

T12 Lighting Phase Out

Market Impacts and DSM Program Trends

Presentation – Francis Xavier

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Presentation Outline

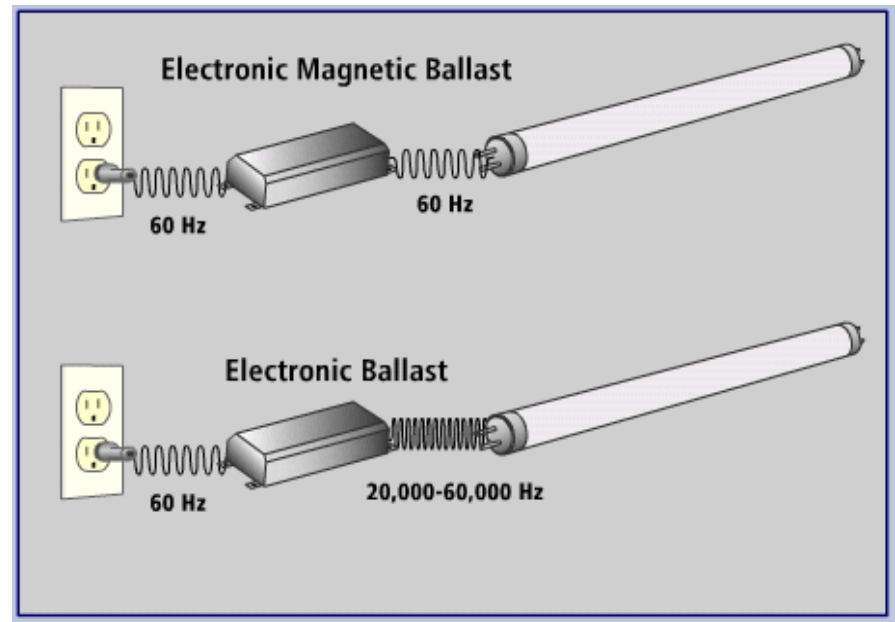
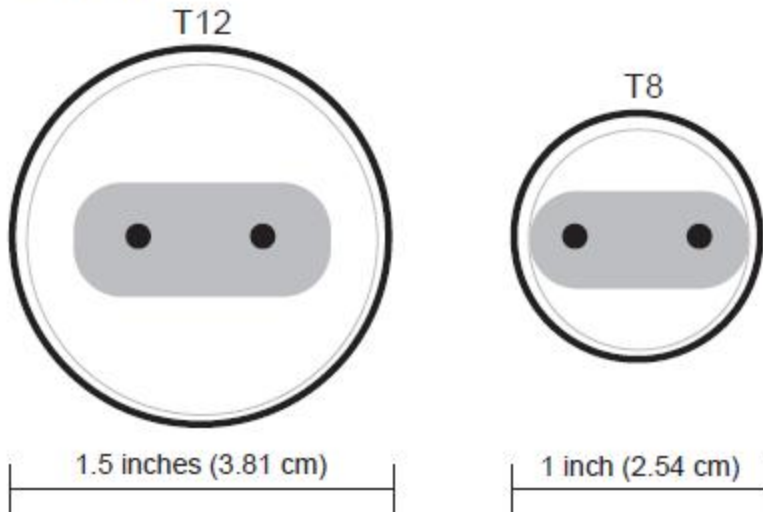
- ✦ T12 Phase Out Regulations
- ✦ T12 Measure Savings - % of DSM Portfolio Savings
- ✦ Impact on Utility Program Planning
- ✦ Research Results - Utility Trends
- ✦ T12 to T8 Change in Baseline Explained
- ✦ Focus on Energy – T12 Bounty Promotion
- ✦ SBL CO NM - Implementation and Impacts
- ✦ SBL Real Time Metrics – Participation / Opportunity

T12 Phase Out Regulations

- ✦ Since 2005, the U.S. Department of Energy has been implementing regulations to phase out the production of T12 fluorescent technology, which is considerably less efficient than newer T8 and T5 technologies.
- ✦ As of July 2010 – most commonly used T12 magnetic ballasts no longer manufactured in U.S – by July 2012 T12 lamp production will cease.
- ✦ DOE regulations affect the production – not the use of T12 fluorescent technology.

