



Congregational Treasurer's Checklist (for utilities and energy management)

[advice from a former congregational treasurer, who became a professional energy manager]

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How to Find More \$\$ for Ministry

- Unbundling “Utilities” line item in congregational budgets helps highlight and identify individual utility use.
- And a good energy awareness tool for the congregation.
 - Consider separate budget line items for:
 - Electricity
 - Natural gas (or other heating fuels)
 - Telephone
 - Cable



Reviewing Utility Bills

- Review utility bills
 - Look for:
 - Taxes
 - Congregations should not be paying taxes on utilities
 - What electric rate is congregation on?
 - Is this the most advantageous rate?



Reviewing Utility Bills

- » EXAMPLE: Utility companies do not automatically put churches on the best rate and they may need to ask for any special “church” rates.
- » EXAMPLE: The electric utility may have a rate (or “rider”) that reduces the “Demand” portion of the bill when the church electric profile shows peaking on Sunday morning (off-peak for the utility)



Reviewing Utility Bills: Natural Gas

- Review bills for heating fuel
 - Usually natural gas
 - Question any unusual use
 - Weather related
 - Colder than normal (winter)
 - Event related
 - Additional worship services
 - Additional meetings
 - Other questions
 - Estimated vs. actual meter readings



Reviewing Utility Bills: Electric

- Review bills for electric
 - Question any unusual rate
 - Event related
 - Additional worship services
 - Additional meetings
 - Weather related
 - Warmer than normal (summer)



“Bundling”

- Consider purchase of natural gas from broker
 - Alternative to purchasing from “gas company”
- Consider purchase of natural gas in concert with others
 - Aggregation



Energy Monitoring

- Consider appointing energy monitor(s)
 - Engage interested youth (or dedicated adult) who:
 - Read and record gas & electric meter readings and track usage and compare with utility bills.
 - Track usage
 - Portfolio Manager
 - Walk through building to look for energy waste



Energy Monitoring (cont'd)

- EXAMPLE: Look for lights left on after normal occupancy
 - Restrooms, storage areas, meeting rooms, etc.
 - Night drive by
- Heat on beyond time needed for meetings, worship services
 - NOTE on pipe organs: It is well documented that pipe organs have longer service life when the sanctuary is cooler. Only requirement is that they be tuned at same temperature as they are played.



Energy-Efficient Lighting



How to Care for Creation and Find More \$\$ for Ministry

- Pay less for electric (and reduce pollution)
 - Lower rate
 - \$\$ from utility rebates
 - From lighting improvements that save energy
 - EXAMPLE: AEP GridSmart® Program
 - Lower consumption
 - From lighting improvements that save energy



Lighting Improvements that Save Energy (and \$\$\$)

- No cost – immediate payback
 - Turn off (or disconnect) lighting that is not needed
 - Watch for “dayburners”
 - Exterior lighting that is on during the day
 - » Failed photocells or timer off schedule
 - Signage
 - To encourage parishioners to be responsible for turning lights off



Lighting Improvements

- Low cost – short payback (2-3 years)
 - Replace incandescent or fluorescent exit signs
 - Burn 24/7 (by code)
 - Savings = > 93%
 - » Replaced by electrician or competent congregation member (or friend of the congregation)



Lighting Improvements

- Replace incandescent bulbs with screw-base compact fluorescent bulbs (SB CFLs)
 - Savings = 75%
 - Do-it-yourself project
 - 100-w incand bulb = 23-w SB CFL
 - 75-w incand bulb = 18-w SB CFL
 - 60-w incand bulb = 13-w SB CFL
 - 40-w incand bulb = 9-w SB CFL



Lighting Improvements

- Medium cost – longer payback (3-4 years)
 - Upgrade office lighting to high-efficiency fluorescent lighting
 - “Super” T8 lamps and NEMA-Premium low-power electronic ballasts
 - Install wall-box vacancy sensors in place of wall switches
 - Same as occupancy sensors, but manual on
 - These improvements should be installed by an experienced electrician



