

2017 CHESC

Energy Valve™ Retro-Fit Saves Energy and Simplifies Commissioning

June 27, 2017

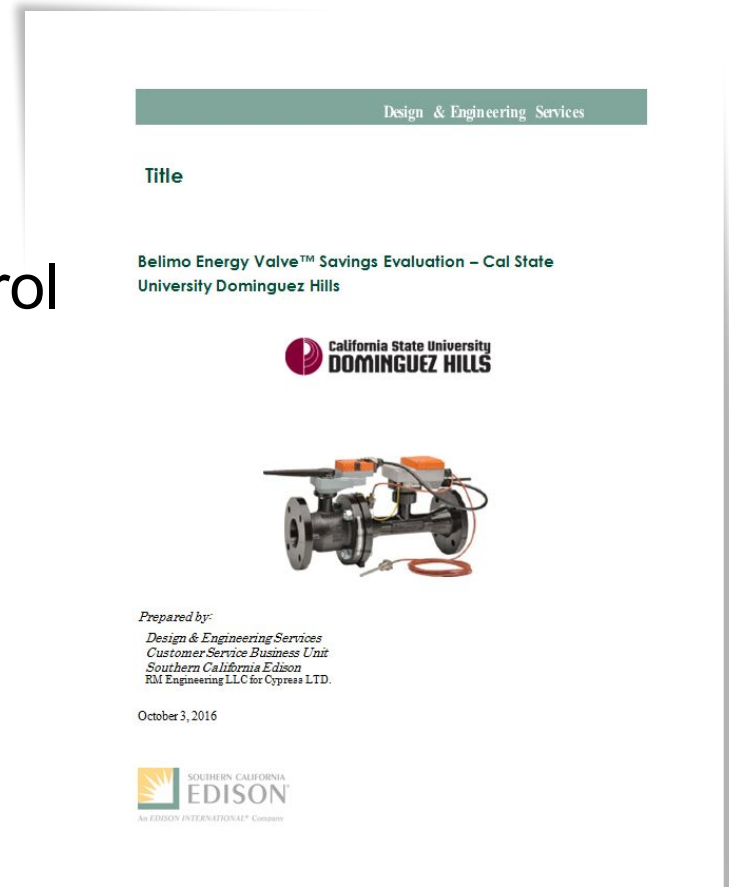
Tuesday 09:15 to 10:30

Kenneth Seeton

kseeton@csudh.edu

Field Study Overview

- 2016 Study to test feasibility of saving energy using “smart” control valves
- Study backed by So. Cal. Edison and Belimo
- Study Conducted by Cypress Group (contracted by SCE)



