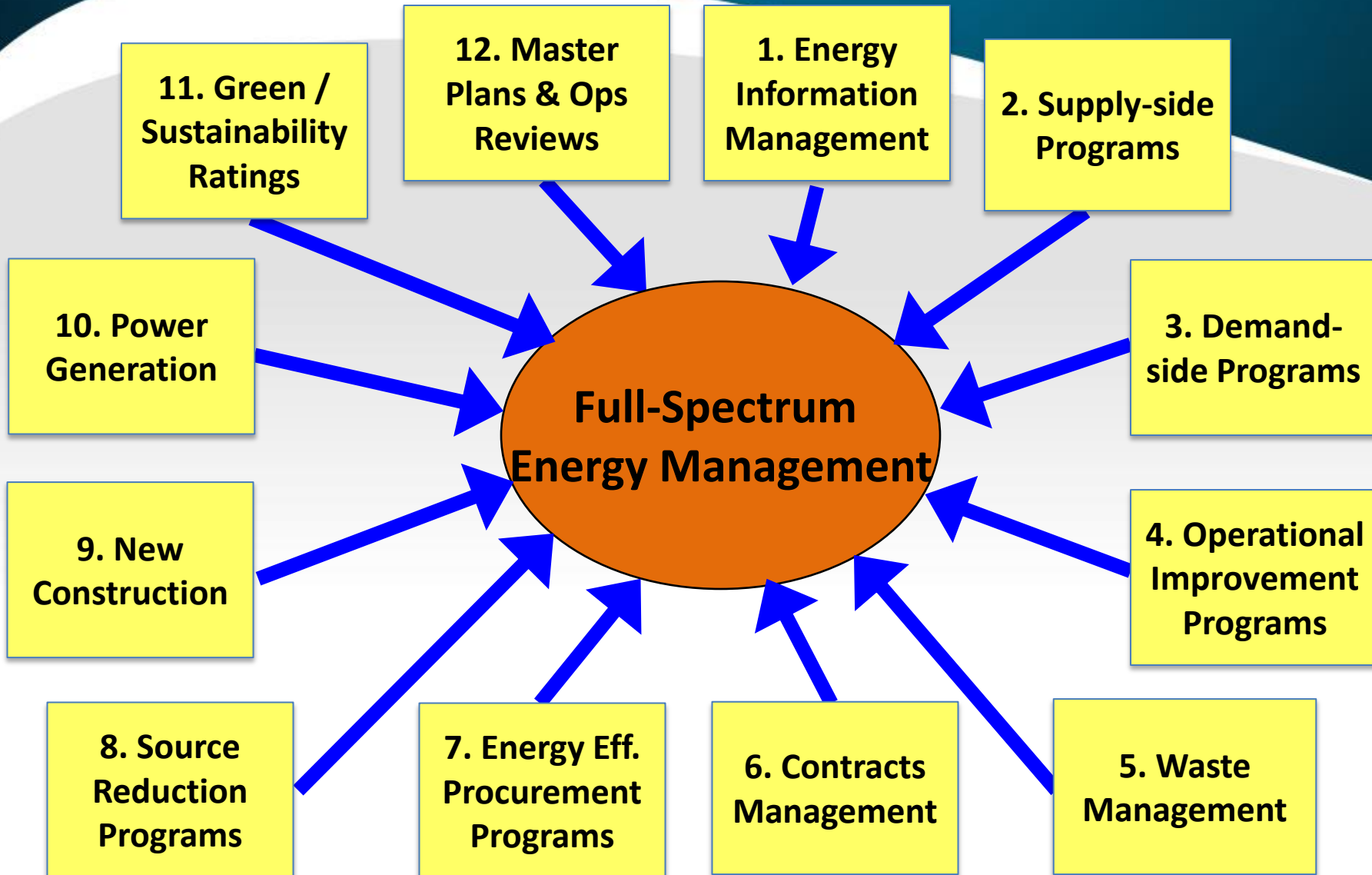
Energy Cost Reductions 2011-18 = \$115M



How to Set Up A Full-Spectrum Energy Management Program

- **Corporate Sponsorship**
- **Energy Manager**
- **Energy Management Steering Committee**
- **Communications (Internal & External)**
- **Corporate Energy & Carbon Policy**
- **Set Up Corporate Energy & Sustainability External Website**
- **Corporate Sustainability Report**

