



Annual Report on Resource  
Conservation for the  
Hemet Unified School District  
2008-09  
Executive Summary

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# **I. Background and Summary**

- The attached report summarizes the accomplishments to date of progress toward meeting the goals and objectives of Board Policy and Administrative Regulations 3511.
- The Hemet Unified School District Resource Conservation policy was adopted by the Governing Board on September 5, 2008.
- Resource conservation has been a major issue for many years but has become much more critical due to public concern for global warming, electrical shortages, serious water limitations, and the states critical budget crisis.
- The District has a long history of resource conservation measures, but not to the extent or the intensity that the present program promotes. Also, the effects of Board Policy 3511 were not realized until mid year.
- The District expends approximately \$4,000,000 on electricity and natural gas and over \$750,000 on water and sewer each fiscal year.
- Electrical and natural gas usage for FY 2009 was down from FY 2008 by 2.4% even with the facility additions of Rancho Viejo Middle School, Phase 2 and 3 of Tahquitz High School, and the new Hemet High Soccer Field.
- Water usage was up 3.2% from 2008 to 2009 but less than the 5% expected with additions noted above.
- Based on an analysis, relative savings in electrical and gas costs for FY 2009 were down 5% to 7% from FY 2008, without consideration for the facility additions.
- Based on an analysis, relative savings in water costs for FY 2009 were down 1.8% from FY 2008, without consideration for the facility additions.
- Relative cost savings was \$200,000-\$280,000 for electrical and natural gas for FY 2009 while relative water savings was approximately \$12,500.

## II. Historical Perspective

### Prior Resource Conservation Programs and Activities

- **Southern California Edison-“Savings by Design”**-The District has participated in the So Cal Edison Savings by Design Program and the related The Gas Company program. We received over \$1 million since 1990 from this program including a \$118,867 rebate for Tahquitz High School and Rancho Viejo Middle School.
- **Artificial Turf**-The District has developed or converted all of its four football fields, a baseball field and two softball fields to artificial turf. The artificial turf significantly reduces use of water and turf management while it has allowed the usage of the fields to increase to 24/7.
- **Eastern Municipal Water District-Reclaimed Water**-The price is one-third the price of well domestic water. The District converted West Valley High School and Winchester Elementary School to reclaimed water several years ago. Tahquitz High School and Rancho Viejo Middle School were recently converted. The cost savings of reclaimed water is estimated at \$85,000 per year.
- **Energy Services Self-Funding Energy Performance Contracts**-In the early 1990's and 2000's the District implemented four major energy services performance contracts with Honeywell and Johnson Controls (formerly Cal-Air, Inc.), retrofitting lighting systems including replacing ballasts and lighting from T-12 bulbs to T-8 and over 80 HVAC units with greater efficiency, and the installation of a District-wide computer controlled energy management system (NOVAR).
- **Weather Station Water Management System at West Valley High School**-In 2006, the District had a weather station water management system that budgeted out the appropriate irrigation. The system also had a flow restrictor that shut off water when a major leak was detected.
- **Active Preventative Maintenance Program**-The District has always maintained an active preventative maintenance program for HVAC systems including routine filter changes, belt adjustments and annual condenser coil cleaning.
- **Automatic Computer Shutdown**-The Technology Department installed an automatic computer shutoff program on all District computers two years ago. The savings is estimated at \$200,000 per year.

### **III. Actions as Part of Board Policy 3511**

- **Resource Conservation Steering Committee**-After adoption of Board Policy 3511, one of our first actions was to establish a Resource Conservation Steering Committee in order to provide a broad employee based group to discuss conservation measures and to obtain a knowledge base for implementing various aspects the policy. The Committee consists of teachers, support staff and District office and site administrators.
- The Administrative Regulations 3511 associated with the Board Policy are very specific on actions and strategies staff needs to take. However, the programs and ideas are a culmination of staff “best practices” and utilizing the experience, resources and programs offered by our utility companies.
- **Procedure Guides** -Another step was to establish a Procedures Guide for classroom staff, school office and departmental staff (Exhibit A) and a Procedure Guide for Custodians which has been the “Commandments” by which all our employees will live by each day. The Procedures Guides were presented at staff meetings at each school site and at Custodial Shop meetings. The procedures are very specific and require a commitment on staff’s part to perform essential functions such as keeping thermostats set at no less than 74 degrees in summer and not greater than 68 degrees in winter and to refrain from utilizing personal electronic devices.

## EXHIBIT A



# *HUSD Energy Conservation Procedures*

Per Governing Board Policy 3511 Adopted August 5, 2008

## To Be Posted

- Air conditioning, thermostats will be set at 74 degrees and heating set at 68 degrees. Do not tamper with or adjust thermostat to any other setting.
- Keep doors and windows closed when air conditioning unit or heater is on. All heating ventilation and air conditioning units replace air in classroom while the fan is on.
- Please turn off all lights, electronic equipment, computer power strips, printers and TVs at the end of the day.
- Please close all window blinds to deflect or filter light or heat.
- All personal appliances or electronics devices including refrigerators, area lights, microwave ovens, warming plates, fountains, coffee pots, radios, space heaters, area fans and aquariums shall be prohibited in classrooms or offices. Refrigerators, coffee pots and microwaves are allowed in staff lounge or conference room and one per wing or classroom central pod only, regardless of the number of classrooms.
- Air conditioning units will be shut off two days after the end of the school year. Teachers in classrooms not used for summer school have two school business days after the last day of school to check out of the classroom and turn in the classroom key. Air conditioning will be turned on five school business days prior to start of school.
- The District will utilize staff to monitor and audit all utility use. They will be monitoring all classrooms, offices and District facilities on a routine basis as well as coordinating programming of exterior lighting and heating and air conditioning energy management system set points.
- The District is participating in Southern California Edison's "Summer Discount Program" which allows Edison to turn off air conditioning units at all District facilities during an electrical shortage event, 15 minutes for every 30 minutes between June 1 and October 1. We expect minimal, if any, "events".
- Air conditioning units will be turned on one hour before the start of class and one and a half hours after school. We will work with the sites on times unique to a site.
- The District will work to accommodate special work days at the sites during the school year.
- All skylights will be opened during the day to let in the natural light.

