Emergency Assistance Model
Status Report
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ICS Meeting

Activities to Date

- Conference call with NYISO to discuss data and general approach.
- Since MARS can model different EA limits by LFU bin, EA limits that vary by LFU bin should be developed.
- Initial approach would be based on regression analysis.
- Data for the top 100 hours for 2013 – 2015 provided to me on 2/13/2017.
- Analysis conducted:
  - Analyzed how peak loads as a per unit of the forecasted peak for 1999 – 2016 align with the LFU bins
  - Analyzed how top 100 hours for 2013 - 2015 aligned with load uncertainty bins
  - Performed regression analysis of top 100 hours for 2013 - 2015

# Analysis of the Alignment of Historical Annual Peak Loads with the LFU bins

Bin	Annual Peak as PU of the Forecast for the Bin Mid Pt.	Prob.	Expected Occurrences in 18 yrs.	Actual Occurrences in 18 yrs.	Number of Occurrences 2013 to 2016
	LFU Probability Distribution Based on Data 1999 to 2016				
1	0.852	0.0062	0	1	1
2	0.900	0.0606	1	1	
3	0.950	0.2417	4 to 5	5	2
4	1.000	0.3830	6 to 7	5	1
5	1.047	0.2417	4 to 5	4	
6	1.090	0.0606	1	2	
7	1.125	0.0062	0	0	

Analysis of the Alignment of the Top 100 Hours 2013-2015 As a PU of the Forecasted Peak with the LFU bins

Distribution of Top 100 Hours For 2013-2015 By LFU Bin
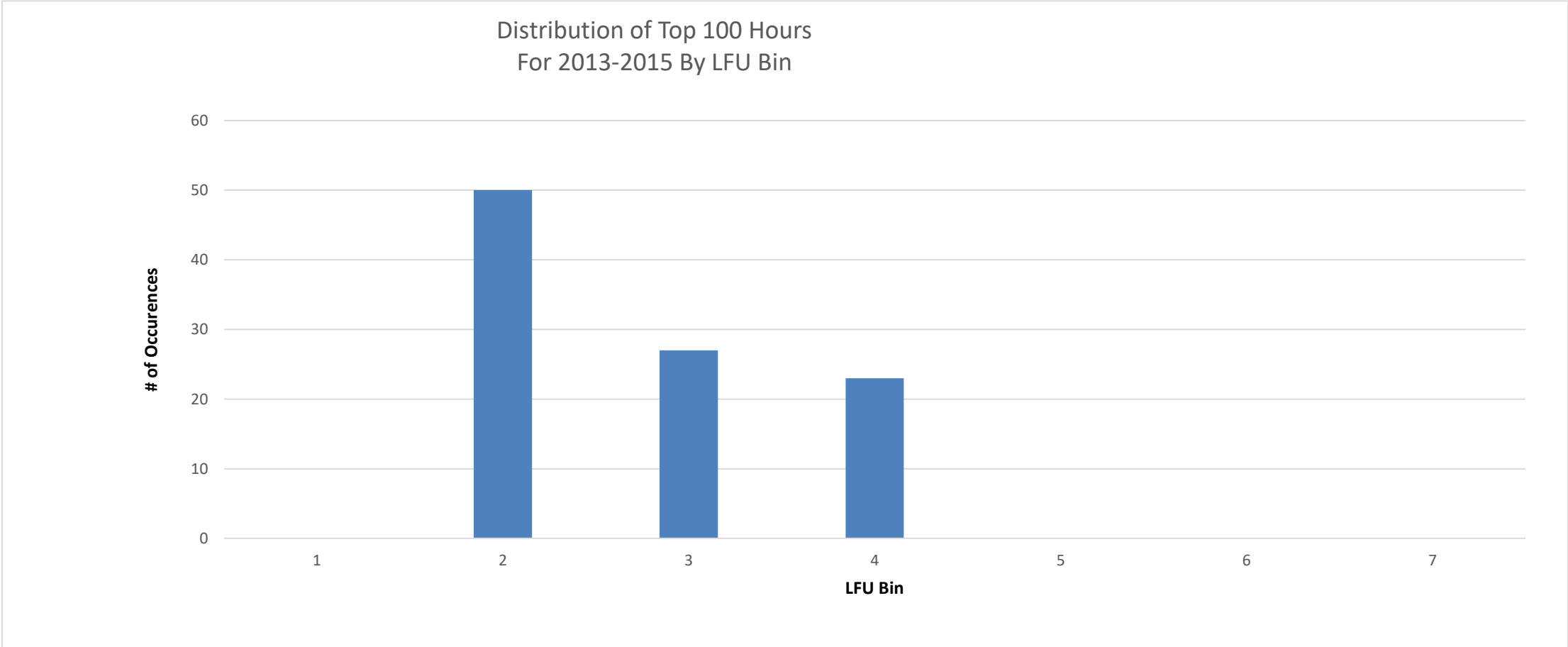
Regression Analysis of the Top 100 Peak Hours

