



DESIGNING AND COMMISSIONING FOR GUARANTEED ENERGY PERFORMANCE

Building Technology Forum
USGBC Massachusetts Chapter

TOOLS TO GUARANTEE ENERGY PERFORMANCE



**ENERGY
ANALYSIS + MODEL**



**BUILDING SYSTEMS
COMMISSIONING**

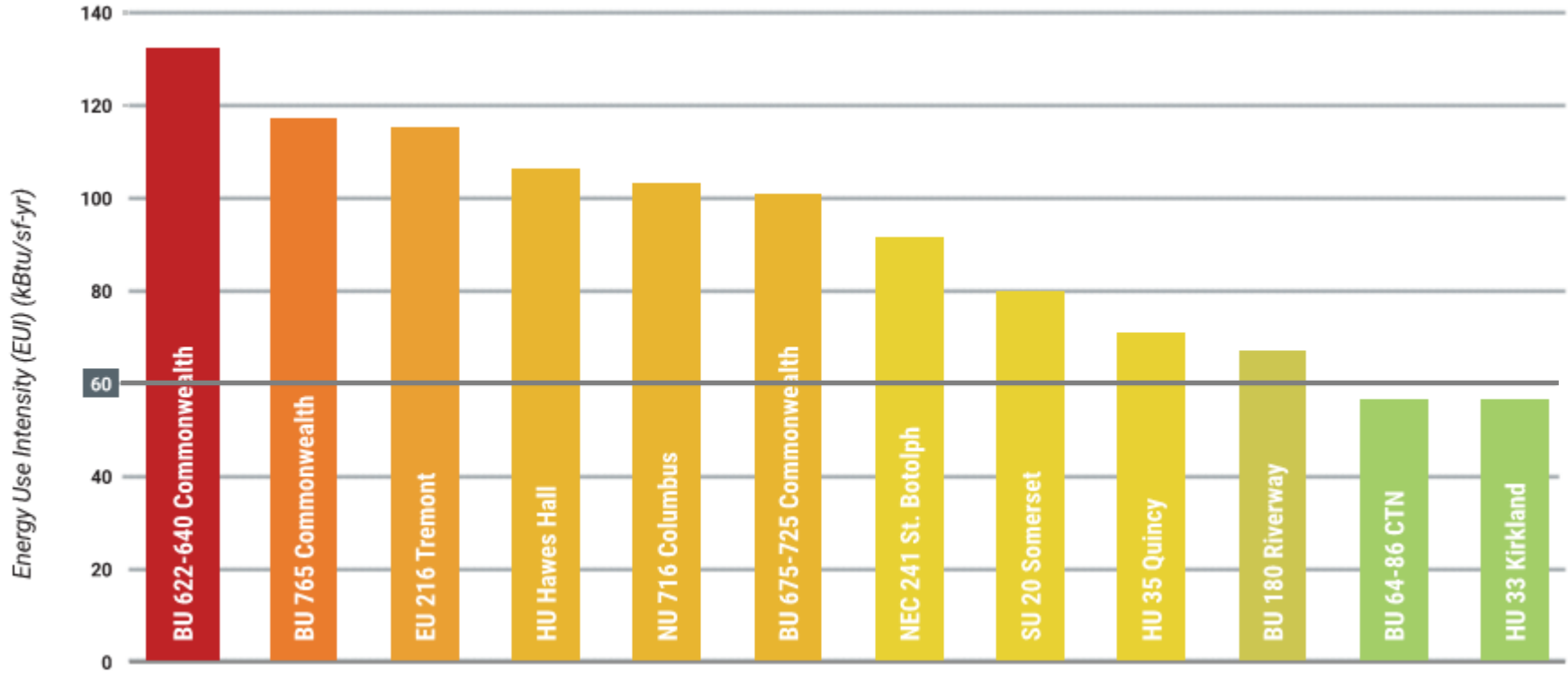


**MEASUREMENT +
VERIFICATION**

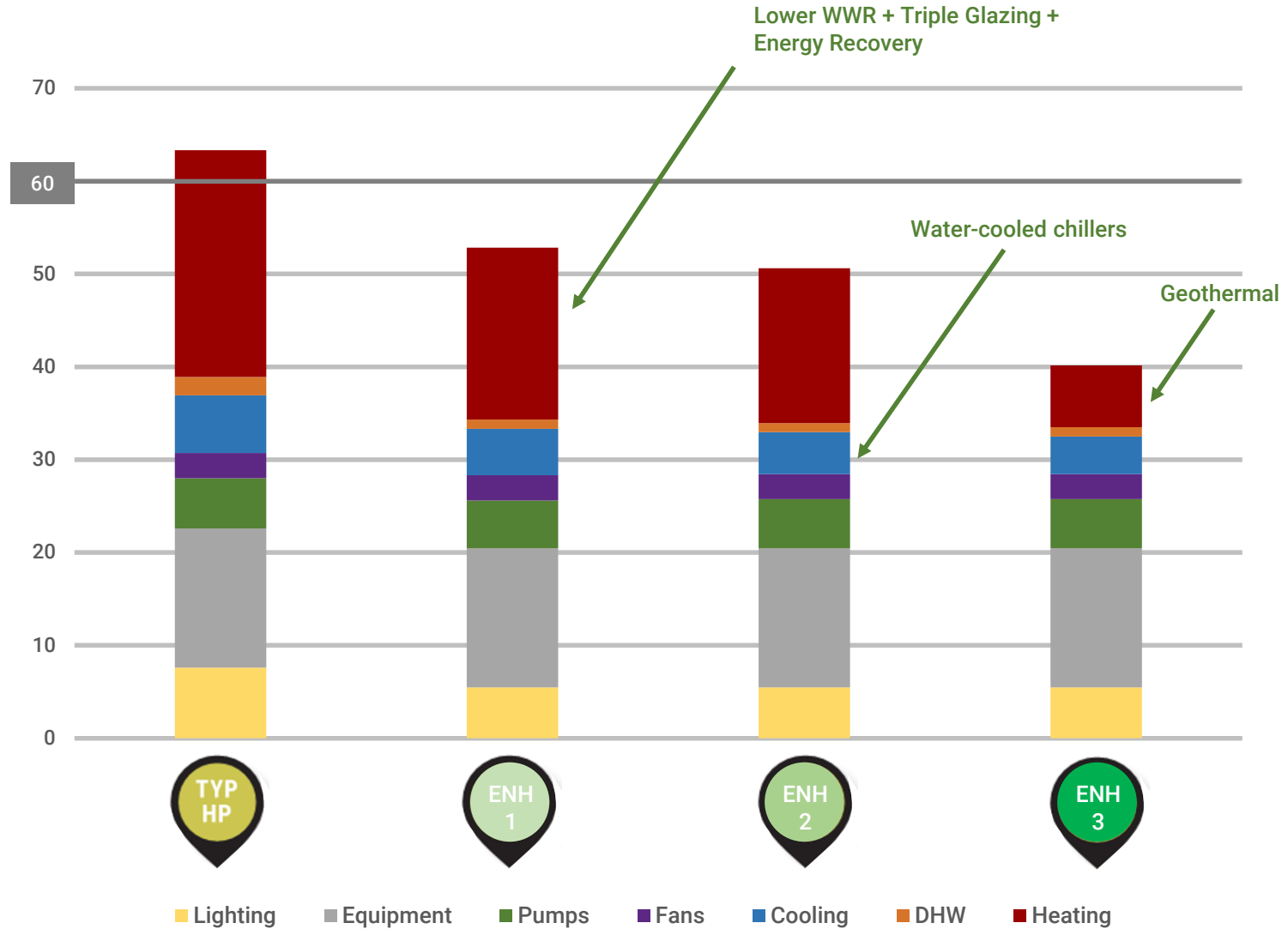


**MONITORING-BASED
COMMISSIONING**

