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# Demand Savings Through System Management & Equipment Recommissioning

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**DISTRICT ENERGY**  
ST. PAUL™

# Benefits of Commissioning

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- **Better indoor environmental conditions with more economical operating costs**
- ***Little Changes Make a Big Difference***



# What Type of Commissioning Do You Need ?

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- Commissioning
- Retro-Commissioning
- Re-Commissioning
- Continual Commissioning
- Decommissioning



# Commissioning

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- Is the Equipment **Correct** per Design Specifications?
- Does it **Operate** within Design Conditions?
- Do the Design Conditions **Fit** the Occupants Needs?



# Retro-Commissioning

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## Reasons for Retro-Commissioning

- If commissioning was not completed originally
- Proper documentation does not exist from original commissioning to fully explain system operation

## Checklist

- Same as commissioning
- Does it work the way it was designed
- Did the design capture the needs of the building at the time of design



# Re-Commissioning

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- This is done at a building system level at a distinct time frame in the building's life cycle
- **Verify** if the building systems still work as designed?
- Have the building's **programmatic needs changed?**
- Has **building code or technology changed** to make operating the building in a different manner more **economical \$\$\$**



# Continual Commissioning

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- This is done at a terminal level on an ongoing timeline throughout the entire life cycle of the building
- **Verify** the terminal devices are still operating optimally
- **Identify** areas that have lower usage levels compared to design conditions (These are saved for a time when a large capital investment can be made)
- **Install or Monitor System Resets** that continually update building operating conditions based on actual conditions in the end user spaces



# Decommissioning

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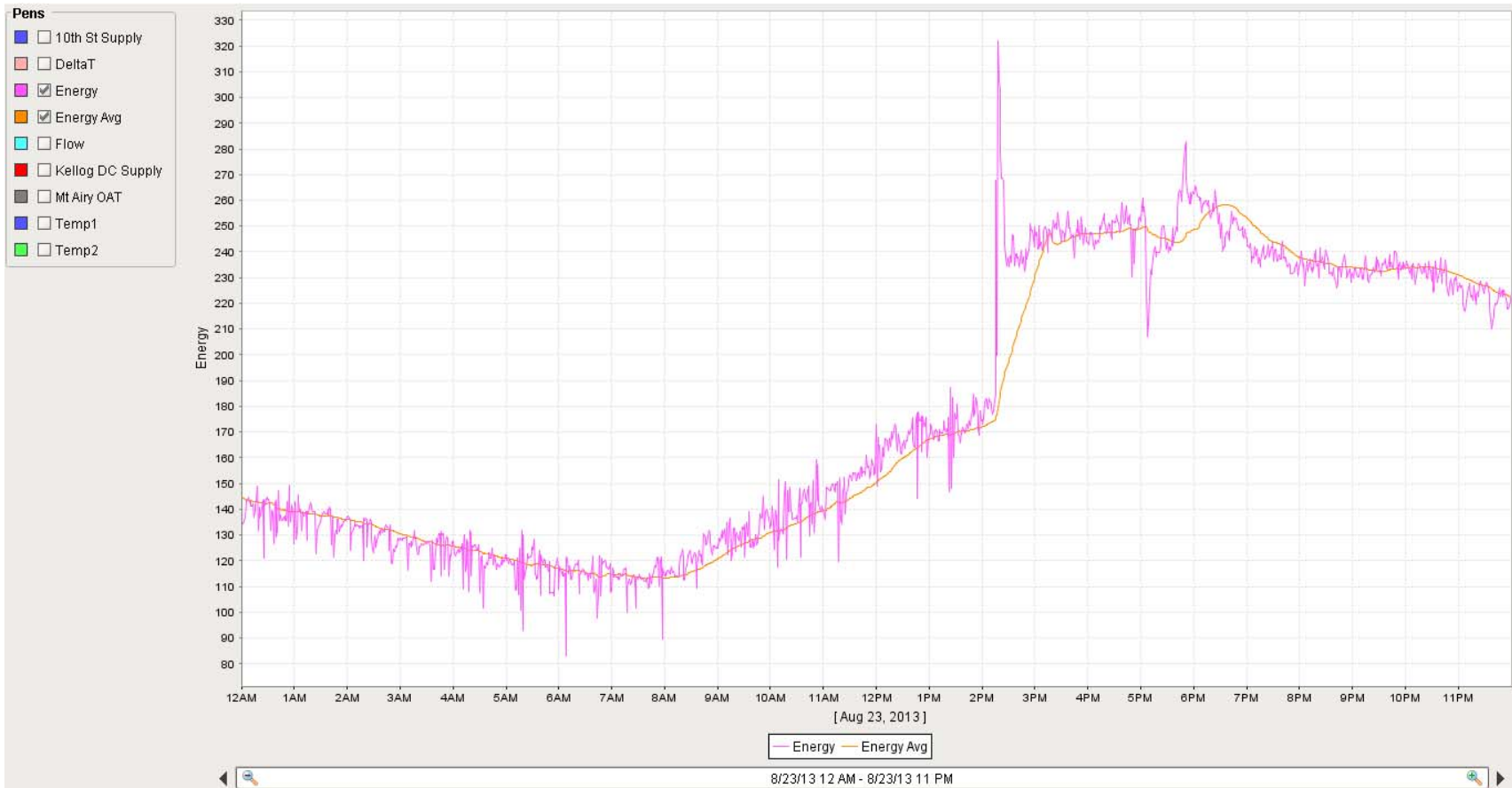
- What is the probability that space usage will increase in the future?
- Does the value of the equipment warrant additional measures to maintain its status?
- Does removing/leaving equipment have other building impacts?
  - i.e. Environmental, Space, Disposal Costs



