

Mercer University

To: Russell Vullo, Associate Vice President of Physical Plant; Jeff Takac, Director of Housing and Residence Life
From: Student
CC: Dr. Codone
Date: 6/23/2011
Re: Feasibility of Energy Efficient Washers

Background

Mercer University has working washers in all the dorms and apartments; however these washers waste resources in comparison to high efficiency washers. New washers require assets and funding from the University. These would consume up to fifty percent less water and up to thirty percent less electricity. This could reduce operating costs within the dorms and apartments. These washers could pay for themselves within the first few years of operation and save money every year thereafter. Three brands have been chosen, that could fit Mercer University's needs: [they are](#) GE, LG and Maytag. In addition to saving Mercer money, the installation of new washers could increase our green report card score from greenreportcard.org. ([Tell me how specifically new washers could improve the score](#)) Mercer's current score is a C+. Other colleges like Furman have an A-. Bigger schools like Georgia Tech and the University of Georgia also have A's. Our [improved](#) green score could draw potential students, attract positive media attention, and most importantly benefit the Earth.

Conclusion

After evaluating several energy efficient models, based on the criteria chosen, there are two models that stand out. The GE WCVH4800 costs \$999 and the Maytag MVWX500XW costs \$699. It is dependent upon the money Mercer would save on water to determine if the price difference between the two washers will be recouped fast enough to make the more expensive model worth purchasing. [Here you need to make an actual recommendation of either one washer or the other, as in "I recommend that Mercer University purchase and install the GE or Maytag..."](#)

Comment [L1]: You may want to re-word this sentence and place it behind your first sentence.

Criteria

When considering new energy efficient washers there are four criteria that need to be evaluated: ↴

1. Annual Water Usage (gallons/year)
2. Annual Energy Usage (kWh/year)
3. Front loading v. top loading [capacity washers](#)
4. Price

Relevance

Annual Water Usage (gallons/year)

On average, older washers use up to twice as much water as the high efficiency washers being produced today. As washers have developed, reducing water usage has been the biggest improvement, therefore it carried the most weight when looking at replacement washers.

Annual Electricity Usage (kWh/year)

The new energy efficient models also use less electricity. ~~With~~ Since a majority of Mercer's electricity ~~coming comes~~ from non-renewable energy sources, ~~by~~ installing these new washers ~~Mercer~~ could help Mercer reduce local emissions and improve its green score. The new washers on average cost \$60 a year to run, using 270 kWh/year.

Front loading or Top Loading Capacity

Front loading washers use less water than the top loading models. Both washers use about the same amount of energy. The use of regular detergent that is not specially marked for the front loading washers can cause overflows and break downs. Front loading washers can also save space, as they can be stacked together.

Purchase Price

The front loading washer costs significantly more than the top loading washers. This can negate the savings spent on energy for years to come.

Comparisons between the washers by GE, LG, and Maytag

The comparisons are based upon the four criteria to help make an optimal choice for the best washer for Mercer University. The models in each brand were selected due to having the least amount of water usage per year. ~~By~~ Picking the most efficient models provided by each brand ~~it gave~~ provided a better base comparison.

Front Loading Washers

The GE WCVH4800 washer is the cheapest at \$999. This model consumes 3,742 gallons of water and 122 kWh per year. This model is the highest rated model (by what agency?), among the front loading and top loading washers.

Comment [L2]: This rated the highest among front loading washers.

The LG WM1355HW used 4,036 gallons of water, a difference of 294 gallons a year in comparison to the GE model. The LG model uses 108kWh per year compared to the GE model using 122 kWh. The slightly lower energy usage does not compare to savings in water usage of the GE model. The price was \$1,049, so for the money the GE model is better than LG.