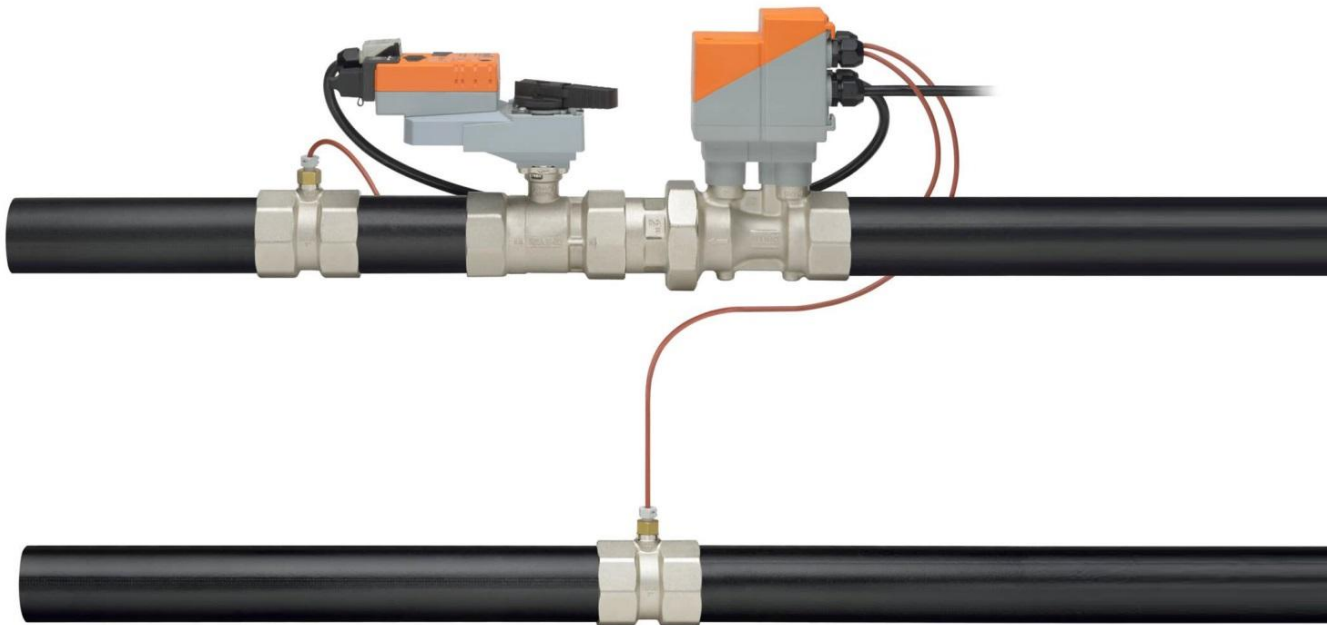
Scope

- 6 AHUs retro-fit with *Belimo Energy Valves*TM
 - Welch Hall
 - 3 Large Units
 - ~100 Tons each
 - 4” Energy Valves
 - Student Health Center
 - 3 small units
 - ~10 Tons each
 - 2” Energy Valves



What is an Energy Valve?

- The Energy Valve is a pressure independent control valve with an integrated BTU meter



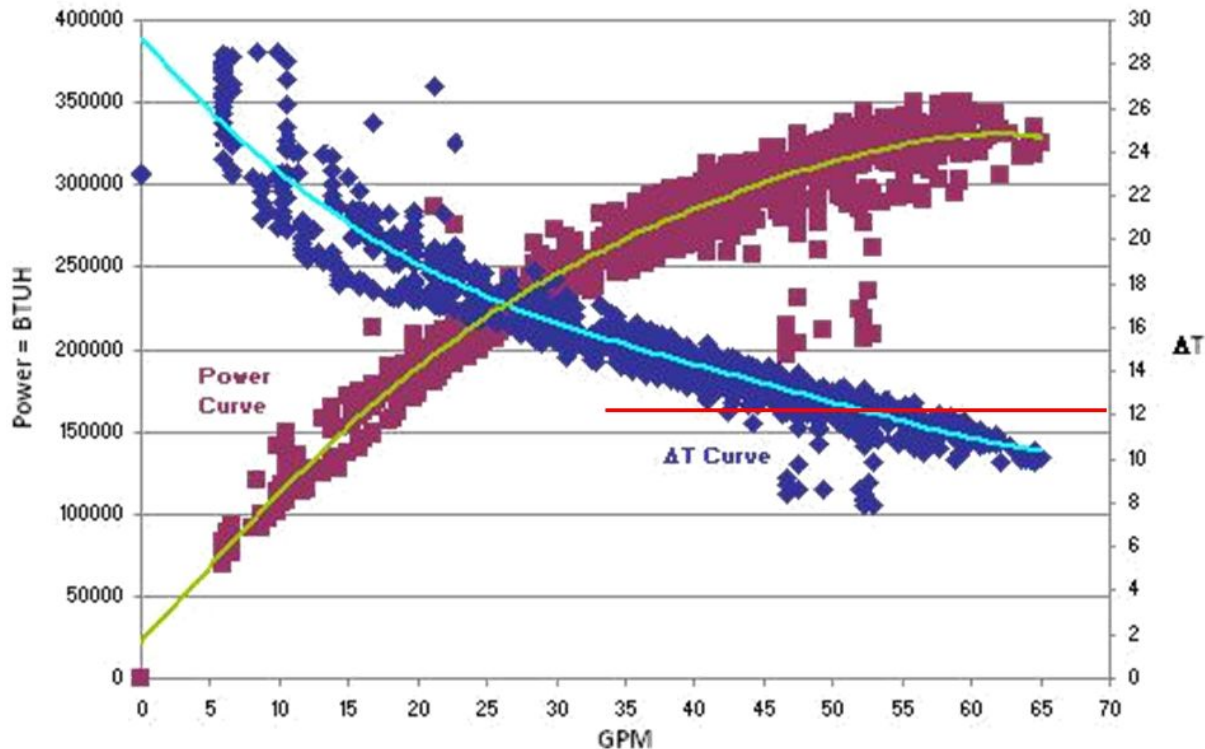
What is an Energy Valve?