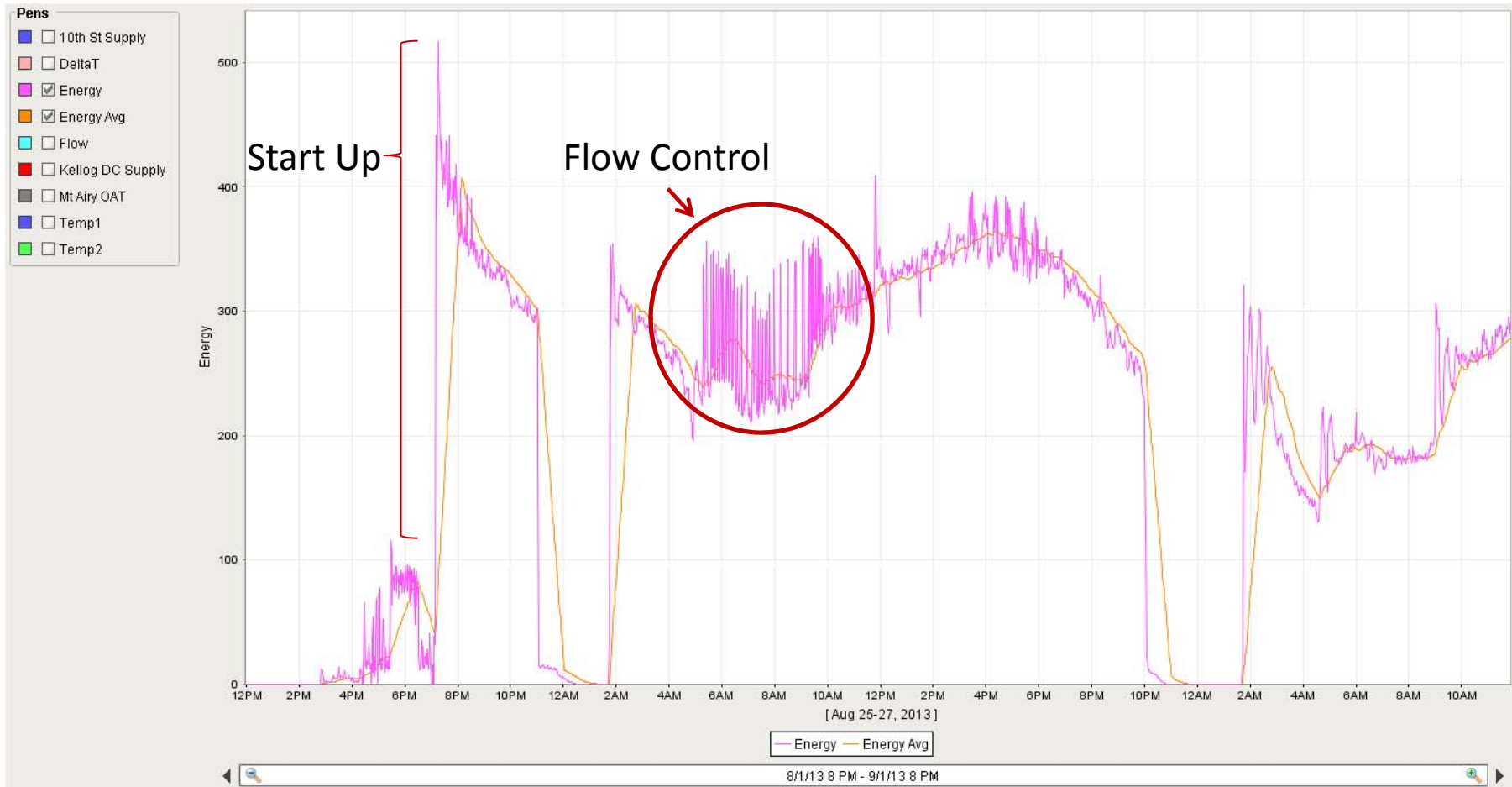


# Managing Cooling Demand:

## Rolling 1-hr Demand

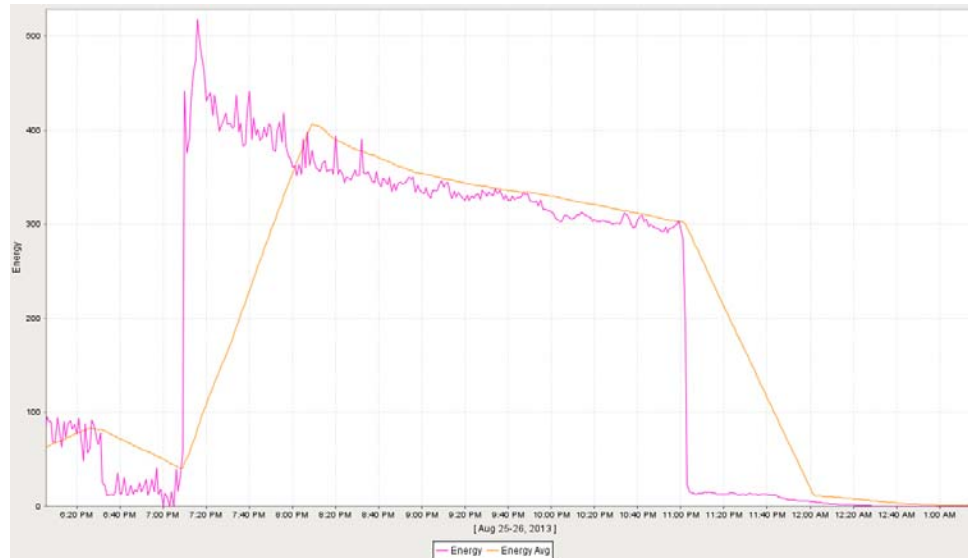


# Managing Cooling Demand: Identifying Problematic Peaks