- **Southern California Edison-“Summer Discount Program”**-In the Summer of 2008, the District began participating in the So Cal Edison summer Discount Program which the District receives much savings in exchange for Edison to shut down the HVAC units for 15 minutes during every 30 minutes from June 1<sup>st</sup> through September 30<sup>th</sup> if an electrical shortage event is in effect. The base credit to participate in the program is a savings of \$.070 per ton per day. The District has saved over \$100,000 in the Summer of '08 and estimated at \$150,000 in Summer '09.
- **Energy Educator and Energy Audit Manager Positions**-We established two positions to implement the energy program. The Energy Educator provides leadership and training to all staff and students. The Energy Auditor is the advocate for comfort as well as the policeman to assure that we are following the procedures and to assure the equipment and facilities are off when not needed. The main changes were to remove and eliminate all personal refrigerators and electronic equipment from the classrooms including microwave ovens and coffee pots, but also maintaining thermostat settings in classrooms where the system is not controlled by an energy management system.
- **Site Visits and Presentation of Board Policy**- After we appointed the Energy Educator and Energy Audit Manager, we then held meetings with staff at all of our 29 schools to explain the program and the importance of complying with the “procedures.” It was explained that one of the main roles of the Energy Audit Manager was to make sure that the comfort level was not sacrificed although the District did set 68 degrees as a warming set point and 74 as the cooling set for all facilities. Each site was subsequently visited twice by the Energy Audit Manager and was thoroughly monitored for set points and comfort levels.
- **Student Art Contest-Mascot-“Captain Conservation”**-A couple of our Energy Manager’s activities were to set up an art contest toward improving awareness and to get a mascot design. The contest was held during December and January. The graphic of Captain Conservation was developed and implemented. Mr. Lee has a costume and has entertained many with the characterization.



- **Business Operations Level Resource Conservation Committee**-The committee meets every two weeks. It was important to evaluate our energy management capabilities and to make sure our hardware, procedures and systems are being addressed with resource conservation in mind. This includes our building heating and ventilation system and our building and site lighting systems. We discussed the need to reduce lighting in parking lots, exterior security and safety lighting.
- **Intuitive Thermostats and Portable Classroom Window Tinting**-We added 41 energy efficient sophisticated programmable thermostats to our portable classrooms and installed window tinting on 109 west oriented portable windows and replaced damaged and deteriorated blinds.
- **Solid Waste Service and Recycling** -Staff began to research the level of recycling going on in the District and researched the level of recycling provided by our solid waste haulers, City of Hemet (in the City of Hemet) and Waste Management (in the County areas). We discovered that some schools were recycling but that there was no concentrated or comprehensive effort District-wide. We believe we can save \$15,000 per month by eliminating one vendor.
- **Solar Energy Power Purchase Agreement (PPA)**-The Governing Board is well aware that staff and the Facilities Committee have been reviewing the benefits and merits of entering a Power Purchase Agreement as method to take advantage of the economic savings in utilizing photo-voltaic electrical generation without the liabilities of debt and maintenance of a lease or buy-out.

- **Waterless Urinals**-Waterless urinals have been retrofitted on many of our school sites. At one time, the District received an incentive to install. Now there is no grant but the savings in water use is excellent. We have installed 400 waterless urinals. Each unit saves approximately 40,000 gallons of water per year. The water savings is estimated at 1.6 million gallons and \$40,000 in cost.
- **Dual Functioning Toilets**-We began installing dual functioning toilets in the women's restroom in the PDSC. The dual function allows different water consumption based on usage.
- **Green Products**-The District has been committed to "green products" for a long time. In the Custodial area, over 30% of our products are considered "Green Products". New products are being tested at Diamond Valley Middle School.



Above: "Green products" being tested by Mark Lane, Custodial Supervisor

- **Southern Cal Edison Energy Audit**-The District requested a full energy audit from Edison. Although the final report has not been received, the audit identified only minor items such as a few dirty condenser coils. The District has been conscientious in addressing most of the energy conservation measures. The report is expected to be received in September '09.

- **Gibbel Elementary School Designed Under CHPS (California High Performing Schools) Certification**-PJHM architects, at the request of the District designed Gibbel Elementary School using the CHPS criteria. The CHPS program is similar to the LEEDS program whereby the project received points based on the resource conservation measure designed in the facility.
  
- **Reclaimed Water and other Water Conservation Measures**
  - The District is continuing to expand the use of reclaimed water by planning on conversion of Cawston Elementary School.
  - Flow meters added to reduce water usage
  - Smart clocks added to five sites funded by EMWD

## **IV. Utility Use and Trend Analysis**

### **Utility Manager Pro Software**

- **Utilizing Utility Manager Pro Software Selected –In service and operational** that automatically updates electrical billing and has charting templates and has an intelligent comparison tool that allows the analysis data by incorporating heating and cooling degree day weather information, building square footages, students and notes for site and building changes from previous years.
  