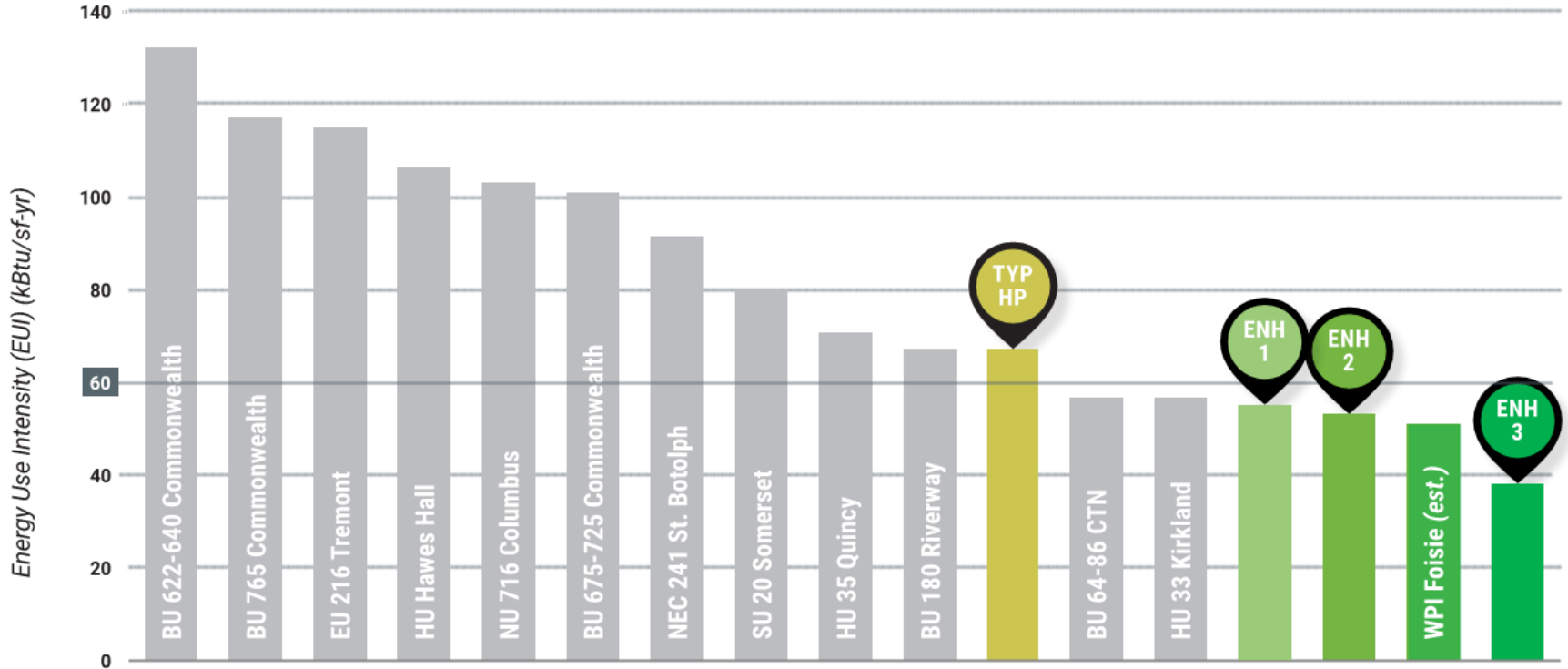
DEFINE AN ENERGY TARGET



DEVELOP OPTIONS TO MEET TARGET

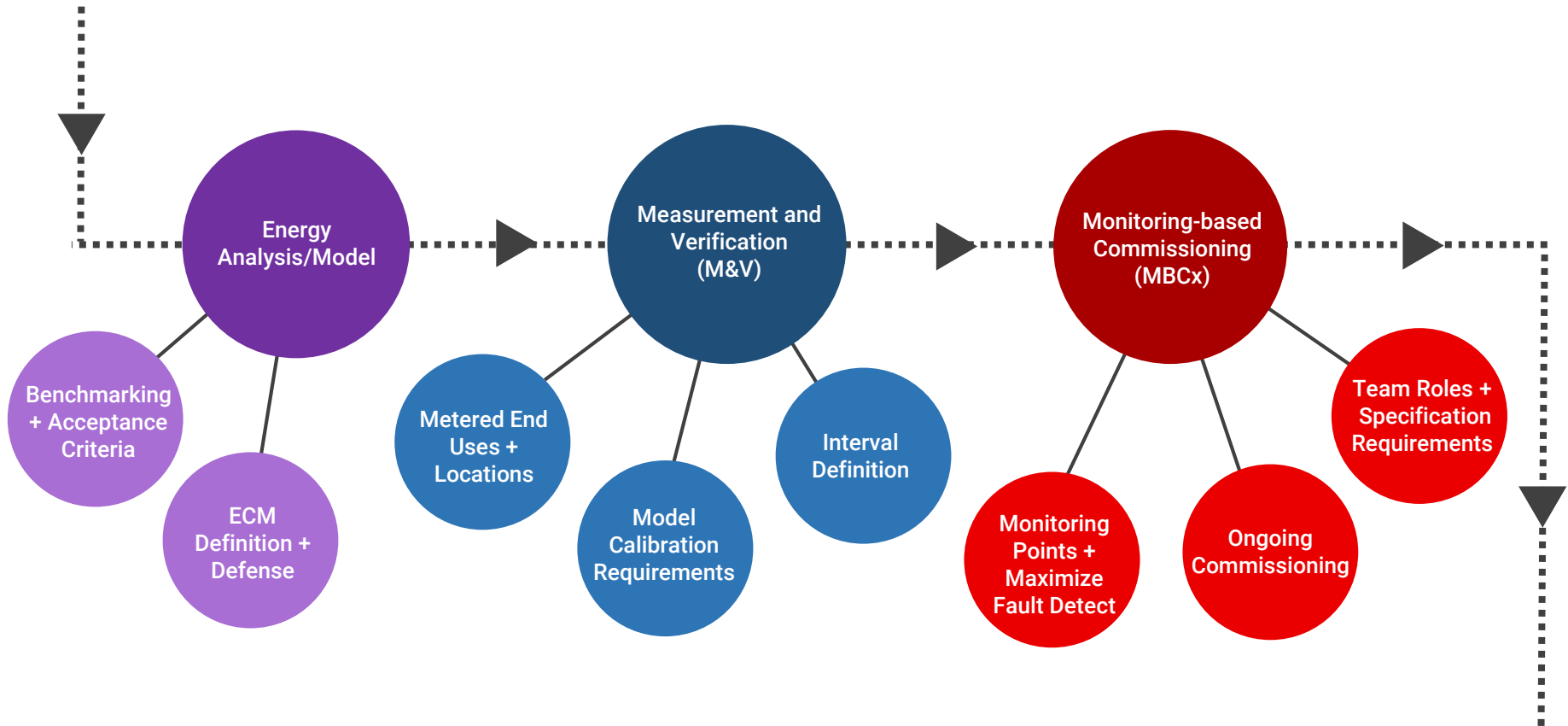


DESIGNING TO A BENCHMARK



BUILDING SYSTEMS COMMISSIONING