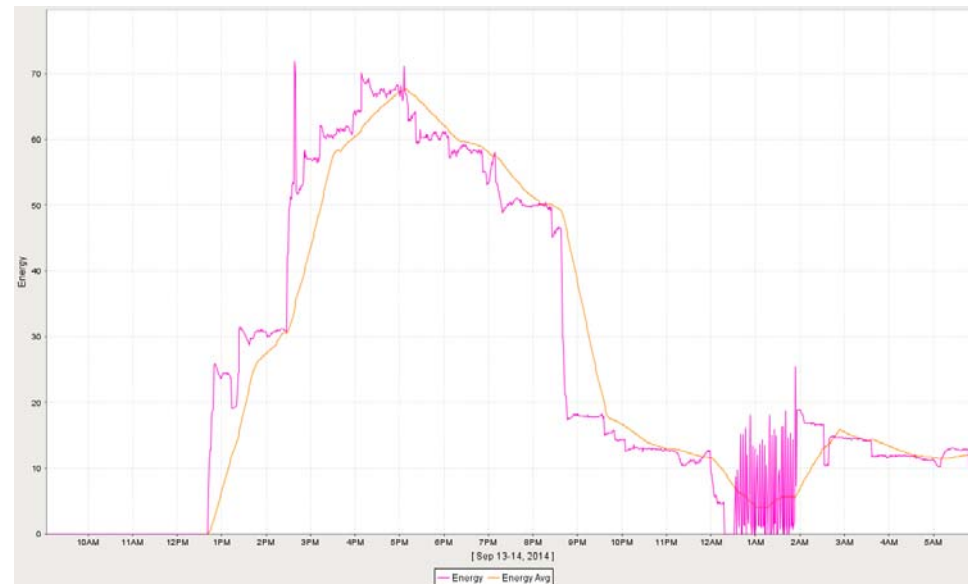


# Daily Start Up

**Without staging**

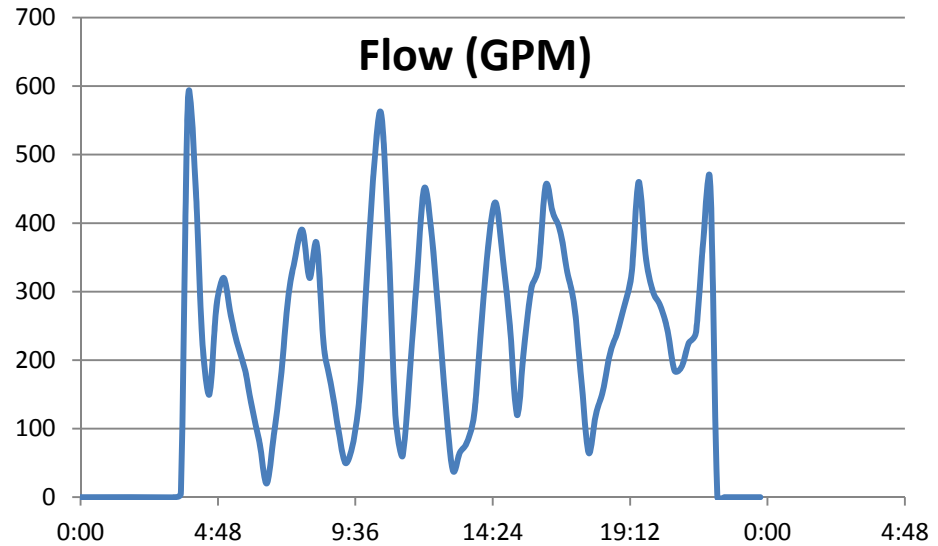


**With staging**

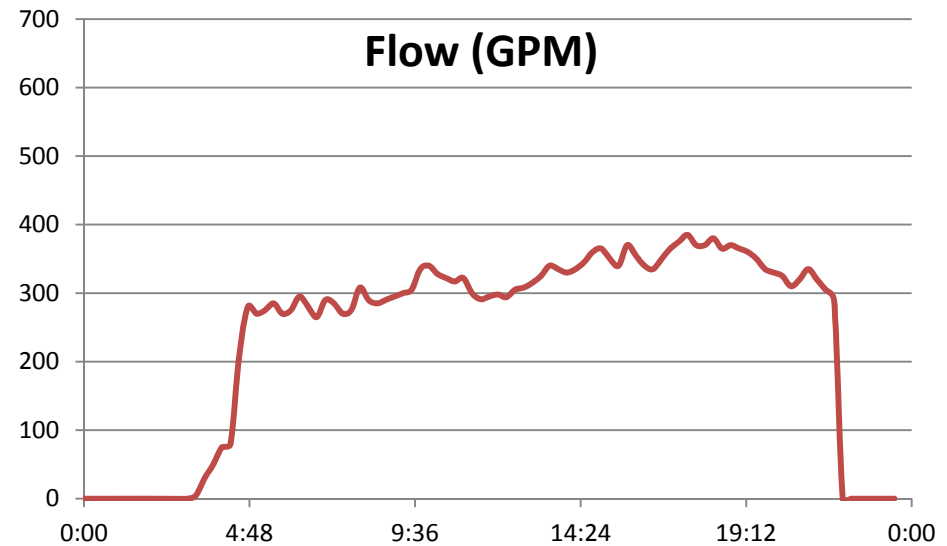


