

**Case #1 (Due Oct 4)**

This assignment is based on the problem described in “Optimizing Electricity Storage.” Your assignment is to determine the optimal plan for operating the storage system given the power consumption profile, electricity costs and constraints on the storage system. What is the daily electricity cost savings when optimally using the storage system compared to the original cost of purchasing electricity?

After determining the optimal operation of the storage system, consider doubling the capacity of storage. This corresponds to simply installing two systems, each with a capacity of 80kWh of storage. Installing two systems would double the equipment cost, but only marginally increase the installation cost. Installing two systems also doubles the maximum rates for storing and retrieving power, but NOT the 17% limit on the fraction of electricity demand in an hour that can be taken from storage. How does the solution, and possible electricity cost savings, compare with operating one 80kWh storage system?

Can more than two 80kWh storage systems be profitably utilized in this application? Why or why not?

Turn in your sas code for computing the optimal operation of a single 80 kWh storage system, and a brief description (max 2 pages) of your results. Your sas code should use the LP solver without any integer variables and should read the hourly demand and cost data in from an Excel file.