ENHANCED DESIGN PHASE SUPPORT

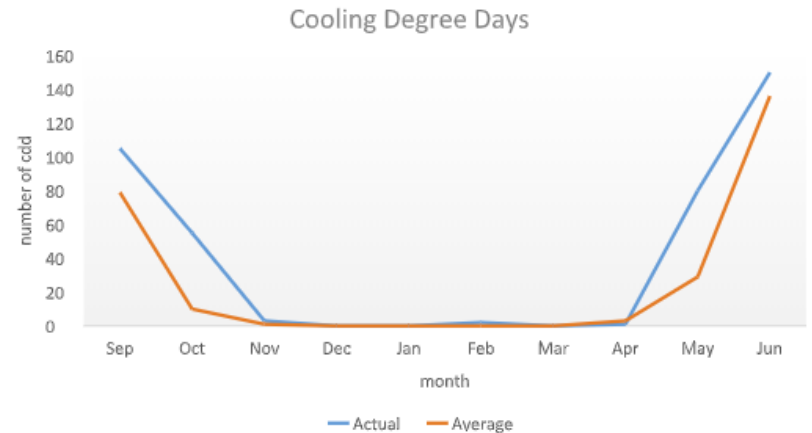
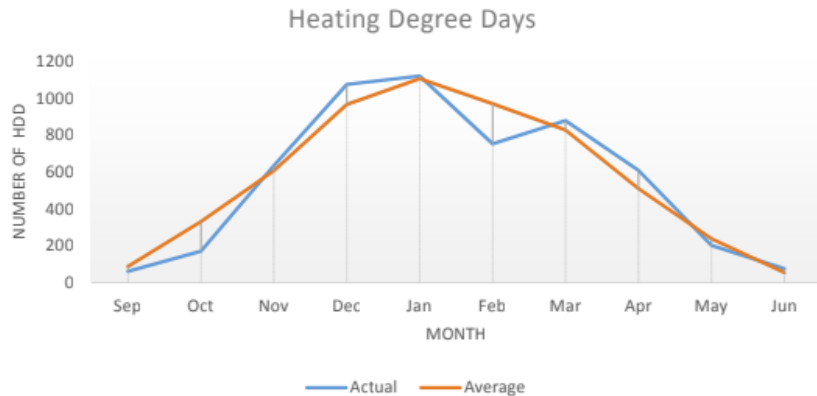
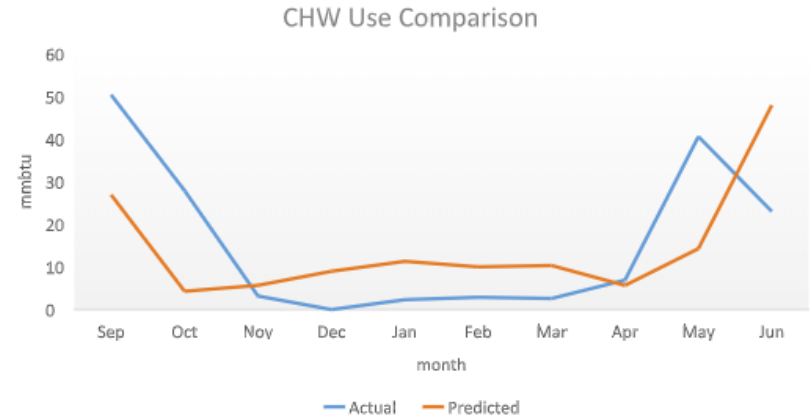
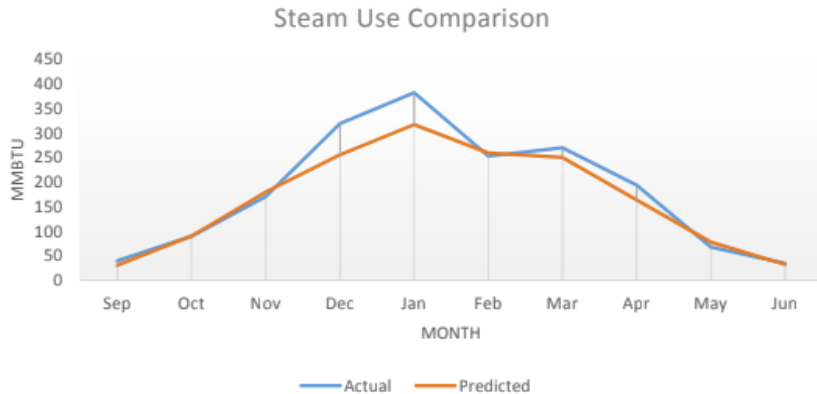