# Identifying Flow Control Issues

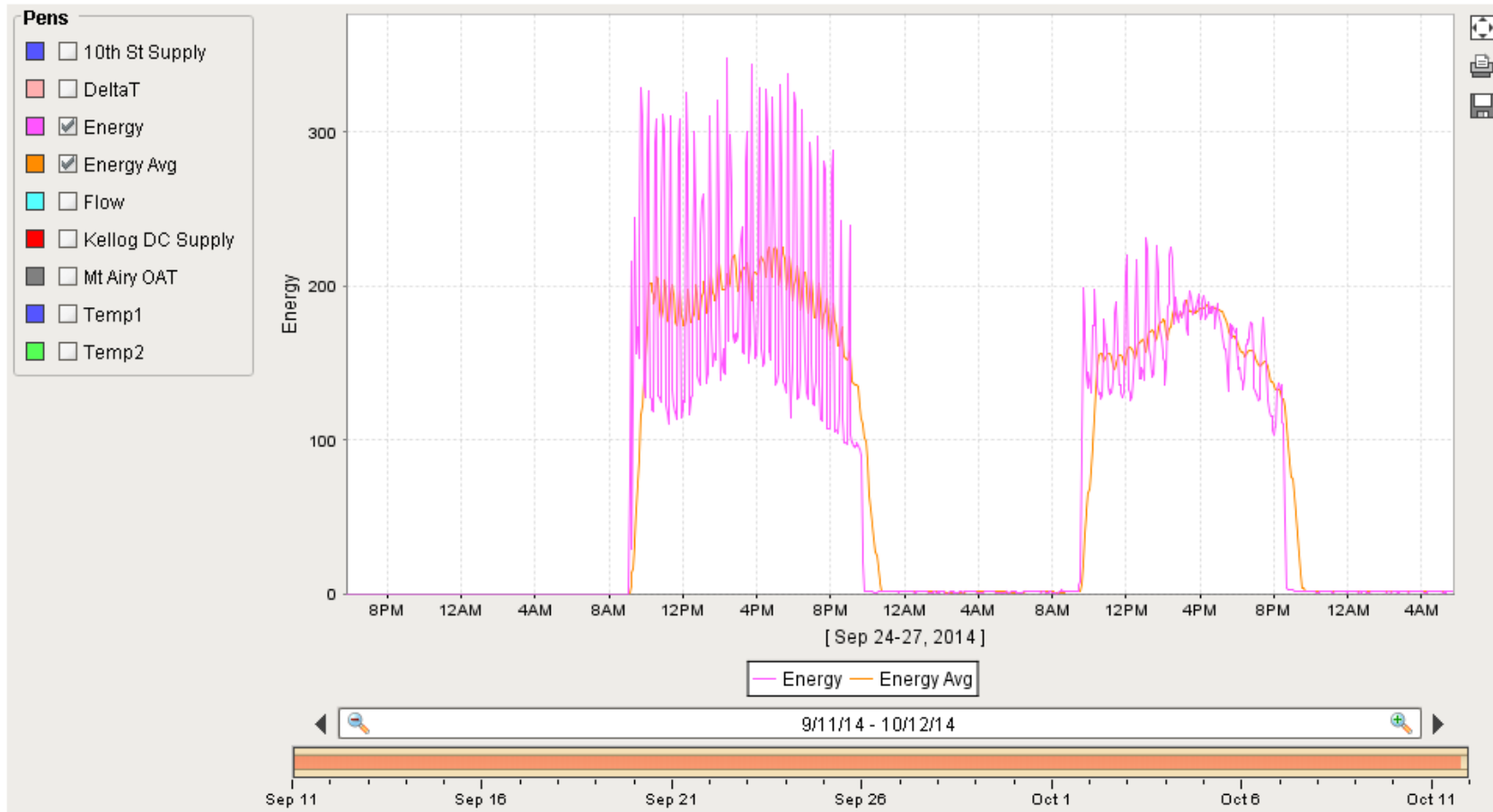
**Poorly Tuned Flow Control**



**Properly Tuned Flow Control**



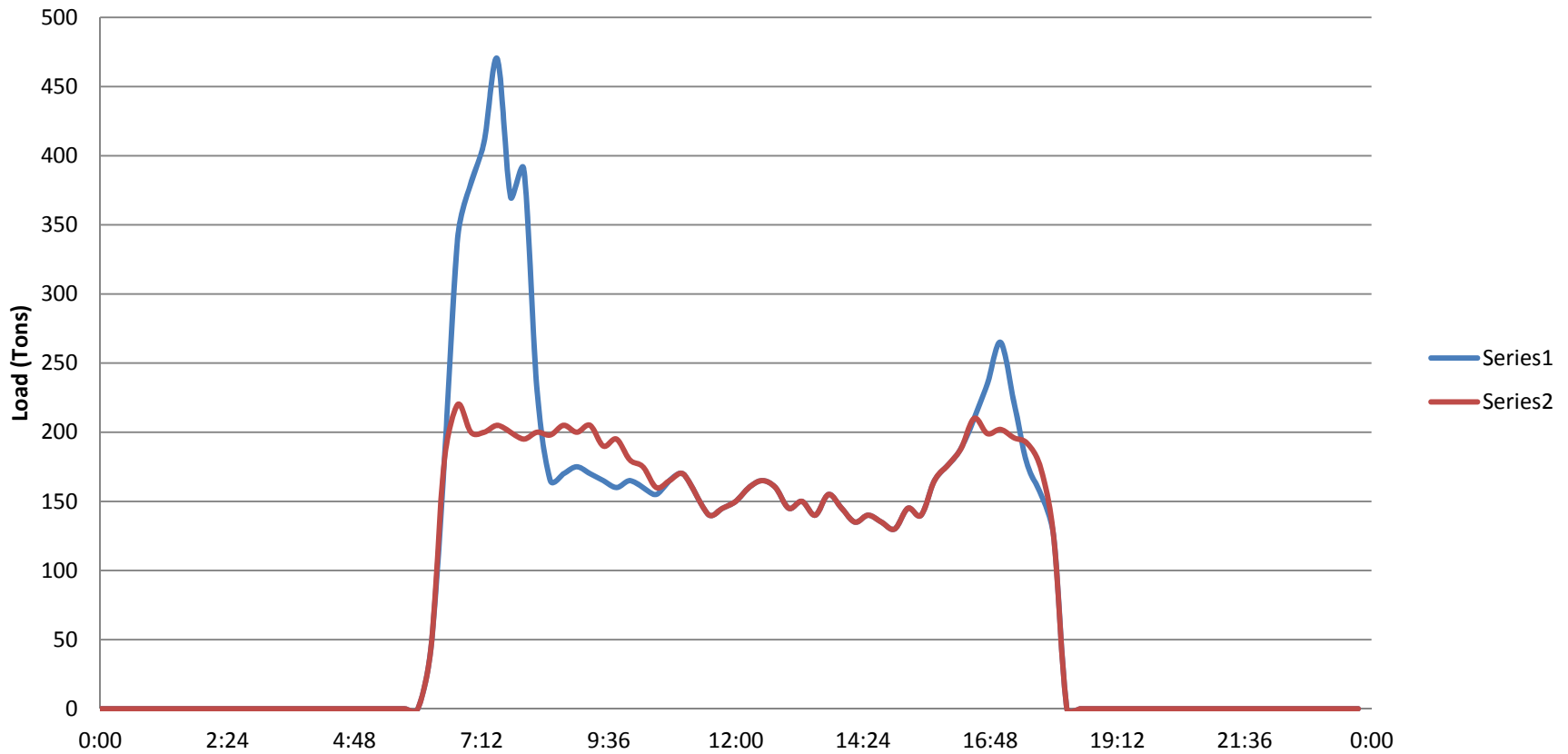