Case History: Redeemer Lutheran Church - Columbus



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- Lighting audit requested to be performed by Effective Lighting Solutions by Pr. Al Debalek & Redeemer Green Team
- Lighting project proposed
 - Qualified for rebate from AEPs GridSmart® Program
 - Resulted in 63% reduction in lighting energy
 - Annual savings of \$1,730



Case History: Redeemer Lutheran Church - Columbus

Estimated Annual Lighting Energy (kWh)			
Current	Post-Retrofit	Savings	% Reduction
26,400	9,100	17,300	63%

Estimated Annual Lighting Energy Cost			
Current	Post-Retrofit	Savings	% Reduction
\$2,640	\$ 910	\$1,730	63%



Case History: Redeemer Lutheran Church - Columbus

- Lighting load reduced
 - From 28.7 kW to 10.2 kW
 - Nearly 2/3 reduction
- Total investment \$9,450
 - \$430 for SB CFLs
- GridSmart® rebate \$2,450
- Net investment \$7,000
- SPB = 3.7 years (5.9 yrs w/o rebate)



Redeemer: Upgrade Fluorescent Fixtures

- 125, 4-lamp 2x4 recessed lensed fixtures e/w 34-w T12 lamps & magnetic ballasts
 - Retrofit with 2, 32-w “Super” T8 lamps & low-power electronic ballasts LPB
 - 152-w/fix to 53-w/fix



Redeemer: Upgrade Fluorescent Fixtures

- 36, 4-lamp 2x4 recessed lensed fixtures e/w 32-w T8 lamps & magnetic ballasts
 - Mismatch: Resulted in liability for Redeemer
 - Overheated lamps, stressed ballasts, voided warranties (lamps & ballasts)
 - Most important – loss of UL listing – affecting insurance coverage
 - Insurance carrier has “loophole” to avoid paying any fire claims



Redeemer: Upgrade Fluorescent Fixtures

- 23, 2-lamp fixtures (incl. 2, 2x2 RL e/w 6-in U-tubes)
 - Retrofit with “Super” T8 lamps & LPB
 - 2x2 retrofit with reflector kit + 2, 17-w 2-ft T8 lamps & LPB



Redeemer: Upgrade Incandescent Fixtures



Redeemer: Upgrade Incandescent Fixtures

- Built on progress made by congregation on converting from incandescent bulbs to screw-base compact fluorescent lamps (SBCFLs)
- Did not include Altar lighting
 - Future project
- 58 sockets affected
 - 13-w to 85-w CFLs replaced 60-w to 300-w incand



Redeemer: Replace Incandescent Exit Signs

- All but 7 exit signs were already LED (light-emitting diode)
- 7 exit signs were 2-lamp, incandescent units (2, 25-w tubular lamps = 50-w/sign)
- Constant burn



Redeemer: Install Vacancy Sensors in Restrooms

- Replace wall switches with dual-technology vacancy sensors
 - Dual-tech (PIR & ultrasonic)
 - Manual on/Auto off



Case History: Southern Ohio Synod Office – Columbus

- On-site comprehensive lighting audit arranged by the SOS Care of Creation Task Force which became part of a larger energy audit by Foster Energy Management



Case History: Southern Ohio Synod Office – Columbus

- Objectives:
 - To locate energy savings lighting opportunities to assist the Synod in their goal to use less creation resources
 - To lead congregations by example



Case History: Southern Ohio Synod Office - Columbus

- Summary of Annual reductions
 - Lighting Energy (kWh) & Lighting Load reduced 76%
 - Lighting Maintenance Cost reduced 91%
 - Total Lighting Cost reduced by 83%



Case History: Southern Ohio Synod Office - Columbus

- Total investment \$11,100
- Reduced by AEP GridSmart® rebate of \$1,700
- Estimated outlay of SOS funds \$9,400
- Simple Payback (SPB) 2.9 years
 - Without rebate 3.4 years