- **Clarification of 2009 Changes**
  - The District added approximately 120,000 square feet of building area or 5% of additional building area of Phase 2 and 3 of Tahquitz High School and new Rancho Viejo Middle School
  - The District added Tahquitz Stadium
  - Santa Fe utilization declined from its conversion from a middle school to HAAAT Charter School and the Advanced Path Program.
  - The District added Tahquitz 50 meter swimming pool but it was offset in FY 2009 with the shut down of the Hemet High pool.
  
- The resource conservation policies and procedures did not go into full effect until January 2009. The following reports from the Utility Manager Pro are analyzed as indicated on each exhibit on the following pages.

# Exhibit A

Site	Year Ending 06/09					Year Ending 06/08					% Chg
	Electricity (kWh)	Natural Gas (Therms)	Other Fossil (kBtu)	Total Energy (MBtu)	Electricity (kWht)	Natural Gas (Therms)	Other Fossil (MBtu)	Total Energy (MBtu)			
West Valley High	3,445,295	101,479	N/A	21,903	3,286,438	136,853	N/A	24,899			-12.0%
Tahquitz High	2,971,569	71,193	N/A	17,258	2,716,830	43,414	N/A	13,611			+26.8%
Hemet High	2,095,183	34,027	N/A	10,551	2,342,370	88,148	N/A	16,807			-37.2%
District Office / PDSC	1,375,039	7,715	N/A	5,463	N/A	N/A	N/A	N/A			N/A
Rancho Viejo Middle (new)	837,289	N/A	N/A	3,425	28,336	N/A	N/A	97			+3443.8%
Hamilton High	866,147	N/A	N/A	3,274	857,633	N/A	N/A	3,161			+3.6%
Diamond Valley Middle	818,239	4,786	N/A	3,270	870,148	4,329	N/A	3,402			-3.9%
Acacia Middle	705,249	6,569	N/A	3,063	744,608	9,190	N/A	3,460			-11.5%
Dartmouth Middle	678,131	6,066	N/A	2,920	751,033	5,391	N/A	3,102			-5.8%
Jacob Wiens Elem	604,754	3,235	N/A	2,369	576,637	3,014	N/A	2,270			+5.3%
Little Lake Elem	545,647	3,669	N/A	2,229	603,339	3,349	N/A	2,393			-6.9%
Idyllwild School	286,836	N/A	N/A	2,178	320,924	N/A	N/A	2,421			-10.0%
Cawston Elem	500,122	4,132	N/A	2,120	535,754	5,145	N/A	2,342			-8.5%
HAAAT	501,985	3,820	N/A	2,105	680,259	8,446	N/A	3,166			-33.5%
Whittier Elem	543,822	1,323	N/A	1,988	591,212	1,160	N/A	2,133			-6.8%
McSweeney Elem	516,075	1,672	N/A	1,928	536,233	1,766	N/A	2,006			-3.9%
Hemet Elem	436,806	3,792	N/A	1,870	489,363	6,037	N/A	2,273			-17.8%
Harmony Elem	472,451	1,757	N/A	1,788	493,956	1,964	N/A	1,882			-5.0%
Hamilton Elem	452,582	N/A	N/A	1,734	524,206	N/A	N/A	1,983			-12.5%
Bautista Creek Elem	453,426	1,600	N/A	1,707	467,764	1,768	N/A	1,773			-3.7%
Fruitvale Elem	433,711	2,078	N/A	1,688	454,027	2,417	N/A	1,791			-5.8%
Ramona Elem	384,755	2,056	N/A	1,518	433,081	3,073	N/A	1,785			-14.9%
Valle Vista Elem	368,870	1,892	N/A	1,516	412,518	2,664	N/A	1,676			-8.5%
Winchester Elem	335,337	1,260	N/A	1,270	359,504	1,774	N/A	1,404			-9.5%
District Office/PDA	332,258	1,115	N/A	1,245	337,871	2,268	N/A	1,380			-9.7%
Cottonwood Elem/Middle	336,794	N/A	N/A	1,149	320,508	N/A	N/A	1,094			+5.1%
Alessandro Continuation High	324,808	N/A	N/A	1,146	379,215	482	N/A	1,340			-14.5%
Helen Hunt/Family Tree	205,283	N/A	N/A	700	294,768	N/A	N/A	1,006			-30.4%
HELP School	80,441	N/A	N/A	274	79,308	N/A	N/A	271			+1.4%
District Office	2,932	44	N/A	14	391,953	44	N/A	1,342			-86.9%
District Office - Alessandro	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			N/A
<b>Company Totals:</b>	<b>21,931,840</b>	<b>265,398</b>	<b>0</b>	<b>103,687</b>	<b>20,879,899</b>	<b>332,697</b>	<b>0</b>	<b>106,268</b>			<b>-2.4%</b>

Energy Use Change by Site -- Printed by Utility Manager Pro Friday, August 21, 2009 at 4:48 pm  
Data prorated into calendar month according to billing from and thru dates -- % Change based on previous year -- N/A indicates missing data

**Exhibit A** shows the comparison of usage between 2008 and 2009. The 2.4% decrease in energy use is a significant reduction and due mainly to natural gas reduction. Electrical use was fairly flat. This is impressive considering the addition of the 5% increase in building area with the addition of the new Rancho Viejo Middle School and Tahquitz stadium. Without additional facilities, the reduction in energy use was between 5% and 7% which is mostly attributed to mid year reductions.

