Shower Length
By Tom Nutt-Powell & Sergio Siani

Key Issue
Conserving resources

Stewardship Opportunity
Take a shorter shower

While some environmental stewardship opportunities involve changes in mechanical and/or electrical equipment, most involve changes in behavior. Stewardship is what we do. Cost is the consequence of our actions. Cost is counted in both $s and pollution. Most behavior changes involve everyday things. This is really evident in the length of showers one takes.

Stewardship Opportunity #1 — Shorten Your Shower
It is reported that the average length of a shower is 10 minutes. What is the “cost” involved, in $s and in CO2 emissions? Using the Shower Cost Calculator (available at MIP&L’s web site) answers that question. Cost will depend on (1) the fuel and (2) the equipment used to heat your domestic hot water (“DHW”). Here is the cost in $s and CO2 emissions as of November 2007:

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Equipment</th>
<th>$s/year</th>
<th>CO2/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>High efficiency</td>
<td>$70.80</td>
<td>721</td>
</tr>
<tr>
<td>Gas</td>
<td>On-Demand</td>
<td>$77.55</td>
<td>790</td>
</tr>
<tr>
<td>Gas</td>
<td>Tank</td>
<td>$100.21</td>
<td>1,020</td>
</tr>
<tr>
<td>Oil</td>
<td>High efficiency</td>
<td>$112.70</td>
<td>646</td>
</tr>
<tr>
<td>Oil</td>
<td>Tank</td>
<td>$128.30</td>
<td>736</td>
</tr>
<tr>
<td>Electricity</td>
<td>On-Demand</td>
<td>$203.58</td>
<td>1,712</td>
</tr>
<tr>
<td>Electricity</td>
<td>Tank</td>
<td>$203.58</td>
<td>1,712</td>
</tr>
</tbody>
</table>

The details are on page 3, including how much you can save by cutting in half your 10-minute shower. Then spend the $s you save by the 50% drop by buying GreenE to help offset the your remaining carbon footprint.
**Stewardship Opportunity #2 — Get a Low-Flow Showerhead**

Showerheads are improving in terms of both quality and efficiency. The current U.S. standard of 2.5 gpm represents a dramatic water savings improvement over the fixtures that were sold in the 1970s. Some of those delivered up to 10 gpm; they averaged 4 to 6 gpm. A good location for buying all kinds of energy-saving products is the IPL-sponsored http://www.energyfederation.org/ipl/default.php.

MIP&L members and congregants get 10% discount!!! Enter the discount code shopipl

*Here are two low-flow showerhead options*

![2 gpm ($5±) Variable spray](image1)

2 gpm ($5±) Variable spray

![1.5 gpm ($26±) Design pressure 20>100 psi](image2)

1.5 gpm ($26±) Design pressure 20>100 psi

And get low-flow aerators for faucets (0.5 gpm; $2)

**How Much Does Your Shower Cost?**

Download the Shower Cost Calculator from MIP&L website: http://www.mipandl.org/MIPL_resources/MIPL_ShowerCostCalculatorTemplate.xls

Do the calculations.

Then reduce the minutes and you'll see how much you will reduce cost and pollution.

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How Much Does Your "Typical" 10 Minute Shower COST

April 2011 prices

#1 Fill in the >Yellow Box< with how long you take in a shower …

#2 Fill in the >Pink Box< with how much you pay for your fuel type for heating hot water…

#3 Go to the >Green Box< that matches how domestic hot water is generated in your home for your cost in $s and CO_2

#4 Go to the >Green Box< for how much you can save by a 50% reduction in length of your current length of shower

How many minutes do you spend in the shower? 10

How much do you pay for …

Gas $1.50 $/therm

Oil $3.89 $/gallon

Electricity $0.169 $/kWh

Then reduce the minutes and you’ll see how much you will reduce cost and polution

Reducing time in the shower to 5 minutes is a 50% savings.

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Value</th>
<th>Units</th>
<th>It takes about</th>
<th>Use the MIP&amp;L LES Briefs on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Shower Temp</td>
<td>105.00</td>
<td>Deg F</td>
<td>7 NE trees</td>
<td>Boilers &amp; Furnaces</td>
</tr>
<tr>
<td>CW Temp</td>
<td>53.00</td>
<td>Deg F</td>
<td>100 lbs of CO2</td>
<td>Domestic Hot Water</td>
</tr>
<tr>
<td>Heat Capacity of Water</td>
<td>1.00</td>
<td>BTU/lb-Deg F</td>
<td></td>
<td>Appliances</td>
</tr>
<tr>
<td>Density of Water</td>
<td>8.32</td>
<td>lb/Gallon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow rate of Shower Head</td>
<td>2.50</td>
<td>Gallons Per Minute</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Changing to a 1.5 gpm showerhead reduces use by 40%!