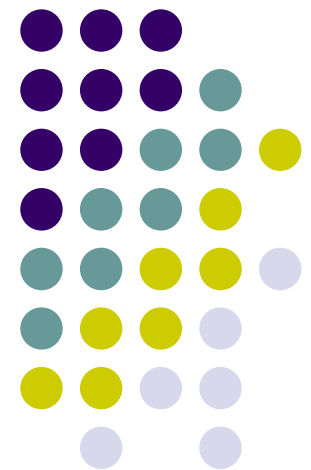


Residential Tankless Water Heater Survey

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Purpose



- To perform an analysis of gas bills from customers who replaced their tank type water heater with a tankless water heater.
 - We tried to screen participants that had changes in occupancy in the home and/or if the house was recently remodeled. The data does not account for lifestyle changes or installation of other gas saving appliances besides the water heater. In addition there may be other factors that affect the gas usage that we did not consider.
 - Weather conditions were considered, but no definite conclusion was obtained.



Phase I

- The participants were selected from 1,310 members of a residential rebate program.
- Phase I has two parts
 - Phase IA
 - 50 participants who met the phone-surveyed criteria.
 - A random method of selection which excluded names that were difficult to pronounce by the interviewer, was used to select the participants.
 - Phase IB
 - 127 participants randomly chosen without meeting the selection criteria.

Phase II



- Phase II was conducted to corroborate results from Phase I
- The participants were selected from an updated list of 3,796 members of a residential rebate program.
 - 50 participants who met the phone-surveyed criteria.
 - The Table of Random Numbers were used for the participants selection method.

Screening Phone Survey Method



- The survey screening eliminated participants with changes in occupancy in the home and/or if the house was recently remodeled.
- This is to compare changes to the natural gas consumption only due to the replacement of a tank type water heater by a tankless water heater.

Gas Bill Collection



- All gas bill data was obtained from the Customer Information System (CIS) database.
- The amount of data varied depending on the installation date of the tankless water heater and the available records from CIS.
- The tank type water heater data collection started the previous year with the month corresponding to the installation date of the tankless water heater.

Space Heating and Cooling Months

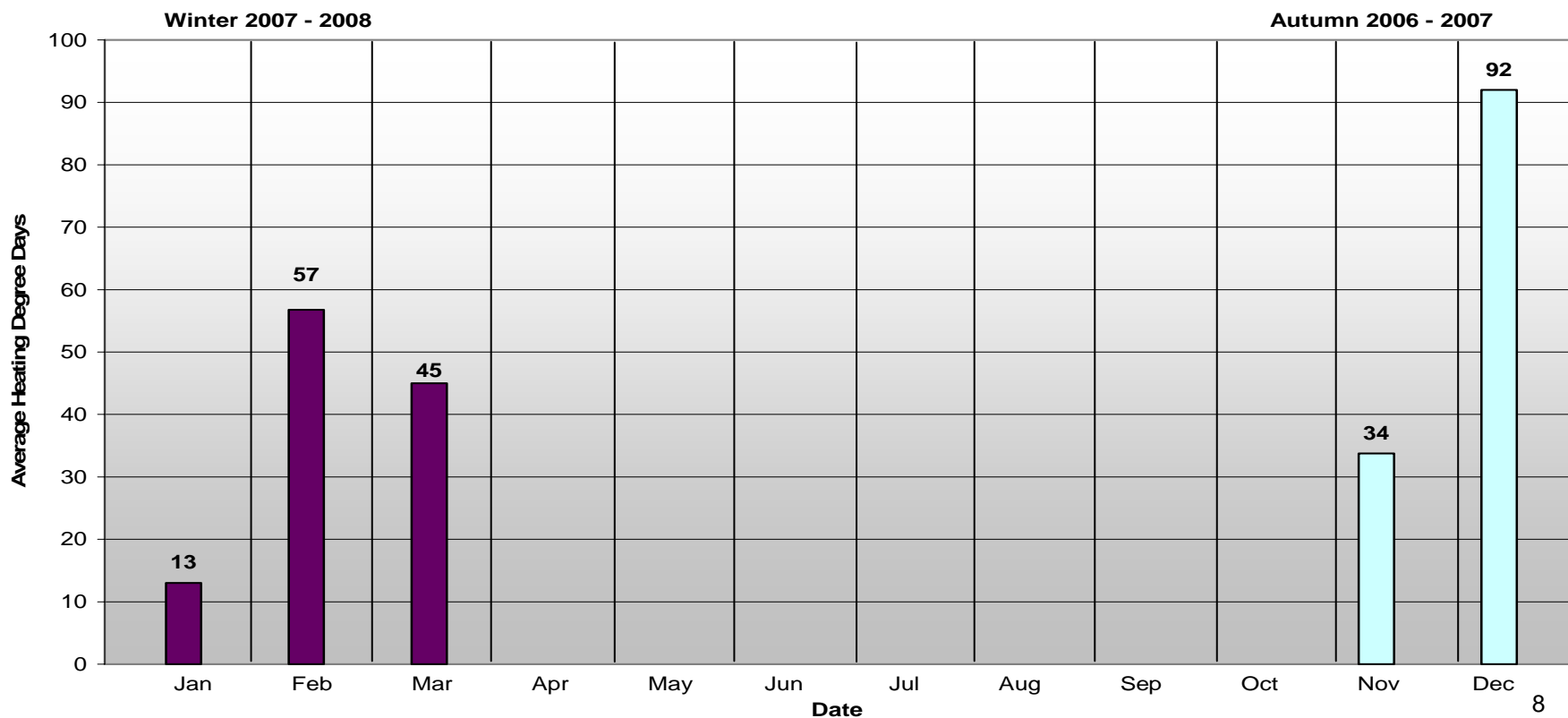


- Year-to-year fluctuations in the monthly gas usage could be different if the weather varies significantly.
- In Southern California, December through May are heating months and June through November are cooling months.
- From the gas bill analysis, 84 comparisons were made during heating months while 67 were made during cooling months.
 - The impact of having more of the survey results come from heating months is unknown.
- Ambient temperature data was collected from <http://www.wunderground.com>.

Average Differences in Heating Days



**Average of Differences
In Heating Degree Days
From 2006 - 2007 and 2007 - 2008**



Results



- Phase IA:
 - Average estimated energy savings is 13% or 66 therms per year with a standard deviation of 5%.
- Phase IB:
 - Average estimated energy savings is 9% or 50 therms per year with a standard deviation of 7%.
- Phase II:
 - Average estimated energy savings is 15% or 85.2 therms per year with a standard deviation of 3%.
- The average estimated energy savings for the pre-screened participants, Phase IA and Phase II, combined was 14% or 76 therms per year.