## Exhibit B

Site	Year Ending 06/09					Year Ending 06/08					% Chg
	Total	Natural	Other	Total	Total	Natural	Other	Total	Total	Energy Cost	
	Elec Cost	Gas Cost	Fossil Cost	Energy Cost	Elec Cost	Gas Cost	Fossil Cost	Energy Cost	Energy Cost		
West Valley High	\$479,550	\$75,804	N/A	\$555,353	\$502,052	\$133,599	N/A	\$635,651	\$635,651	-12.6%	
Tahquitz High	\$436,578	\$51,965	N/A	\$488,543	\$390,800	\$45,193	N/A	\$435,993	\$435,993	+12.1%	
Hemet High	\$362,484	\$27,265	N/A	\$389,749	\$383,709	\$86,404	N/A	\$470,114	\$470,114	-17.1%	
District Office / PDSC	\$198,613	\$6,685	N/A	\$205,298	N/A	N/A	N/A	N/A	N/A	N/A	
Hamilton High	\$186,178	N/A	N/A	\$186,178	\$174,188	N/A	N/A	\$174,188	\$174,188	+6.9%	
Rancho Viejo Middle (new)	\$156,389	N/A	N/A	\$156,389	\$9,291	N/A	N/A	\$8,281	\$8,281	+1786.2%	
Diamond Valley Middle	\$145,154	\$4,349	N/A	\$149,504	\$166,427	\$5,191	N/A	\$161,618	\$161,618	-7.5%	
Acacia Middle	\$130,291	\$5,962	N/A	\$136,253	\$130,805	\$10,256	N/A	\$141,061	\$141,061	-3.4%	
Dartmouth Middle	\$119,076	\$5,875	N/A	\$124,952	\$139,192	\$6,330	N/A	\$145,522	\$145,522	-14.1%	
Little Lake Elem	\$107,604	\$3,488	N/A	\$111,092	\$119,788	\$4,045	N/A	\$123,833	\$123,833	-10.3%	
Jacob Wiens Elem	\$102,027	\$3,251	N/A	\$105,278	\$104,736	\$3,657	N/A	\$108,394	\$108,394	-2.9%	
Whittier Elem	\$103,671	\$1,518	N/A	\$105,189	\$112,304	\$1,614	N/A	\$113,918	\$113,918	-7.7%	
Hamilton Elem	\$89,185	N/A	N/A	\$89,185	\$103,227	N/A	N/A	\$103,227	\$103,227	-3.9%	
Cawston Elem	\$92,263	\$3,998	N/A	\$96,261	\$105,178	\$6,018	N/A	\$111,197	\$111,197	-13.4%	
McSweeney Elem	\$89,796	\$1,858	N/A	\$91,655	\$96,001	\$2,376	N/A	\$98,377	\$98,377	-6.8%	
Hemet Elem	\$86,362	\$3,477	N/A	\$89,839	\$97,318	\$6,801	N/A	\$104,119	\$104,119	-13.7%	
HAAAT	\$86,103	\$3,665	N/A	\$89,768	\$128,514	\$9,284	N/A	\$137,799	\$137,799	-34.9%	
Bautista Creek Elem	\$86,874	\$1,783	N/A	\$88,657	\$96,108	\$2,342	N/A	\$98,450	\$98,450	-9.9%	
Fruitvale Elem	\$83,002	\$2,163	N/A	\$85,165	\$92,881	\$3,045	N/A	\$95,925	\$95,925	-11.2%	
Harmony Elem	\$83,019	\$1,913	N/A	\$84,932	\$91,596	\$2,575	N/A	\$94,171	\$94,171	-9.8%	
Ramona Elem	\$80,006	\$2,149	N/A	\$82,155	\$92,160	\$3,592	N/A	\$95,752	\$95,752	-14.2%	
Vaile Vista Elem	\$78,348	\$2,025	N/A	\$80,373	\$85,883	\$3,380	N/A	\$89,263	\$89,263	-10.0%	
Winchester Elem	\$67,797	\$1,592	N/A	\$69,389	\$73,472	\$2,535	N/A	\$76,007	\$76,007	-8.7%	
Cottonwood Elem/Middle	\$58,893	N/A	N/A	\$58,893	\$59,098	N/A	N/A	\$59,098	\$59,098	-0.3%	
Idyllwild School	\$55,464	N/A	N/A	\$55,464	\$55,018	N/A	N/A	\$55,018	\$55,018	+0.8%	
Alessandro Continuation High	\$51,935	N/A	N/A	\$51,935	\$63,350	\$696	N/A	\$64,046	\$64,046	-18.9%	
District Office/ PDA	\$46,270	\$1,387	N/A	\$47,657	\$47,077	\$2,660	N/A	\$49,937	\$49,937	-4.6%	
Helen Hunt/Family Tree	\$43,041	N/A	N/A	\$43,041	\$56,939	N/A	N/A	\$56,939	\$56,939	-24.4%	
HELP School	\$15,327	N/A	N/A	\$15,327	\$15,960	N/A	N/A	\$15,960	\$15,960	-4.0%	
District Office	\$2,336	\$169	N/A	\$2,505	\$71,559	\$177	N/A	\$71,736	\$71,736	-86.5%	
District Office - Alessandro	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
<b>Company Totals:</b>	\$3,733,635	\$212,340	\$0	\$3,945,975	\$3,653,634	\$341,971	\$0	\$3,995,605	\$3,995,605	-1.2%	

Energy Cost Change by Site -- Printed by Utility Manager Pro Monday, August 24, 2009 at 9:47 am  
Data provided into calendar month according to billing from and thru dates -- % Change based on previous year -- N/A indicates missing data

Exhibit B shows the preceding chart as costs instead of usage. It indicates a reduction in costs for FY 2009 of 1.2%. This is extremely impressive since (1) the rates went up this year and (2) the District added 120,000 square feet, 5%. to the facilities inventory. This would indicate that the District reduced relative energy costs by 5% to 7% or \$200,000 to \$280,000.