# Identifying Flow Control Issues



# Managing Cooling Demand:

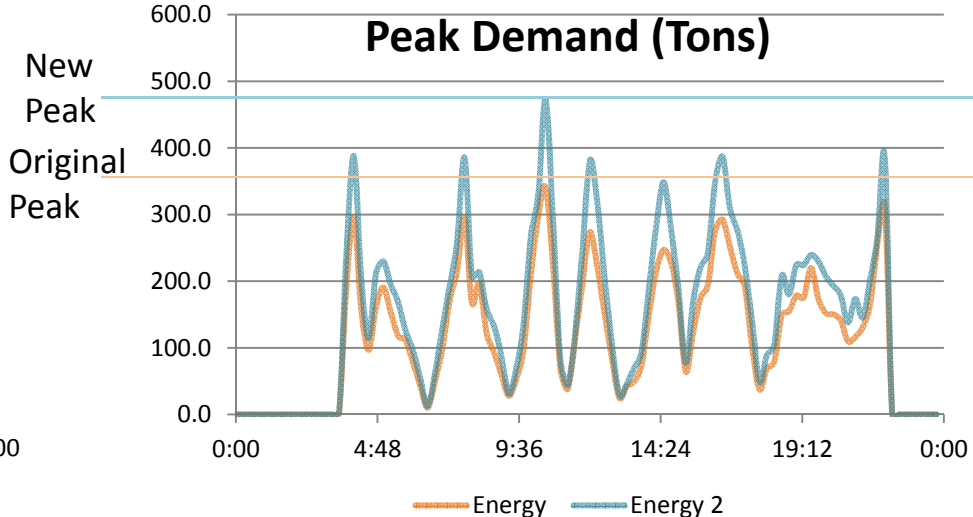
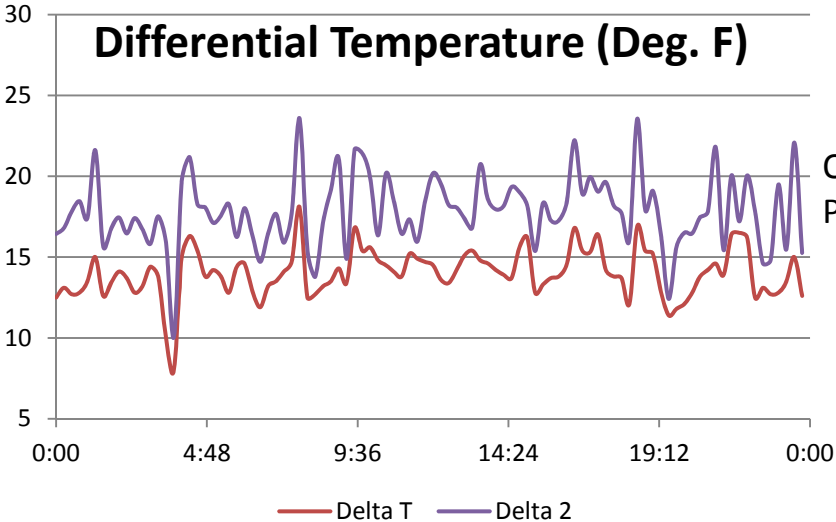
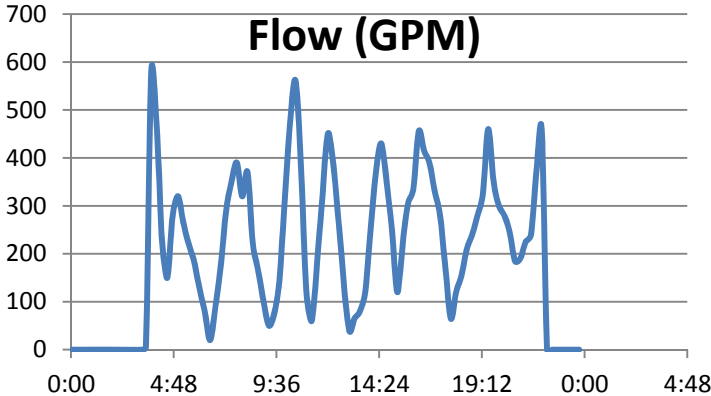
## Reducing Peaks