Scatter Plot and Regression Analysis Top 100 Hours
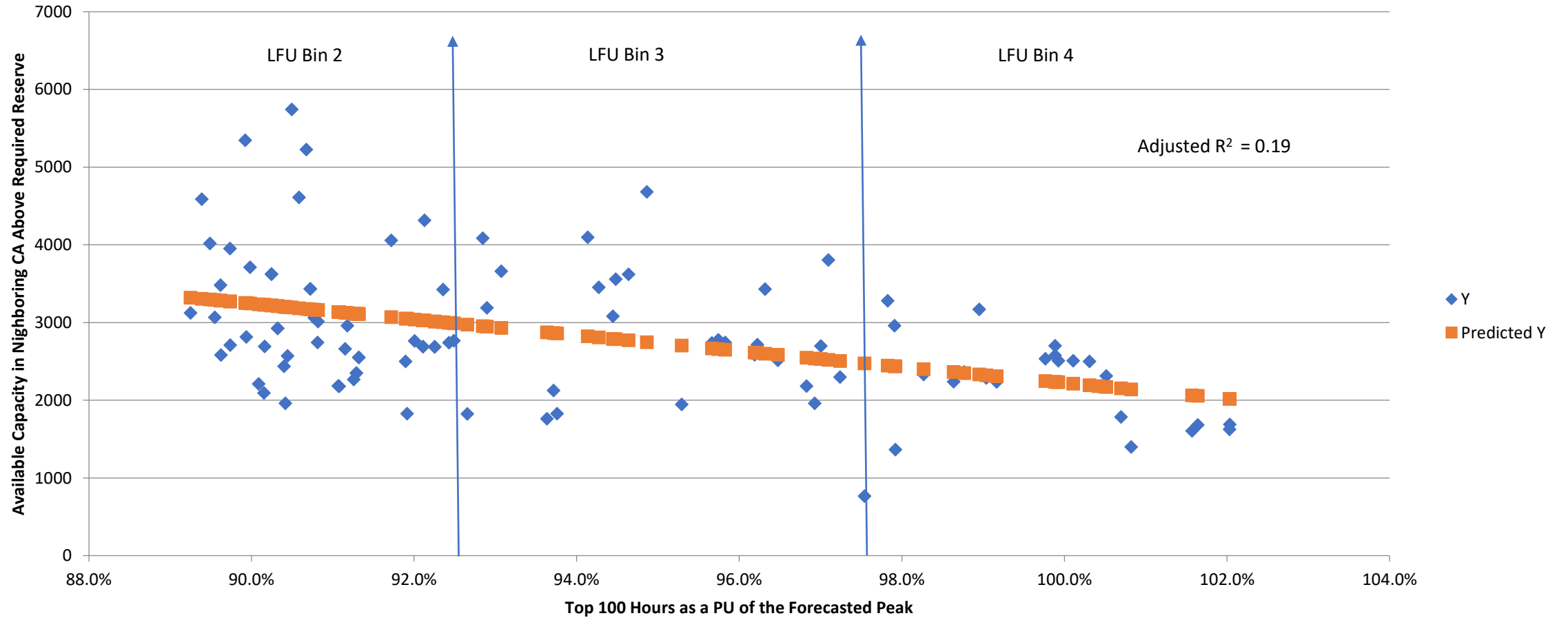
Conclusions From Regression Analysis

- Slope is negative as expected – I.E., as load increases, there is less surplus reserves/EA available in neighboring control areas.

- There appears to be at least one potential outlier.

- The R^2 is low meaning the unexplained variation is high.

- Although low R^2 values are not inherently bad it is most problematic when you want to produce predictions.

- This suggest to me that a better approach would to be conduct statistical analysis for each of the LFU bins that have data.

- Next step should be to calculate means, mean plus one standard deviation and mean plus two standard deviations for bins 2-4.