

ENERGY UPDATE – FY2017

July 2017

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Annual Energy Report



FY2017 District Accomplishments Summary

Based on Fusebox™ Data Management and Reporting:

- **970,493 kWh savings** from July 2016 – June 2017 compared to FY2016.
- Spent **\$112,478 less** on electricity from July 2016 – June 2017, compared to last year.
- Wade Carpenter, Nogales High School, A.J. Mitchell, Challenger, Desert Shadows, Bracker, Lincoln, District Office, Pierson, Coronado show usage savings >10% for FY17 versus FY16.



FY2017 District Accomplishments Summary

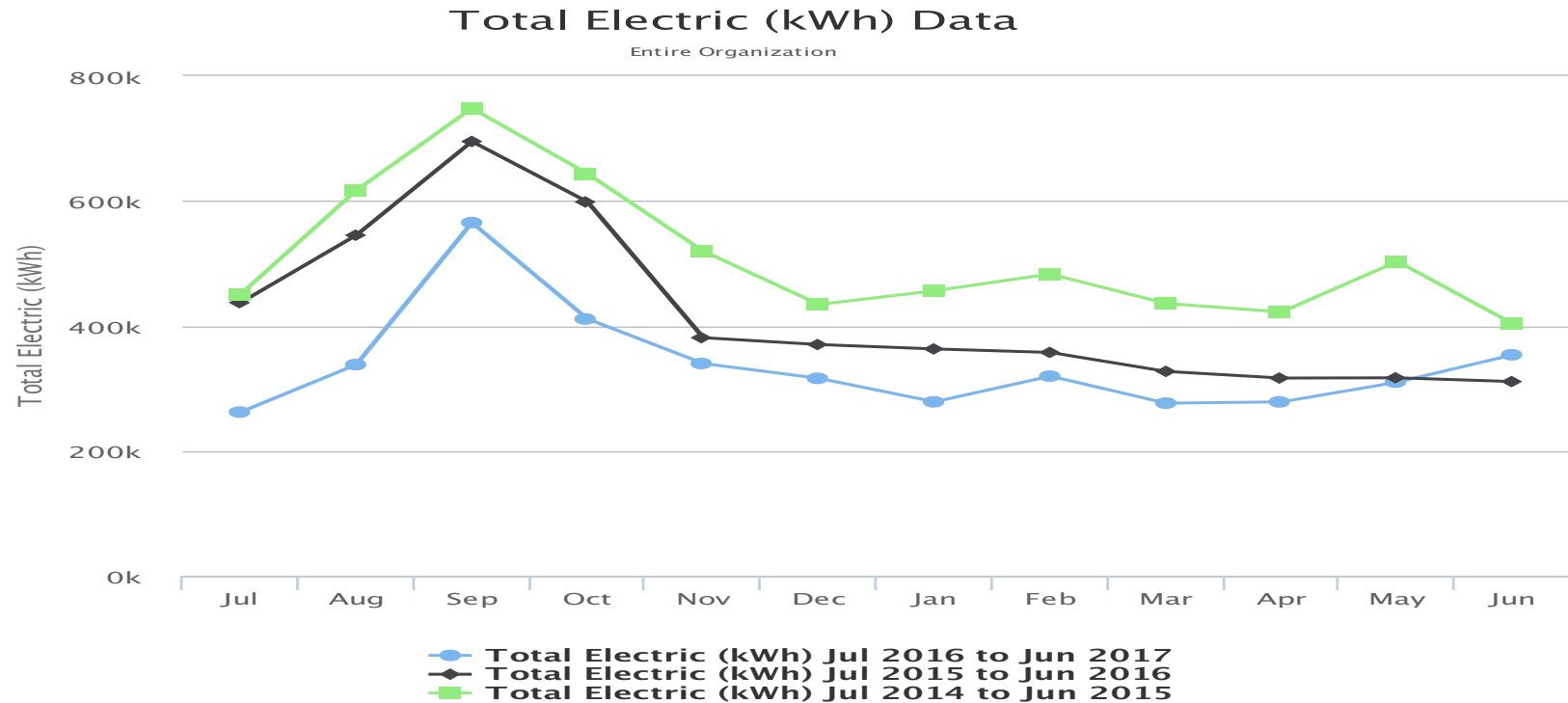
- Recycling across the district
 - Pilot program with City of Nogales
- Green Teams at all schools
- Monthly energy tips
- Developed Safe School video
- Analyzed impact of Unisource's rate change
- Energy Savings program on website
- Fusebox™ launch meeting with facilities
- Present energy webinar to all admin staff, including principals, approximately every month
- Helped acquire energy-measuring tools to use in classrooms
 - Infrared Thermometers and Kill-a-Watt Meters
- Continue to support schools and teachers in implementing sustainability curriculum
- Applied for and awarded ENERGY STAR certificates to all schools



Annual Electric (kWh) Compared

- Overall, the district is seeing electric savings during FY2017 compared to FY2016.
- June 2017 showed increased energy usage compared to June 2016, potentially due to higher than average temperatures.

FY 16-17 Data



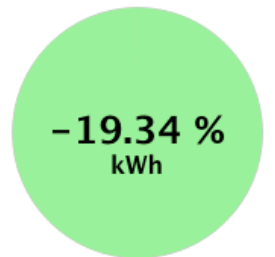
FY2017 Electric (kWh) and Cost (\$) Compared – District Total

- In addition to over 19% electricity savings in FY2017, the district has also reduced its electricity costs by over 13%!
- Electricity savings were >10%: July 2016 – April 2017.
- Demand is a significant contributor to electricity costs; efforts to reduce demand can increase the cost savings NUSD can achieve.