### Load Limiting



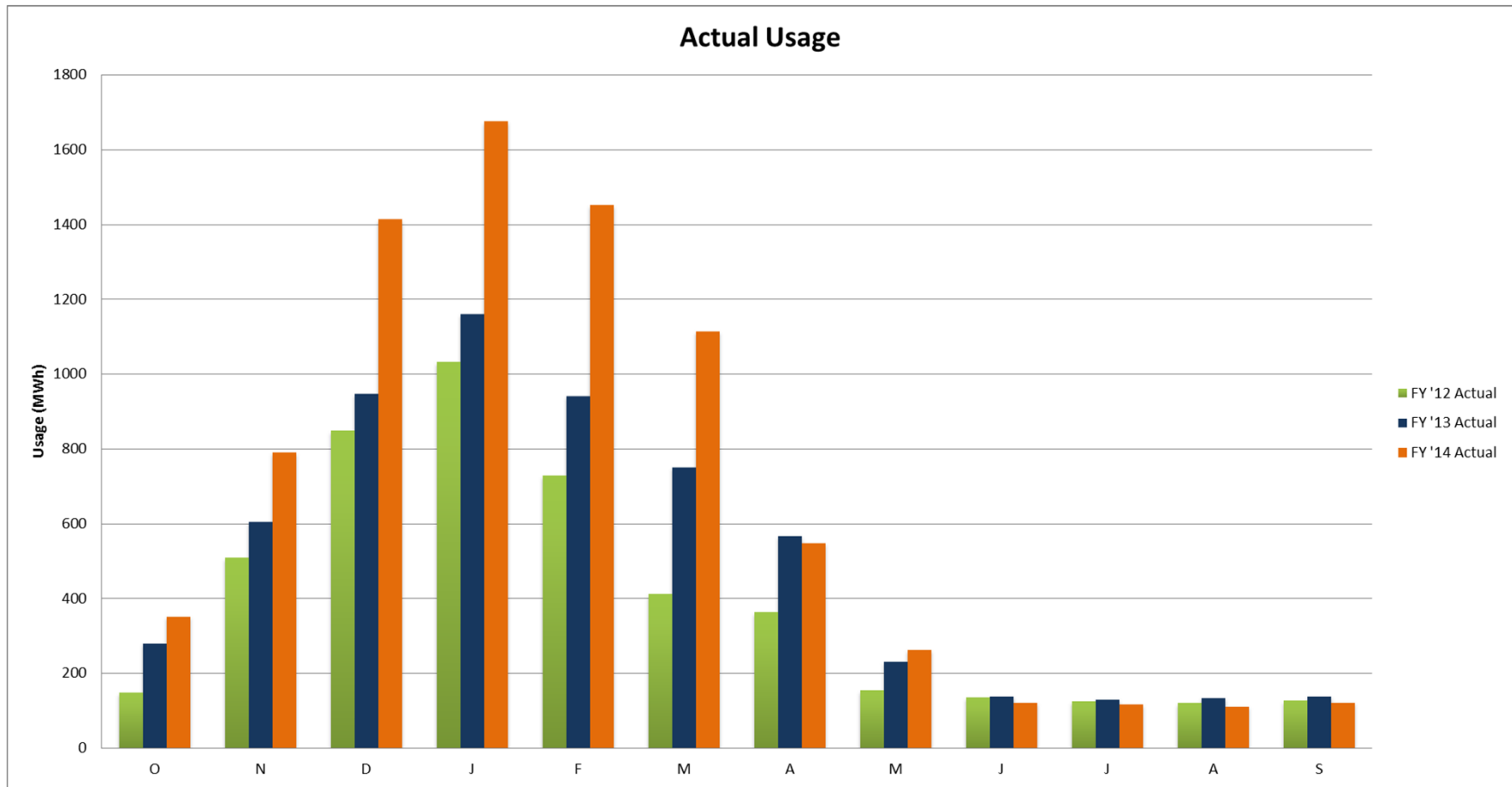
# What Not to Do

## Poorly Tuned Flow Control



# Calculating Heating Demand:

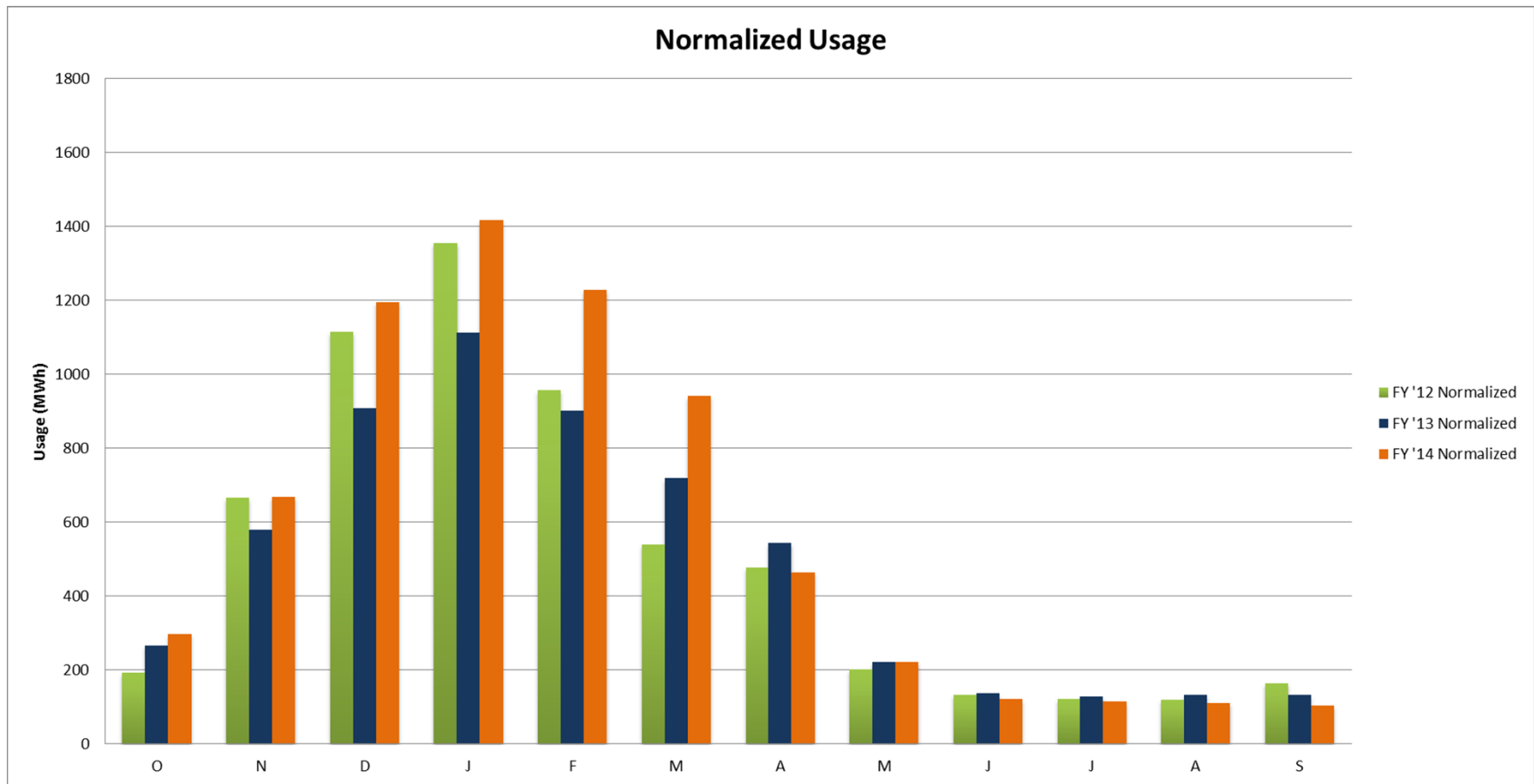