TESTING + POST OCCUPANCY REVIEW

MEASUREMENT AND VERIFICATION



Predicted Model (Energy Model) informs Measurement and Verification (Year 1)

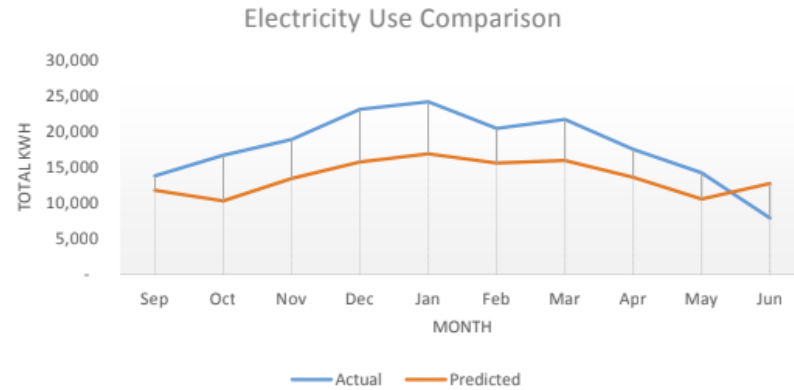


Quarterly "Energy Gut Check" - Energy Consumption vs. HDD-CDD

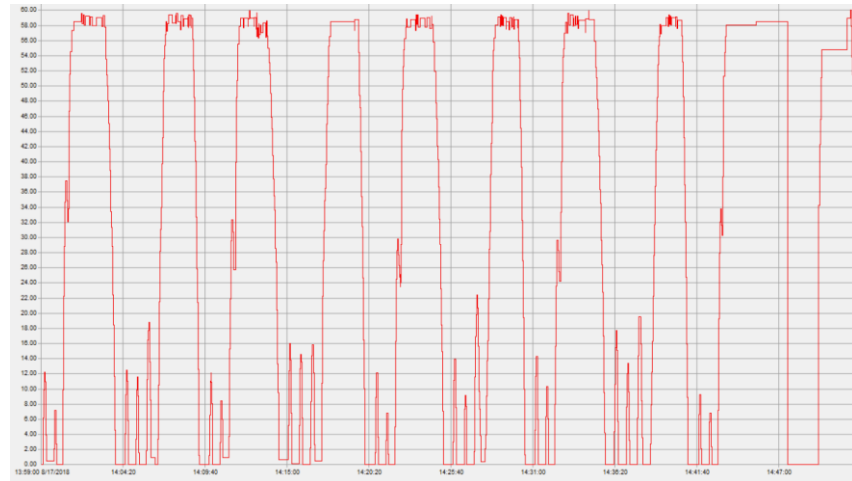
MONITORING-BASED COMMISSIONING



**ENERGY DATA FROM M&V
(Monthly)**



**TREND DATA FROM MBCX
(Five Minutes)**



CONTACT INFORMATION



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