T12 to T8 Lamps and Magnetic to Electronic Ballasts

Lamp Ends



- ❖ T8 systems 40% more energy efficient than T12
- ❖ Flicker free - better for visual comfort and visual acuity
- ❖ No “strobe” effect, No Ballast “hum” noise, Less heat build up
- ❖ T12 to T8 ballast and lamp retrofits utilize the same fixture

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Energy

T12 as Portion of DSM Program Savings

| 2010 Achievements – Xcel -- Colorado | kW | kWh |
|---|--------|-------------|
| Xcel Business Portfolio | 35,051 | 166,138,014 |
| Xcel Lighting Programs | 10,023 | 40,504,931 |
| % Savings Attributable to Lighting Projects | 29 % | 24 % |
| % Savings Attributable to T12 Retrofits | 20 % | 18 % |

T12 percentage based on 2010 end-use measure breakdown

T12 retrofit savings assumptions based on T12 baseline

2011 – so far showing some increase in T12 retrofits over 2010

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Impact on DSM Program Planning

- ✦ Surveyed 12 utilities nationally and regionally
- ✦ Utilities in Colorado and region plan to continue to rebate T12 measures through the end of 2012
- ✦ Plans for T12 rebates beyond 2012 are not clearly defined at this time
- ✦ Regional survey participants include—Xcel Energy, Colorado Springs Utility, Fort Collins Utility, Arizona Public Service

T12 Phase Out – Survey Questions

- ✦ Plans regarding incentives and T12 phase out
- ✦ Change of savings assumption baseline for linear fluorescent fixtures
- ✦ Any set date for making change to T12 measure incentives
- ✦ Plans for explaining changes to customers
- ✦ Potential technologies / measures to replace T12 measures
- ✦ Anything else about T12 phase out to share

Research Results and Utility Trends

Xcel Energy

- Clear as many T12s as possible by the end of 2012
- Baseline will eventually change to minimum T8 standard
- T12 rebates end in 2012 – however, Xcel wants to be flexible on ending incentives as good customer service practice
- LEDs are not there yet as a replacement technology / measure

Colorado Springs Utility

- Keep T12s in place as-is through 2012 – will likely go to T8 baseline after 2012
- Looking at T8s, Tube LEDs, T5s, and Induction as replacement technology
- Manufacturing of T12s will halt but limited stock of magnetic ballasts will remain

Research Results and Utility Trends

☀️ Fort Collins Utilities

- DSM program goals are very aggressive – will continue to offer rebates and bonuses for T12 retrofits
- Will continue to rebate T12 retrofits to T8 LBF -- may get hit on net-to-gross on back end as baseline changes to federal T8 requirements

☀️ Arizona Public Service

- No word yet on any changes to T12 measures
- End date has not been set for T12s
- T8 De-lamping, LED Downlighting, Exterior Lighting

Focus on Energy – T12 Bounty Comparison

- ✦ 2008-2009 T12 Bounty – bonus incentive campaign to increase T12 to T8 retrofits
- ✦ Limited time bonus incentive – \$ 2 per T12 lamp
- ✦ A comparison study of two six month promotion activity periods against baseline periods revealed 149% increase in T8 lamps replacing T12 lamps during the bonus incentive promotion and offering
- ✦ Prior to promotions lamp manufacturers reported 30% of total linear fluorescent lamp sales were T12

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T12 to T8 Baseline Change Explained

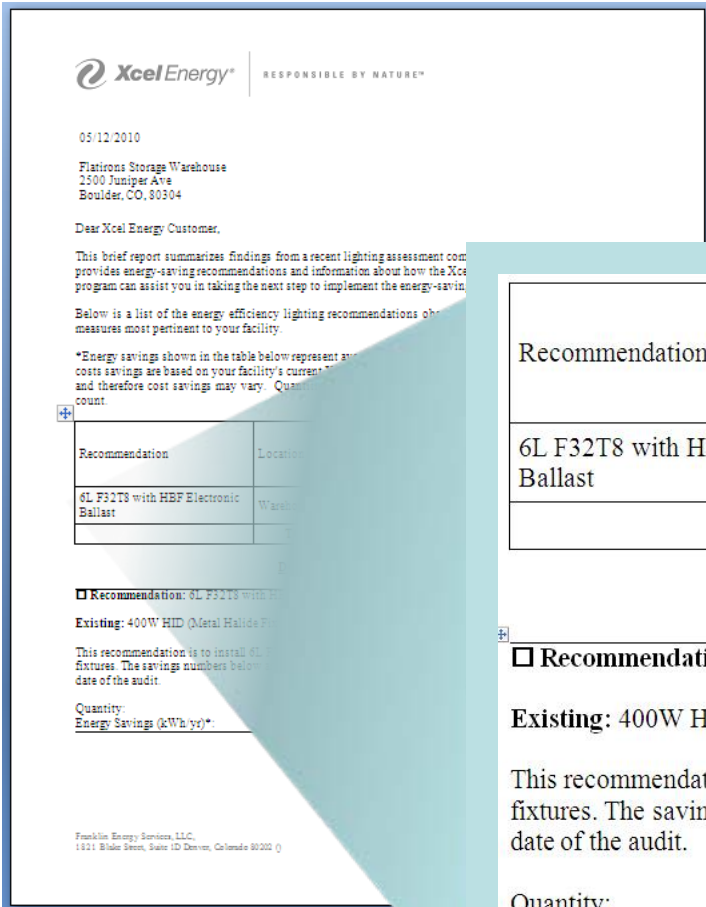
| FOE – 2009 | kW | kWh | Base Incentive Amount | Incentive with Bonus |
|-----------------|------|-----|-----------------------|----------------------|
| 2L T12 Retrofit | .019 | 94 | \$ 6.00 | \$ 10.00 |
| 4L T12 Retrofit | .040 | 196 | \$ 10.00 | \$ 18.00 |
| | | | | |
| FOE – 2011 | kW | kWh | Base Incentive Amount | Incentive with Bonus |
| 2L T12 Retrofit | .009 | 43 | \$ 3.00 | \$ 3.00 |
| 4L T12 Retrofit | .021 | 100 | \$ 5.00 | \$ 5.00 |

