

Achieving Energy Reduction Goals

Wesleyan's Experience
2005~2009

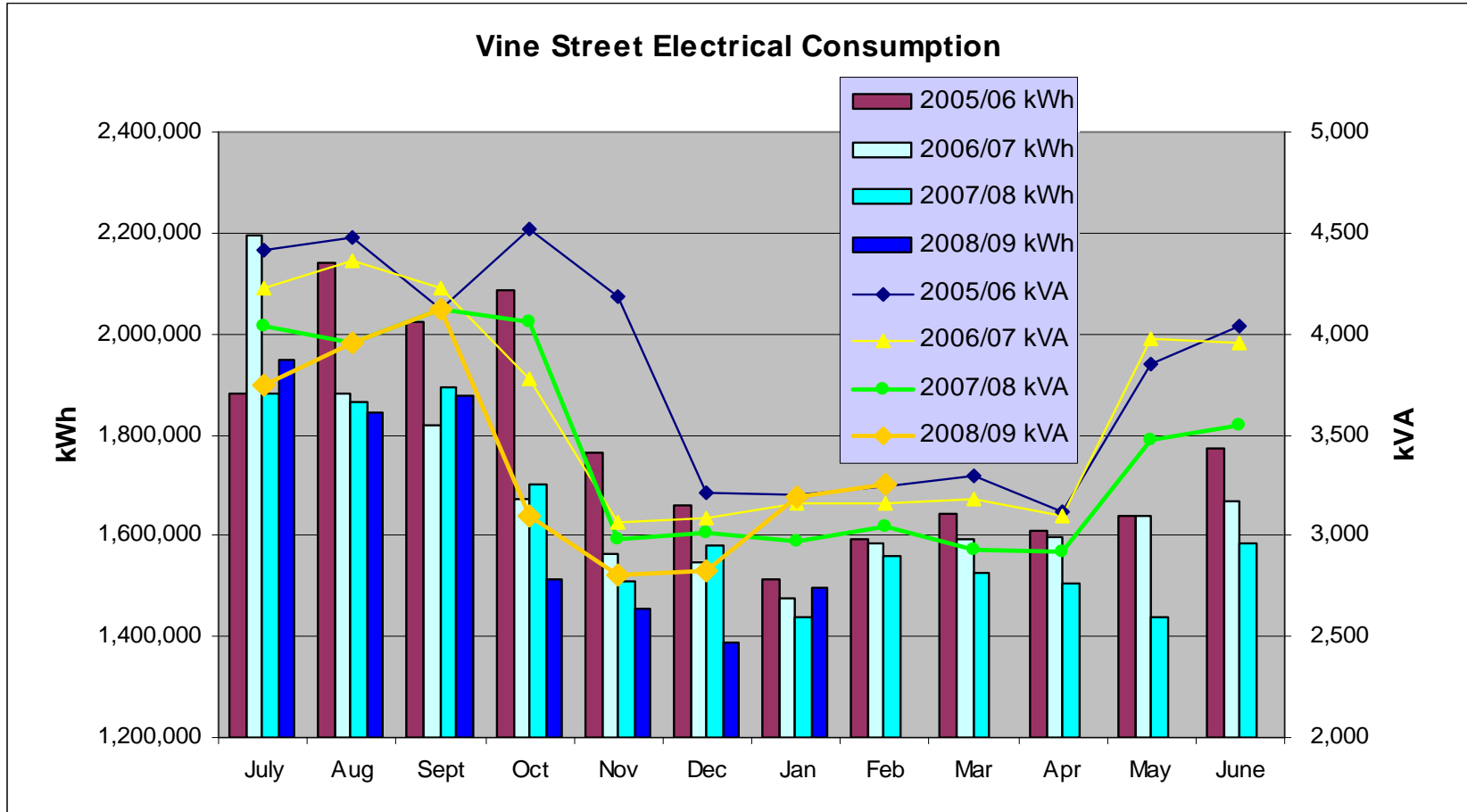
The Construction Institute

March 26, 2009

What Wesleyan Achieved (Electricity Only)

Fiscal Year Ending	kWh Consumed	% Reduction	Peak kVA / PF	% kVA Reduction
June 2006	21,325,717	N/A	4,515 / .879	N/A
June 2007	20,234,413	5.1%	4,364 / .888	3.4%
June 2008	19,472,913	3.7%	4,125 / .900	5.5%
3 Years Total	1,852,804	8.7%	390	8.6%

What Wesleyan Achieved



What Wesleyan Achieved

2005 ~ 2009

How to Start

- **Understand Your Buildings**
 - Inspect Everything (Talk with Facilities Staff)
 - Record ALL Consumption Forever!
 - Know their Load Curves
 - Know their Cost of Utilities
 - Demand Energy Modeling for all Major Construction