Program Components



1. Energy Information Management

- **Centralized utility data collection and reporting**
 - ☐ Centralized bill payment or processing
 - ☐ Collect all pertinent data (40+ per invoice)
- **Benchmark Buildings**
 - ☐ Energy Star Portfolio Manager
- **Utility Annual Budgeting & Monthly Accruals**

2. Supply-side Programs

- **Utility Account Management**

- ☐ Account cleanup (unknowns, belongs to others, etc.)
- ☐ Liaison with all utility companies (2,000+)
- ☐ Emergency power restoration
- ☐ Account open / close
- ☐ Account holder names and tax ID corrections
- ☐ Waive deposits, get deposit refunds
- ☐ Utility rebates, free studies
- ☐ Lease audits for over-charges

2. Supply-side Programs Contd..

- **Competitive Procurement of Energy**
 - ☐ Reverse auctions
 - ☐ E-mail bids
- **Rate Changes**
- **Sales Tax Exemption**

3. Demand-side Programs

- **Energy Audits**
- **Energy conservation program Implementation**
 - ☐ Lighting retrofit
 - ☐ HVAC retrofit
 - ☐ Energy Management Systems
 - ☐ Water Conservation
- **Project Financing**
 - ☐ On-balance sheet
 - ☐ Off-balance sheet (service contracts, Op leases)

3. Demand-side Programs Contd..

- **Procure rebates & incentives**
- **Demand-Response programs**
- **Energy Efficient Design Guidelines**
 - ☐ Lighting
 - ☐ HVAC, Refrigeration
 - ☐ Plumbing
- **Implement energy efficient operating guidelines**

4. Operational Improvement Programs

- **Remote monitoring & diagnostics**
- **Employee training & behavioral programs**
- **Retro-commissioning programs**
- **Service contracts conducive to energy efficiency**
- **Use sustainable cleaning products**

5. Waste Management

- **Right-sizing and optimum pickup frequencies**
- **Add recycling programs at retail locations**
- **Electronic recycling programs**
 - **Computers, monitors, printers, phones**
- **Toner cartridge recycling**
- **Recycling paper, plastic, metal**
- **Recycling batteries**

5. Waste Management Contd..

- **Recycling carpets**
- **Supplies re-distribution & furniture donation**
- **Styrofoam recycling**
- **Recycle old HVAC equipment**

6. Contracts Management

- **Utility bill payment company**
- **Electric and gas commodity suppliers**
- **Rebate procurement company**
- **Energy Management Systems Company**
- **Waste Management Company**
- **Equipment Suppliers**
 - ☐ **Lighting**
 - ☐ **HVAC, Refrigeration**

7. Procurement Programs

- **Lighting**
- **HVAC Equipment**
- **Refrigeration Equipment**
- **Kitchen Equipment – refrigerators, freezers**
- **Personal computers and monitors (assist)**

8. Source Reduction Programs

- **Implement paperless billing (ex. EDI)**
- **Low mercury content for fluorescent lamps**
- **Van pools, car pools, vouchers to promote mass transportation (assist)**

9. New Construction

- **Divert 50%+ construction & land clearing waste from landfills and incinerators**
- **Recycle salvaged building materials**
- **Commission all large facilities using commissioning agents**
- **Commission small facilities using EMS company**

10. Power Generation

- **Renewable Energy, where applicable**
 - Solar, Wind, biomass
- **Combined Heat & Power (CHP)**
- **Distributed generation, where applicable**
- **Backup Power Generation**
- **Power Purchase Agreements**

11. Awards & Recognition

- **LEED – BD&C, ID&C, EBOM**
- **Energy Star**
- **Association of Energy Engineers & other awards**

12. Master Plans & Ops Reviews

- **Master planning for facilities**
- **Site Energy Condition Assessment (SECA) for newly acquired facilities**
- **Review renovation plans for energy conservation**
- **Review capital projects for energy conservation**

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QUESTIONS & ANSWERS

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