| Xcel CO -- 2010 | kW | kWh | Base Incentive Amount | Incentive with Bonus |
|-----------------|-----|-----|-----------------------|----------------------|
| 2L T12 Retrofit | .03 | 92 | \$ 13.00 | \$ 19.50 |
| 4L T12 Retrofit | .05 | 167 | \$ 22.00 | \$ 33.00 |

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Xcel Small Business Lighting Program Audit Report:



| Recommendation | Location | Peak Demand Savings (kW) | Annual Energy Savings (kWh) | Annual Cost Savings (\$) | Xcel Energy Rebate (\$) |
|--------------------------------------|-----------|--------------------------|-----------------------------|--------------------------|-------------------------|
| 6L F32T8 with HBF Electronic Ballast | Warehouse | 19.2 | 59,810 | \$5,776 | \$7,810 |
| TOTAL | | 19.17 | 59,810 | \$5,776 | \$7,810 |

Details of Recommendations:

Recommendation: 6L F32T8 with HBF Electronic Ballast **Location:** Warehouse

Existing: 400W HID (Metal Halide Fixtures with GE MVR400/C/U HID lamps)

This recommendation is to install 6L F32T8 High Bay Fluorescent Fixtures in place of your existing HID fixtures. The savings numbers below are based on an average of 60 hours per week of operation, as stated on the date of the audit.

| | | | |
|---------------------------|--------|--------------------------|---------|
| Quantity: | 71 | Cost Savings (\$/yr)*: | \$5,776 |
| Energy Savings (kWh/yr)*: | 59,810 | Xcel Energy Rebate (\$): | \$7,810 |

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Xcel Small Business Lighting Program Aspects

| PTD | Audits | Projects | Conversion Rate | kW Savings | kWh Savings | Incentives |
|--------|--------|----------|-----------------|------------|-------------|--------------|
| SBL-CO | 2092 | 849 | 40 % | 6,437 | 20,380,745 | \$ 2,233,917 |
| SBL-NM | 652 | 198 | 30 % | 1,506 | 3,584,333 | \$ 605,693 |

PTD = July 1, 2009 through October 12, 2011

SBL Colorado - kWh Identified - 73,207,865

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Xcel Small Business Lighting Program Aspects

| SBL - Colorado | Completed Projects | Completed Assessments | Implementation Rate |
|-------------------|--------------------|-----------------------|---------------------|
| Q4 2009 - Q3 2010 | 194 | 688 | 28 % |
| Q4 2010 - Q3 2011 | 568 | 1,297 | 44 % |
| Overall Total | 762 | 1,985 | 38 % |

| SBL – New Mexico | Completed Projects | Completed Assessments | Implementation Rate |
|-------------------|--------------------|-----------------------|---------------------|
| Q4 2009 - Q3 2010 | 52 | 289 | 18 % |
| Q4 2010 - Q3 2011 | 136 | 346 | 39 % |
| Overall Total | 188 | 635 | 30 % |

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T12 Bonus Rebate - Participation Increase

| SBL - CO | kW | kWh | Projects | Audits | EAs | kWh Identified | kWh Close Rate |
|-----------|-------|-----------|----------|--------|-----|----------------|----------------|
| Q3 - 2010 | 432 | 1,322,318 | 52 | 285 | 3.5 | 13,414,300 | 10 % |
| Q3 - 2011 | 1,462 | 4,678,818 | 215 | 430 | 5.5 | 27,003,000 | 17 % |
| % change | 238% | 254% | 313% | 51% | 57% | 101% | 73 % |

| SBL - NM | kW | kWh | Projects | Audits | EAs | kWh Identified | kWh Close Rate |
|-----------|-----|---------|----------|--------|------|----------------|----------------|
| Q3 - 2010 | 148 | 317,193 | 13 | 60 | 1 | 1,855,200 | 17% |
| Q3 - 2011 | 166 | 585,056 | 44 | 154 | 2 | 4,043,000 | 14% |
| % change | 12% | 84% | 238% | 157% | 100% | 118% | -18% |

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Other Market Factors

CEE Qualified Electronic Ballast Supply

- 35 % price increase since June 2011
- 100% price increase for some brands could be expected for late 2012

Importance of Outreach

- Customer and contractor education and awareness is key to participation – bonus incentive promotions are a means toward the end

Questions

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