### Exhibit C

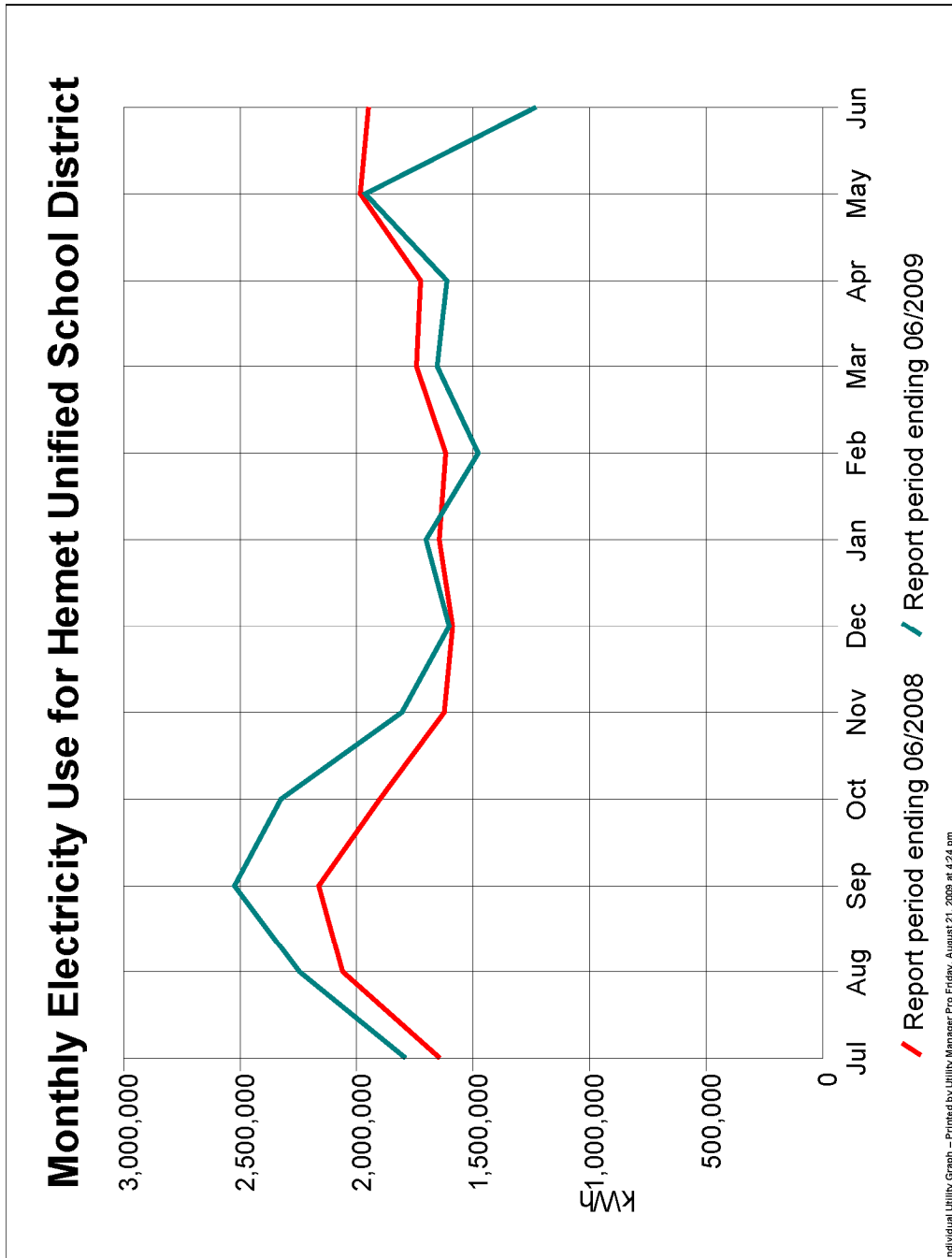
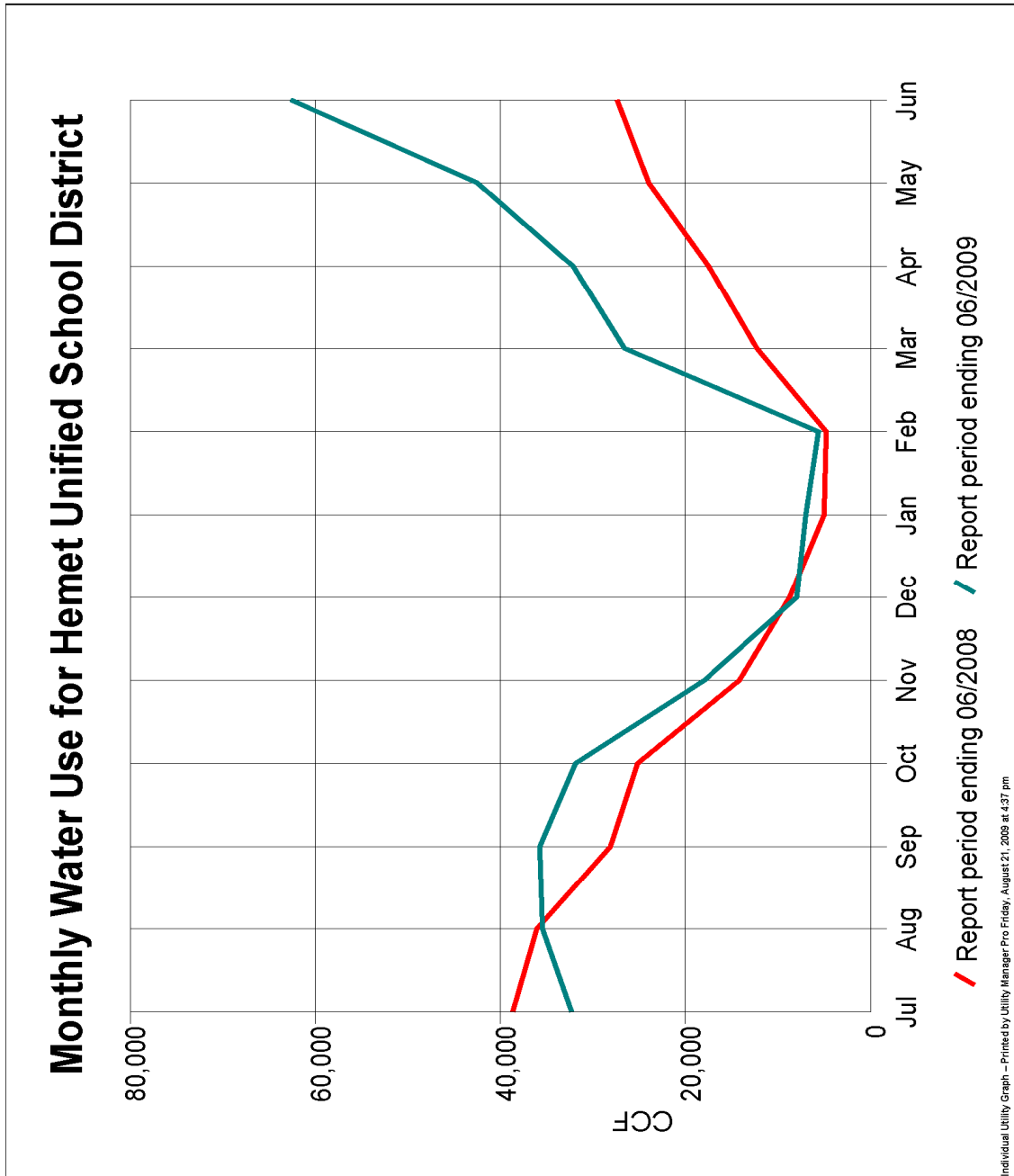