Lastly there is Maytag. The Maytag model MHW6000XW uses 4,551 gallons of water, 127kWh, and is \$1,199. Being the most inefficient model of the three (why is it the most inefficient?) it is believed that Mercer should not allocate its resources here, but

rather the GE model. [Don't make your recommendations or beliefs here; just state the facts.](#)

Top Loading Washers

- In addition to front loading washers, top loading washers are a possibility for Mercer. The GE PTWN8050MWW was the poorest of the top loading washers, which is surprising since they have the best front loading washer. The top loading washer consumes 7,885 gallons of water and 263 kWh of energy every year. In addition to its hefty consumption it costs \$1,099. [Why is it the poorest?](#)

The LG WT5001CW was slightly better in all categories for the top loading washers but not worth the money, compared to front loading washers. This washer was priced at \$949 which is fifty dollars cheaper than the GE front loading washer, which at first seems like a good deal until water usage is compared. The LG model uses 7,025 gallons of water per year, which is about 3,000 gallons more than GE's front loader. However, it uses less than GE's top loader by 860 gallons. [Why do you say it is not worth the money? Again, stick to the facts only in this section.](#)

The Maytag MVWX500XW top loading machine received the highest recommendation of the three top loading machines [\(from what agency?\)](#). This model was priced at \$699, using 5,106 gallons per year which was approximately 2,000 gallons less than the other models. The Maytag MVWX500XW -also used 122 kWh, which is about half of the other top loading machines.

Matrix Analysis

The charts below have values 1-10 assigned to each of the criteria, the model with the highest amount of points is the best model based on the criteria alone. Front loading and top loading models are broken up, and a recommendation of each model is given. The reasoning for this is water usage is significantly different between the two and Mercer needs to decide on if the price difference can be recouped within a feasible amount of time. The idea [being is](#) that the reduction in running costs will pay for the washers themselves, and then continue to save Mercer money. [Good intro to matrix](#)

Brand	Model	Water Usage	Energy Usage	Price	Points Total
Front Loading	-	-	-	-	-
GE	WCVH4800	10	9	8	27
LG	WM1355HW	8	10	6	24
Maytag	MHW6000XW	9	8	5	22
Top Loading	-	-	-	-	-
GE	PTWN8050MWW	6	6	7	19

LG	WT5001CW	5	7	9	21
Maytag	MVWX500XW	7	9	10	26

The Matrix analysis gives a visual representation of the earlier recommendations of the GE front loading model and the Maytag top loading model.

Front Loading	-	-	-	-
GE	WCVH4800	3,742	122	999
LG	WM1355HW	4,036	108	1,049
Maytag	MHW6000XW	4,551	127	1,199
Top Loading	-	-	-	-
GE	PTWN8050MWW	7,885	263	1,099
LG	WT5001CW	7,025	250	949
Maytag	MVWX500XW	5,106	122	699

Above is the actual data, with the recommended models in bold.

Conclusion and Recommendation

The reasoning behind recommending two models is that without the water bill it is hard to determine the true value of these washers and [there their](#) savings for Mercer University. The price difference between the two recommendations is \$300, and [when](#) considering replacing all the washers in the dorms adds up to a significant amount. The washers should effectively pay for themselves in the first few years of operation, then save money every year after. Thus, it is up to Mercer to decide between the two recommendations.

[I recommend](#) ~~The the~~ GE WCVH4800 [was as](#) the [recommended potential](#) front loading washer. It [was is](#) the cheapest and most efficient washer in regards to water. It had an insignificant difference in energy used, making it [the my](#) top recommendation.

[I recommend](#) The Maytag MVWX500XW ~~was the recommended as the potential~~ top loading washer. It uses [e](#) just as much energy as the recommended GE model, but uses [e](#) 1,364 more gallons of water. However it [was is](#) priced at \$699. It is recommended that Mercer [calculates](#) the price of the 1,364 gallons of water used and see how much time it would take to recoup the price difference of \$300 if Mercer were to invest in new washers today.

[Very good report! What I'd like you to do is to make my recommended corrections, and then you can send it to Mr. Vullo, or send it back to me and I'll send it to him on your behalf. I think this is definitely information he'd be interested in, and we can send him your PPT too.](#)