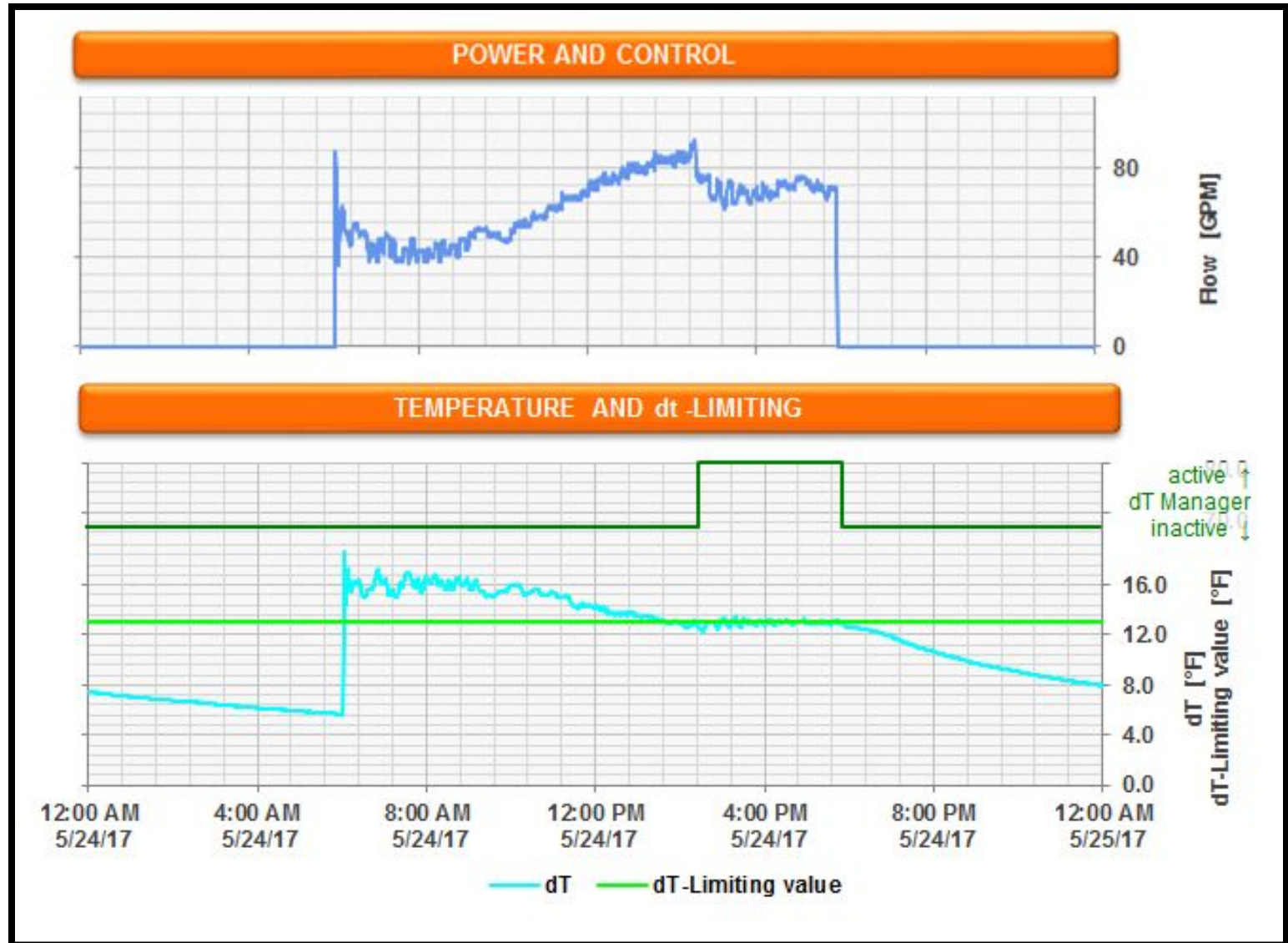
Features

- **Save Energy**
 - Higher ΔT means less water to satisfy the load
- **Simplify Controls**
 - PI valves Dynamically Balance the system
- **Track Equipment Performance**
 - Fully integrated BTU meter