## Step 1 – Total Usage





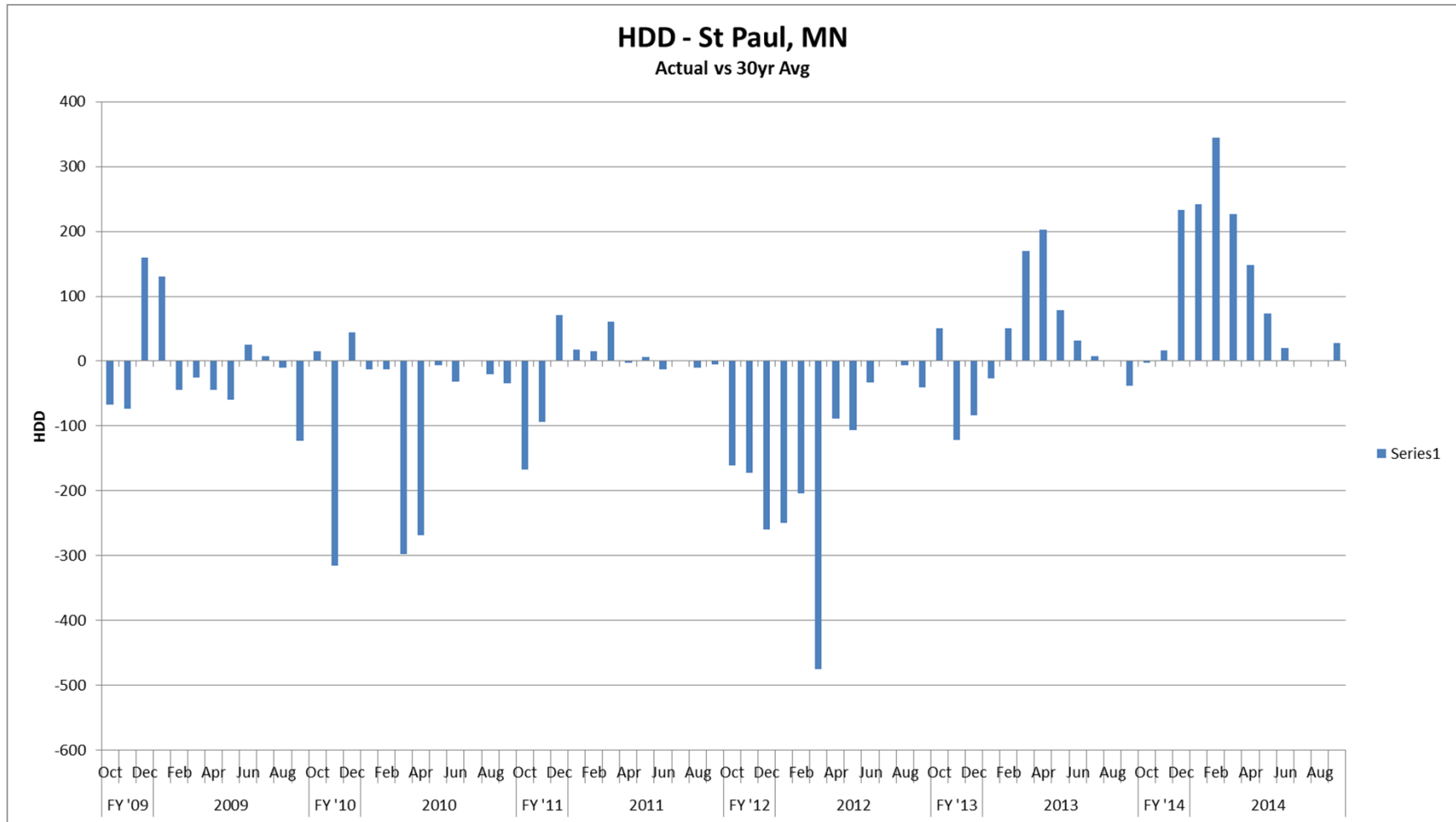
# Calculating Heating Demand:

## Step 2 - Weather Normalization



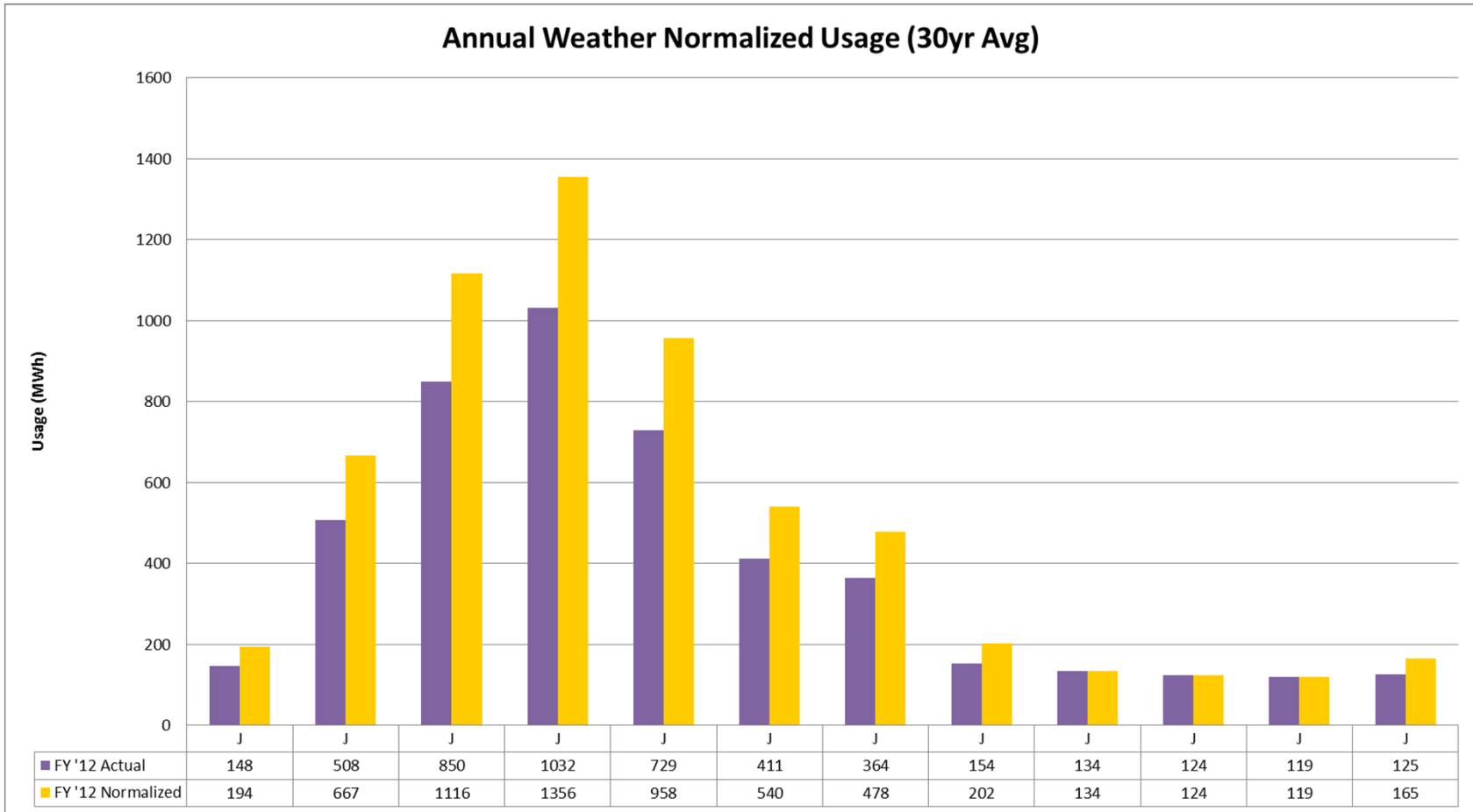
# Calculating Heating Demand:

## Step 2 - Weather Normalization cont.



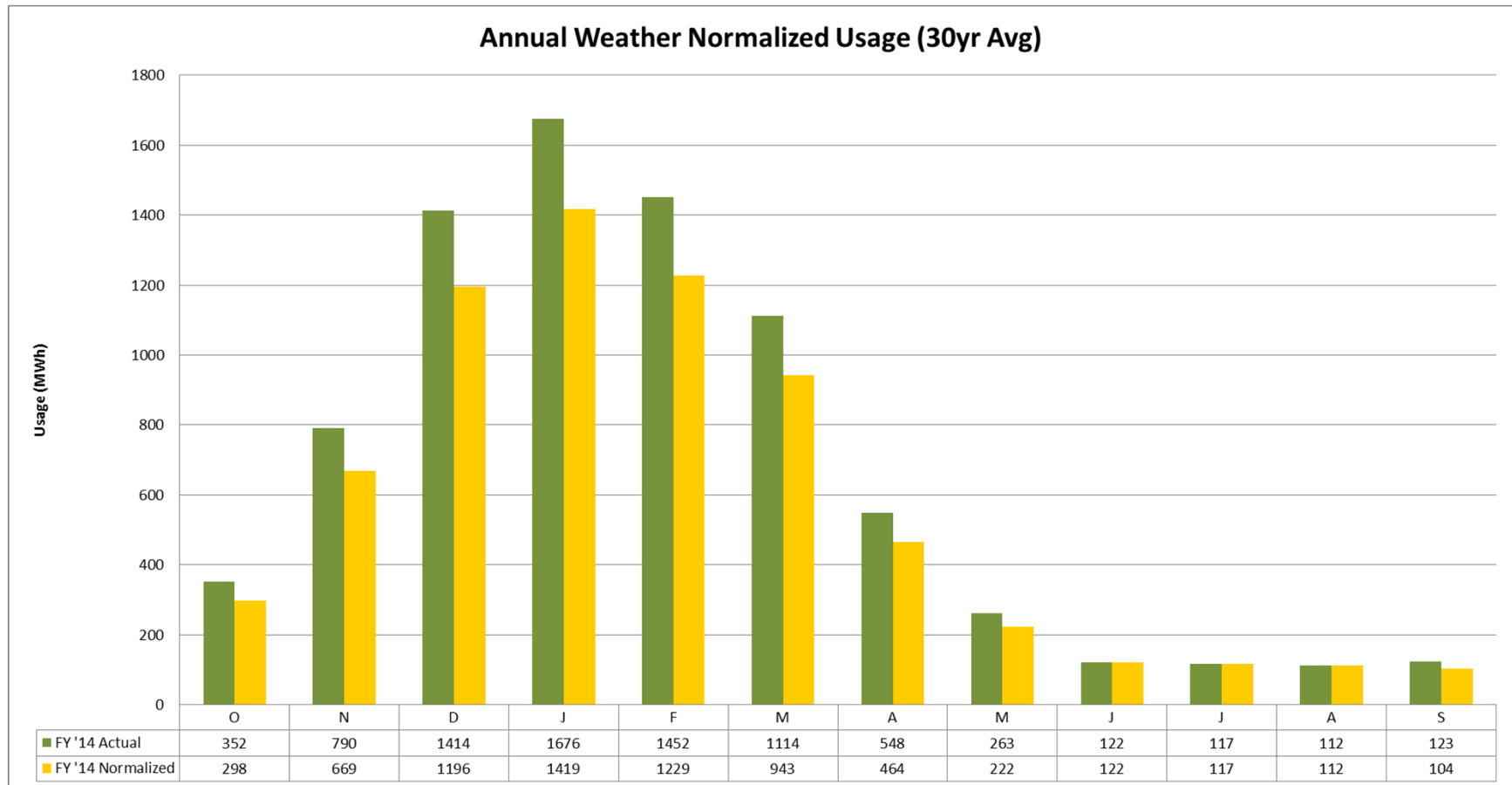
# Calculating Heating Demand:

## Step 2 - Weather Normalization cont.



# Calculating Heating Demand:

## Step 2 - Weather Normalization cont.



# Calculating Heating Demand:

## Step 3 – Usage and Utilization Hours

