

Unitarian Universalist Church of Rockville
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I Summary

Thank you so much for taking the time to considering the energy efficiency of your building. The following should help you in your efforts. This report is designed to help your congregation create an action plan to reduce your environmental impact. Please share and discuss this report with all involved stakeholders.

Free (Immediate) changes

1. Education
2. Unplug/ put on power strips electronic appliances when they are not in use
3. Implement recommend heating and cooling temperatures
4. Turn off lights when you leave a room

Recommended changes for the next two years

1. Replace all incandescent lights not a dimmers with CFLs
2. Upgrade exit signs to light emitting diodes
3. .Develop a plan to condensed activities into certain buildings to reduce electricity and heating/cooling load.
4. Use shrink wrap on single pane windows
5. Plant trees to get the most out of your south facing windows
6. Install faucet aerators

Longer-term changes

1. Install T8 bulbs and electronic ballasts in your florescent fixtures
2. Replace old refrigerators
3. Create rain gardens
4. Install a green vegetative roof

II Recommended Change

The following is a detailed explanation of actions your congregation should take. Where available, cost and payback information is included.

Building History

There are currently 5 building on the site, which have been build between the 1960's and 2006. Buildings 1, 4, and 5 are linked.

Recommended Change: Try to designate each of the buildings to have a specialized use to minimize the heating/cooling/ lighting needs. For instance, have one dedicated to the offices and another dedicated for meetings and events.

Founder's Hall

There are currently over 50 lights on dimmers. Although manufactures make some CFLs on dimmers, they are still a newer technology and have some bugs. Instead of switching

to CFLs you should try to use the fewest possible lights to get the most illumination and only have them on when the room is occupied or when there is not enough natural light.

2 Exit signs

Recommended Change Plastic Red LED Universal Mount Battery Back Up Exit Sign

#20783 @ \$20.57

Total Cost: \$41.14

Changes would cause reductions over lifetime of products

KWH 12,264

Pounds of CO2: 16,826

Save: \$1,226

Payback : Immediate

Heating/ Cooling

The following are recommended temperatures for your buildings. It is important to educate stake holders how to adjust the temperature and occupants

Winter	Summer
When a room is in use: 65-68	When a room is in use 68-72
When a room is not in use: 55-60	When a room is not in use 77- 82

South Facing Windows

To maximize the amount of heat gain in the winter and minimize the amount of heat gain in the summer plant deciduous trees. Their leaves will block the sunlight during the summer and in the winter, after they loose their leaves, they will allow for heat absorption.

Downstairs kitchen

Sink:

Recommended Change 1.5gpm low flow aerator

save 49,275 gallons of water over ten years

cost: \$1.65

Microwave

Keep unplugged or place on a power strip to prevent a phantom charge.

Nursery School Building 3

12 T12 florescent fixtures

Recommend Change: Electronic Ballasts and T8 bulbs

Cost: Ballasts- \$156 T8 Florescent bulbs - \$200

Payback 3-4 years

This change will result in 14% more energy efficiency.

Building 2

2 exit signs

Recommended Change: Plastic Red LED Universal Mount Battery Back Up Exit Sign
#20783 @ \$20.57
Total Cost: \$41.14

Changes would cause reductions over lifetime of products
KWH 12,264
Pounds of CO2: 16,826
Save: \$1,226
Payback: Immediate

3 incandescent 75 watt lights

Recommended Change: 20 Watt Spring Lamp #UB204 @ \$ 2.38

Total Cost: \$7.10

Changes would cause reductions over lifetime of products
KWH: 2,850
Pounds of CO2: 3,910
Save: \$2,885
Payback: .1 years

12 T12 florescent fixtures

Recommend Change: Electronic Ballasts and T8 bulbs

Cost: Ballasts- \$156 T8 Florescent bulbs - \$200

Payback 3-4 years

This change will result in 14% more energy efficiency.

Heat lamp for Gecko

Unfortunately, heat rocks cause most reptiles to get burned. The heat lamp should be placed on a timer so it can go on and off providing the gecko with a proper amount of “sun” and helping you to save electricity.

Office building

8 T12 florescent fixtures

Recommend Change: Electronic Ballasts and T8 bulbs

Cost: Ballasts- 104.96 T8 Florescent bulbs - 41.75

Payback 3-4 years

This change will result in 14% more energy efficiency.

Computers and Office Equipment

Overall, ENERGY STAR qualified office products use about half as much electricity as standard equipment. And using less energy keeps utility costs down on cool costs.

Please make sure that all current computers are set to enter into sleep mode, it powers it down to 15 watts or less. You can save \$25 to \$75 per desktop PC annually by activating power management. When computers are not in use, they should be completely turned off. They should be plugged into a surge protector and powered down to prevent phantom charges.

Please note: Many people believe that equipment lasts longer if it is never turned off. This incorrect perception carries over from the days of older mainframe computers. There is also a common misconception that screen savers reduce energy use by monitors; they do not. Automatic switching to sleep mode or manually turning monitors off is always the better energy-saving strategy.