How to Start

- Understand Your Buildings
 - Inspect the equipment (Talk with Facilities Staff)
 - Record ALL consumption
 - Know their load curves
 - Know their Cost of Utilities
 - Demand Energy Modeling for All Major Construction
- **Develop & Maintain a List of Projects**
 - Include Work Completed & Proposed
 - Complete a To-Do, Add a To-Do

	B	C	D	E	F	G	H	I	J	K	L	M
1	Building	Description	Type	Capital Cost	Calendar Year Completed	Rebate Received	Annual Energy Savings (Fuel Units)	Fuel Unit	Energy Savings (MMBTU)	Avoided Expense (2007 \$)	Simple Payback After Rebate (Years)	
2	202 Washington Street	Occupancy Sensors	Lighting	\$ 2,533	2005	\$ 1,266	7,298	kWh	25	\$ 438	2.9	
3	208 High Street - Public Safety	Occupancy Sensors	Lighting	\$ 1,466	2005	\$ 733	6,234	kWh	21	\$ 494	1.5	
4	255 Pine	Occupancy Sensors	Lighting	\$ -	2005	\$ 280	1,000	kWh	3	\$ 119	-	
5	356 Washington St	Occupancy Sensors	Lighting	\$ 3,000	2005	\$ 1,225	6,936	kWh	24	\$ 825	2.2	
6	Butterfield A	Occupancy Sensors	Lighting	\$ 3,961	2005	\$ 1,981	15,247	kWh	52	\$ 1,814	1.1	
7	Butterfield B	Occupancy Sensors	Lighting	\$ 6,330	2005	\$ 3,168	17,313	kWh	59	\$ 2,060	1.5	
8	Butterfield C	Occupancy Sensors	Lighting	\$ 16,171	2005	\$ 7,035	41,657	kWh	142	\$ 3,300	2.8	
9	CFA B - Crowell	Replace electric filter dryer w/desiccant	Controls	\$ 1,893	2005	\$ -	74,043	kWh	253	\$ 4,446	0.4	
10	CFA F - Music Studios	Install Occupancy Sensors	Lighting	\$ 11,273	2005	\$ 5,034	48,015	kWh	164	\$ 5,714	1.1	
11	CFA R - Dance	Replace lighting throughout building	Lighting	\$ 77,991	2005	\$ -	78,250	kWh	267	\$ 9,312	8.4	
12	CFA Studios G & H	Occupancy Sensors	Lighting	\$ 11,677	2005	\$ 5,167	114,473	kWh	391	\$ 13,622	0.5	
13	Judd Hall	Occupancy Sensors	Lighting	\$ 10,598	2005	\$ 5,479	28,778	kWh	98	\$ 3,425	1.5	
14	Judd/Clark Tunnel	Replace electric filter dryer w/desiccant	Controls	\$ 681	2005	\$ -	24,178	kWh	82	\$ 1,481	0.5	
15	North College	Replace electric filter dryer w/desiccant	Controls	\$ 681	2005	\$ -	2,720	kWh	9	\$ 163	4.2	
16	Olin	Remove Compressor, convert to DDC	Controls	\$ 2,224	2005	\$ -	13,480	kWh	46	\$ 1,215	1.8	
17	PAC	Replace electric filter dryer w/desiccant	Controls	\$ 1,890	2005	\$ -	4,835	kWh	16	\$ 290	6.5	
18	Science Center	Install VFD's on 6 AHU's, replace motors w/Energy Efficient, Add EMS control	Controls	\$ 74,000	2005	\$ 27,450	1,028,487	kWh	3,921	\$ 21,478	2.2	
19	Science Center	Reduce Lighting levels in Library, install sensors	Lighting	\$ 38,341	2005	\$ 19,170	292,315	kWh	997	\$ 18,963	1.0	
20	Science Center	Occupancy Sensors (Lobby)	Lighting	\$ 8,051	2005	\$ 2,150	26,494	kWh	90	\$ 1,504	3.9	
		Install Occupancy										

How to Keep Going

- Understand Your Buildings
- Develop A List of Projects

- **Make a Plan & Follow It**
 - Get a Partner with Experience with the Utility
 - Get a Partner You Trust
 - Agree on a M & V Process
 - Establish a Contract Format to extend over Multiple Efforts
 - Modify only with lessons learned
 - Do low hanging fruit first
 - Establish Credibility with Senior Staff
 - Mix in End-of-Life Opportunities
 - Establish Credibility with Facilities Staff
 - Watch for Incentives & Rate Changes – Follow the Money!