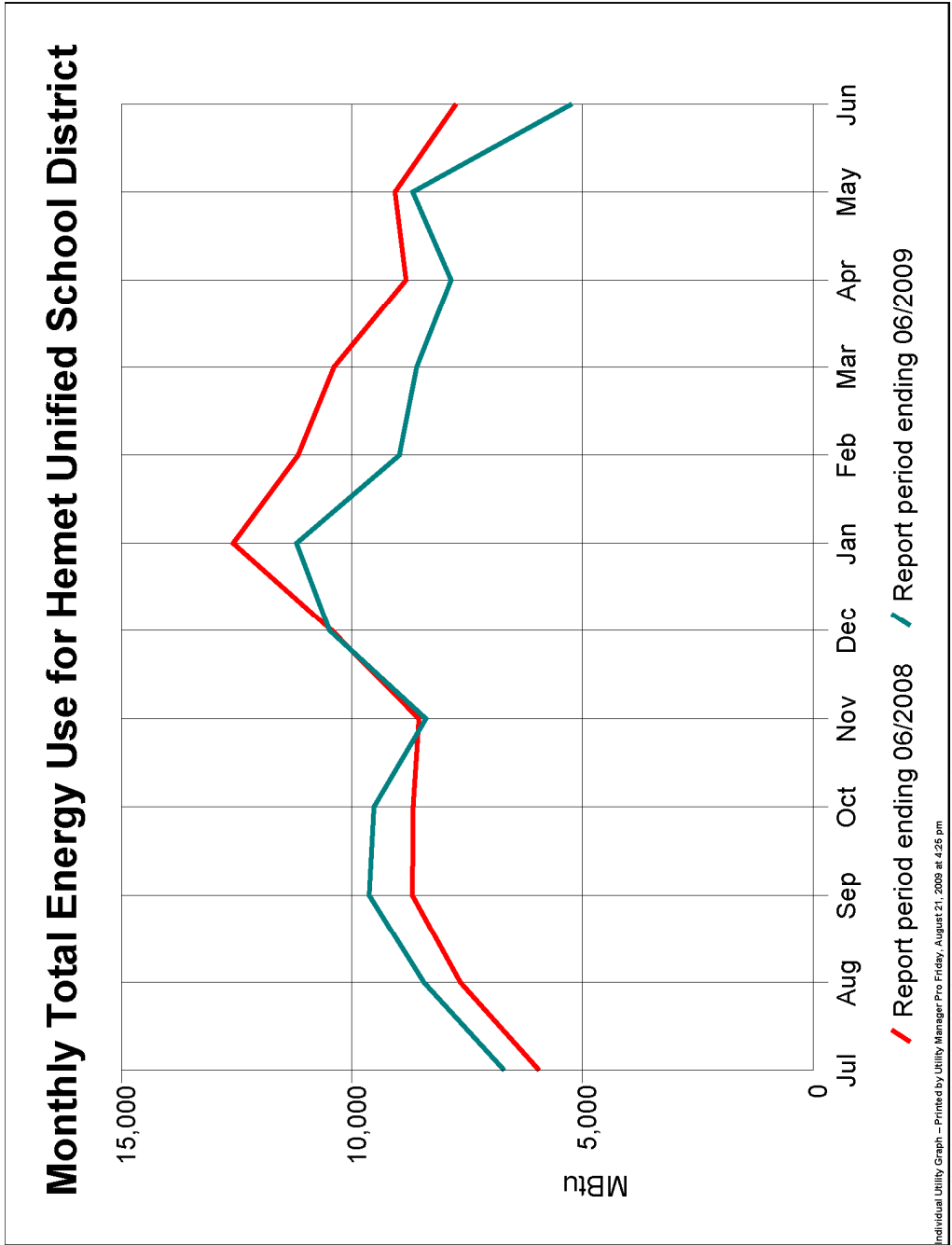
Exhibit C shows a higher trend in electrical usage for FY 2009 until February 2009 when the usage drops below the FY 2008 usage from February through June. January 2009 is when the resource conservation procedures went into effect. The extreme drop-off in June is because of one less school day in 2009 as compared to 2008 and the concentrated effort to turn off all systems at the end of the school year.