Office paper:

Considered buying paper that has a post consumer recycled content between 30- 100%. All photocopies should be doubled sided. This will cut down on paper use. Consider creating a scratch paper pile for paper that is only used on one side.

Building 1

16 T12 florescent fixtures

Recommend Change: Electronic Ballasts and T8 bulbs

Cost: Ballasts- \$209.92 T8 Florescent bulbs- \$83.59

Payback 3-4 years

This change will result in 14% more energy efficiency.

18 65 watt lights in

Recommended Change: 14 Watt R30 Flood Spring Lamp #RBR30144 @ \$3.44

Total Cost: \$61.92

Changes would cause reductions over lifetime of products

KWH:	7,344
Pounds of CO2:	10,076
Save:	\$734.00

Payback: .3 years

4 exit signs

Recommended Change: Plastic Red LED Universal Mount Battery Back Up Exit Sign #20783 @ \$20.57

Total Cost:

Changes would cause reductions over lifetime of products

KWH:	24,528
Pounds of CO2:	33,652
Save:	\$2,453

Payback: Immediate

Kitchen

Sink

Recommended Change 1.5gpm low flow aerator

save 49,275 gallons of water over ten years

cost: \$1.65

Refrigerator

The current refrigerator is from prior to 1983.

Recommended Change:

A new ENERGY STAR residential qualified refrigerator costing \$1,100 or less will pay for its self with in four years time. Because heat rises, it is better to get a model with the freezer on the bottom.

Payback period: Less than 4 years

Single pane windows

Because installing new double pane windows would be very expensive, there is a cheaper alternative. You can install “shrink wrap” especially in the winter. This will help increase efficiency by 10%. The entire project should cost about \$15.00. It gives

Green Vegetative Roof:

Supplies and instillation costs about \$7 per square foot above the conventional cost of a new roof. Green roofs have many benefits including reducing the heat island effect, cutting heating and cooling costs by 20-30%, reducing runoff by 50-95%, and for every 1,000 square feet of green roof can supply 110 people with oxygen and remove 41 pounds of airborne particles per year.

For more information check out: EPA:

<http://www.epa.gov/heatisland/strategies/greenroofs.html> and

<http://www.buildinglogics.com/>

Rain Gardens/ storm water management:

Rain gardens allow rain and snowmelt to seep naturally into the ground. This helps recharge our groundwater supply, and prevents a water quality problem called polluted runoff. Rain gardens are an important way to make our cities more attractive places to live while building urban ecological health. For more information or help design rain gardens please contact Jeanette Stewart of Lands and Waters at 703-204-0841 or inti@mindspring.com

Ink cartridge recycling:

A great project for your youth program. They can collect used ink cartridges and send them in to be recycled by the funding factory: <http://www.fundingfactory.com/>. They can then use this money to fund a purchase of clean energy to offset what energy you do use.

For cell phones recycling you can contact secure the call: <http://www.securethecall.org/> a local organization which provides restored cell phones to the elderly and victims of domestic violence.

Education:

You should start by educating and reminded people of how to use the building properly, some immediate steps include reminding everyone to turn off the lights when they leave the room, not to turn them off in the room is sunny enough, and be couscous of temperature level.

The next step is to model the actions of your congregations let your congregation know what initiatives you are taking in your own building. If you are installing CFLs and

energy efficient, T8 then they should know, the what, why, and how. They should also know your motivation for these actions, specifically why your faith brings you to this action and about all of the money savings. You can create a publication, and feel free to ask GWIPL for help, that states all of your energy saving infinitives. This can be used in contacts with renters and at ceremonies held in your spaces.

The last steps is provide suggestions and programs which will result in your community making these changes in their own homes and business. Two examples are monthly tips in the newsletter and programs to challenge the community to make these changes at home.

III. Notes

We did not spend any time examining the insulation of the building. This should be done especially in the older

Stake Holders: please identify all key stakeholders, inform, and educate them about your commitment to stopping global warming and using energy wisely to save money. Some key stakeholders might include your board of trustees, all committee leaders, staff including janitorial staff, and renters. They should be trained in the proper use of heating/ cooling of the building and be leaders of energy smart practices like turning off the lights/ computers when they are not in use.

These are just recommendation from a site check. Please look at lights before making any actually changes and double check to make sure that the recommended change will work. All prices were determined using our discounted online store. Products numbers are included for ease: <https://www.miipl.org/miiplstore/catalog/index.php>

We currently do not sell sealing and corking products. These can be purchased in your local hardware stores.

Payback periods and cost estimates are included where information was available.

The follow is a summery of incandescent and their compact fluorescent equivalents.

CFL	Incandescent
14 W	60 W
18 W	75 W
23 w	100 W
42 W	150W

4. For more information on do it yourself window and door insulations you can visit:

http://www.eere.energy.gov/consumer/your_home/insulation_airsealing/index.cfm/mytopic=11280

<http://www.lowes.com/lowes/lkn?action=howTo&p=Improve/Weatherstripping.html#4>

<http://www.energy.state.md.us/energyinformation/energyefficiency/residential/weatherstripping.htm>