- **Delta T Manager**

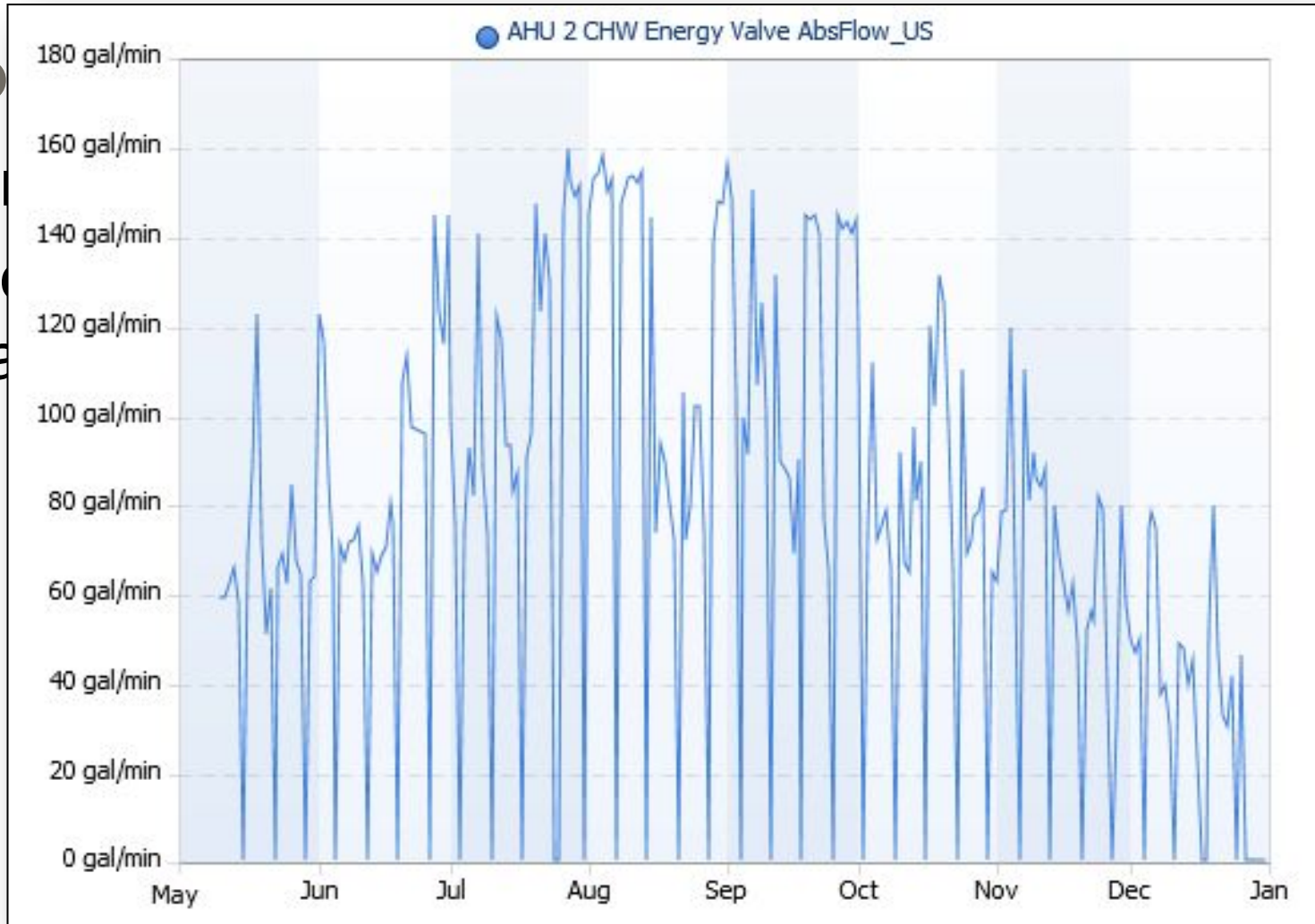
- A low limit for ΔT , which prompts controls override
- Delta T Manager adjusts valve if the ΔT drops below set point in order to maintain peak coil efficiency