**Exhibit D**



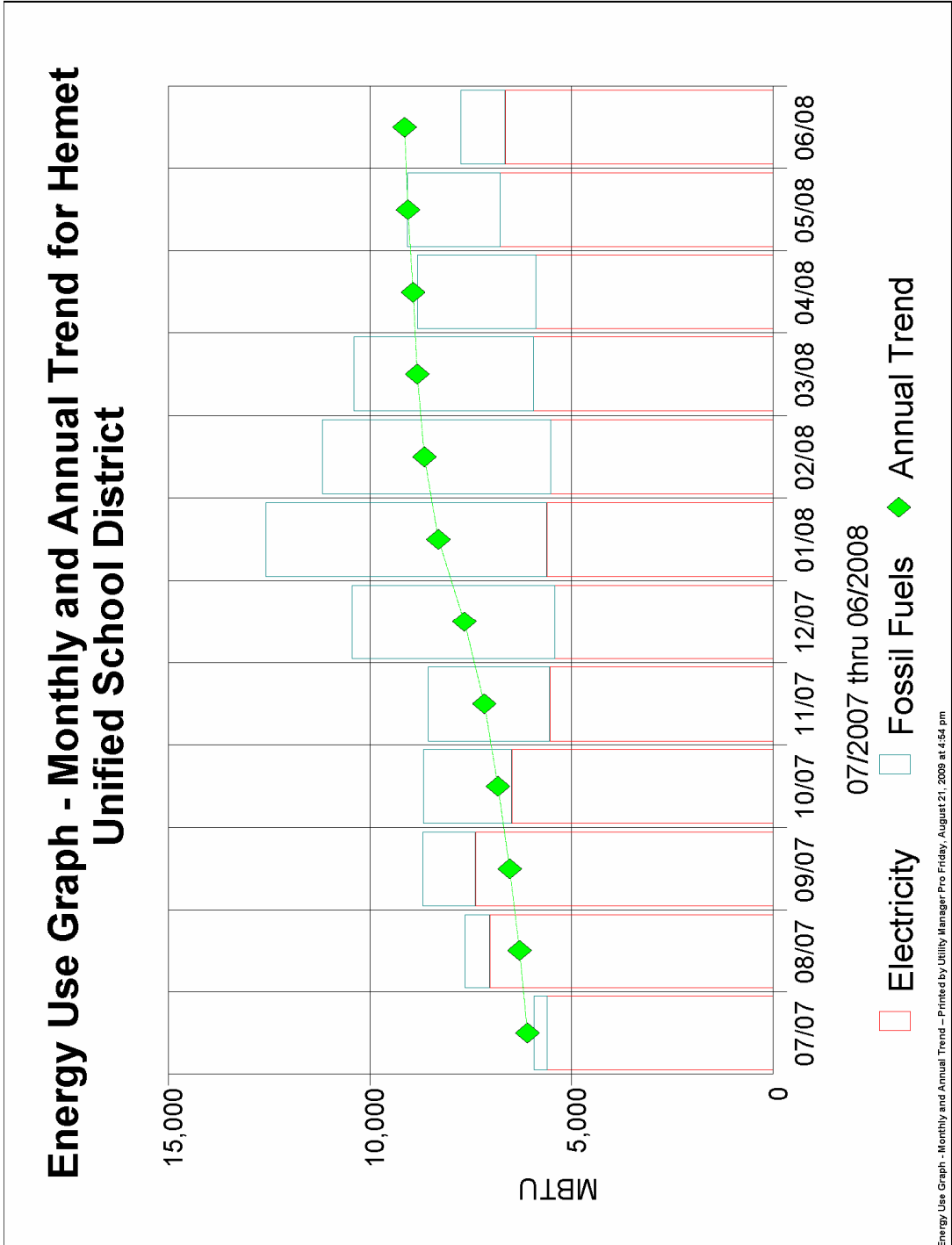
**Exhibit D** shows the water usage for FY 2009 compared to 2008. The amount of water for FY 2009 has increased significantly but that is understandable due to several factors.