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Results of the Study



TABLE 1 – OVERALL SAVINGS SUMMARY TABLE

Total Savings Assessment -- Energy Valve Project Dominguez Hills		
Description of Mode Change	Student Health	Welch
Baseline to full Smart Valve	11.1%	22.2%

Results of the

TABLE 3 – SAVINGS SUMMARY WELCH HALL	
Building Summary – Baseline	
2015 Building BTU	5,212,142,169
Base Period Delta T	14.18
Annual Operating Hours	7,280
Average BTU/Hr	715,954
Calculated Flow (GPM)	100.95
Building Savings – SMV to Baseline	
% Savings	22.2%
Adjusted GPM	78.50
Motor Horsepower	60.00
Motor Efficiency	95%
Motor Operating Hours	7,280
Base Motor KWH	313,709.76
Revised Motor KWH	189,697.73
Annual Motor Savings KWH	124,012
Total Annual TON Hours	434,345.18
Base KW/Ton	0.66
Annual Operating Hours	7,280.00
Average Hourly Tons	59.66
Hourly KW	39.38
Base Chiller KWH	189,200.76
New KW/Ton	0.64
Revised Chiller KWH	183,467.40
Chiller KWH Savings	5,733.36
Total Annual Savings KWH	129,745.39

Design & Engineering Services

Title
Belimo Energy Valve™ Savings Evaluation – Cal State University Dominguez Hills



Prepared by:
Design & Engineering Services
Customer Service Business Unit
Southern California Edison
RM Engineering LLC for Cypress LTD.

October 3, 2016

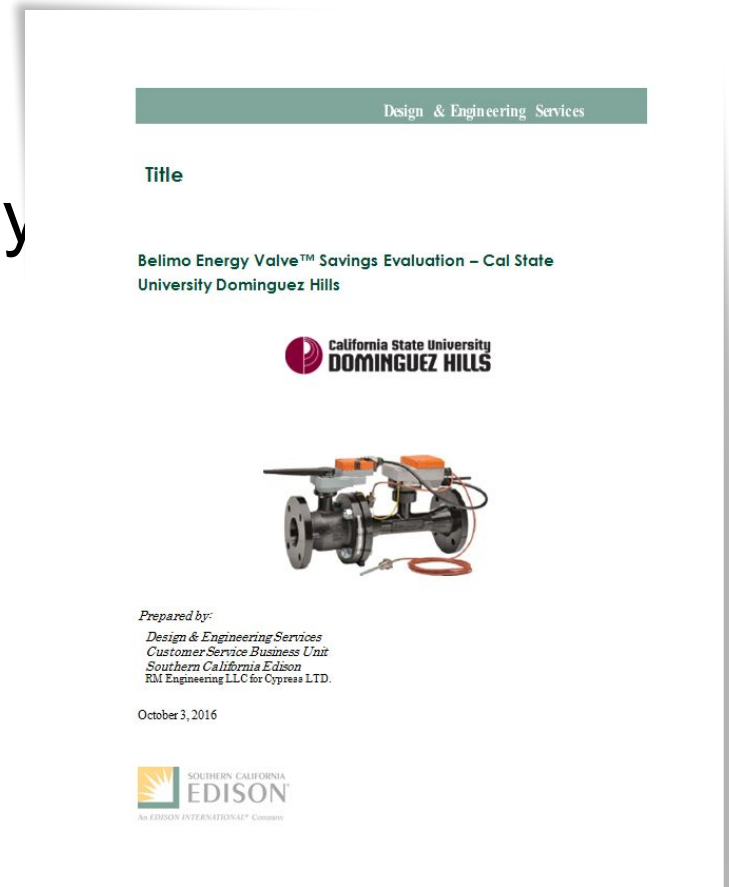


Results of the Study

Total Estimated Annual Energy Savings

- Welch Hall: 129,745 KWh
- SHC: 33,652 KWh

- Total: 163,397 KWh
\$20,000





California State University
DOMINGUEZ HILLS

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***Energy Valve™* Retro-Fit Saves Energy
and Simplifies Commissioning**

Thank You