### Exhibit E



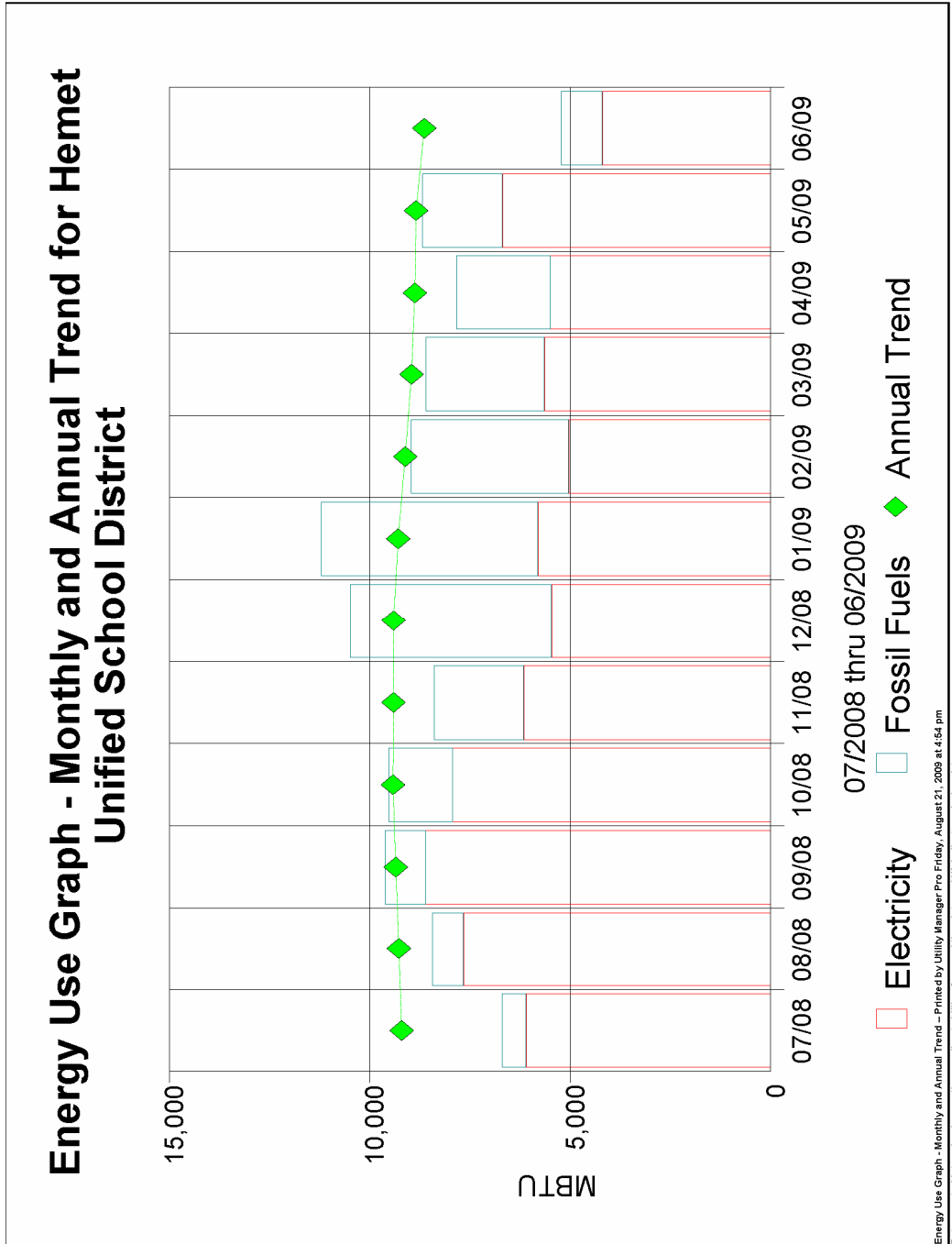
**Exhibit E** shows the comparison of FY 2008 and 2009 of total energy. It is similar to Exhibit C. It shows a crossover of 2009 use being less than 2008 beginning in January.

**Exhibit F**



**Exhibit F** shows a rising energy increasing trend line for 2008 as opposed to the declining trend line you will see for 2009 in Exhibit F below. The actual bar graphs are not clearly visible; however, the rising trend line is clear.

### Exhibit G



**Exhibit G** shows a declining energy trend line as opposed to the 2008 graph in Exhibit E. The actual bar graphs are not clearly visible; however, the declining trend line is clear.

## **V. Next Steps**

- **Continue to educate and train students and staff on resource conservation programs and develop knowledge of sustainable materials and products**
- **Continue in-service training at all sites and awareness, enforcement and compliance with the resource conservation procedures**
- **Continue to install energy management hardware including thermostats in District-owned portable facilities that will reduce utility resource use and costs**
- **Continue to take advantage of conservation programs offered by the Federal and State Government, and utility providers**
- **Continue to evaluate all District decisions utilizing analysis of resource conservation and maintain adequate use of facilities fees**
- **Implement the solar Power Purchase Agreement**
- **Continue to design new and renovated facilities with energy and water savings systems, products and materials and participate in the Collaborative for High Performing Schools CHPS program**
- **Continue to expand use of “green” custodial products**
- **Continue to monitor utility usage and costs monthly by site and District-wide**
- **Develop and operate District-wide resource conservation programs**
- **Continue to inspect and monitor all mechanical systems**
- **Minimize stadium lighting for practice**