FY2017 Data

Organizational YTD Energy Change		
	Jul-2016 to Jun-2017	Jul-2015 to Jun-2016
Total Usage (kWh)	4,047,377	5,017,870
Total Cost (\$)	724,498.21	836,976.16
% Change Usage	19.34% ↓	
% Change Cost	13.44% ↓	

Percentage Change Usage



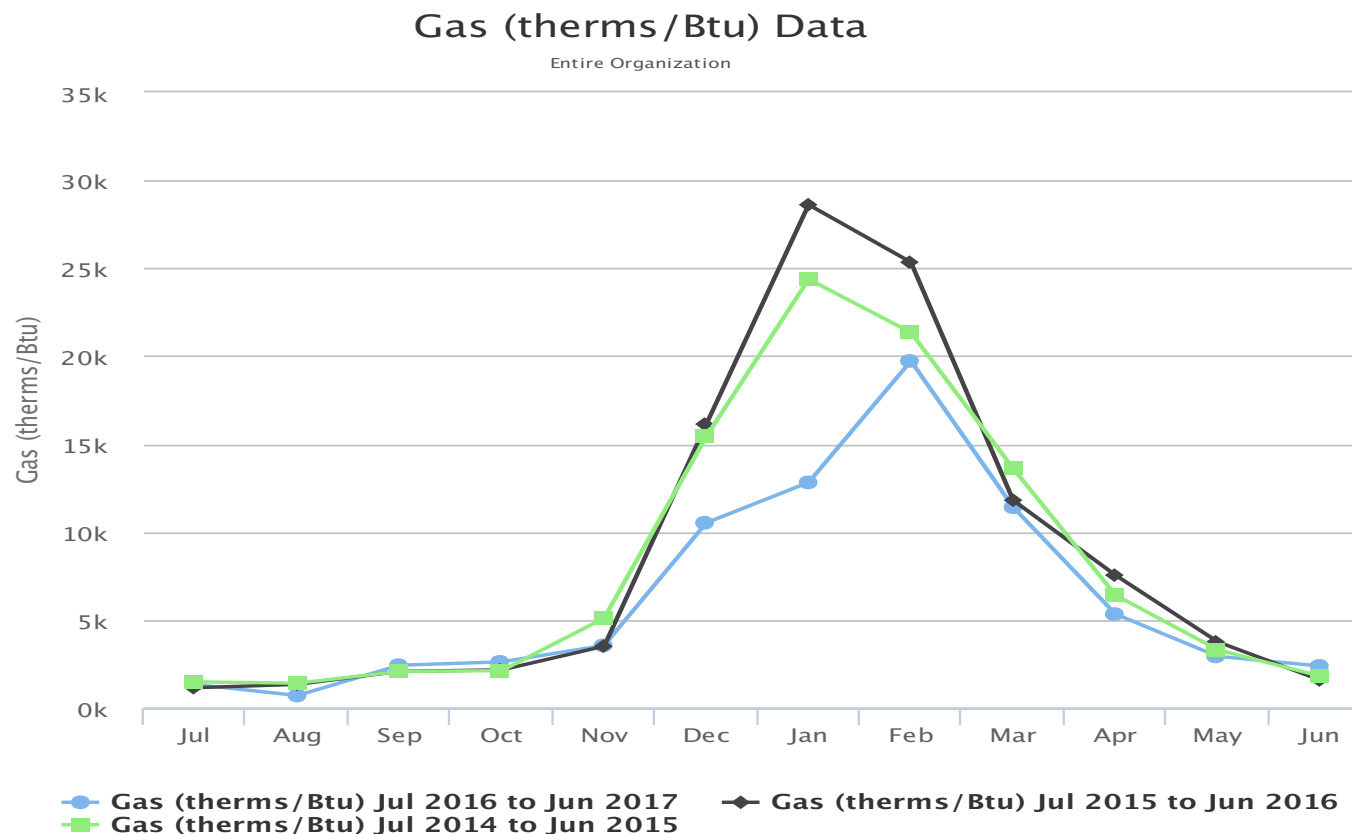
Percentage Change Cost



Annual Gas (Therms) Compared

- Overall, the district is seeing gas savings during FY2017 winter compared to FY2016.

FY 16-17 Data



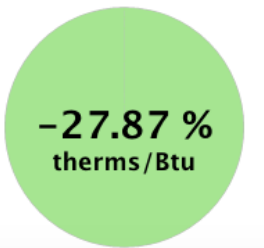
FY2017 Gas (Therms) and Cost (\$) Compared – District Total

- In addition to almost 28% gas savings in FY2017, the district has also reduced its gas costs by over 26%!
- Gas savings were >10%: August, December, January, February, April, May.

FY2017 Data

Organizational YTD Energy Change		
	Jul-2016 to Jun-2017	Jul-2015 to Jun-2016
Total Usage (therms/Btu)	75,710	104,964
Total Cost (\$)	65,600.44	88,801.20
% Change Usage		27.87% ↓
% Change Cost		26.13% ↓

Percentage Change Usage



Percentage Change Cost



Annual Electric/Gas Compared Detail – FY2017



Annual Electric (kWh) Compared

FY2017 Data

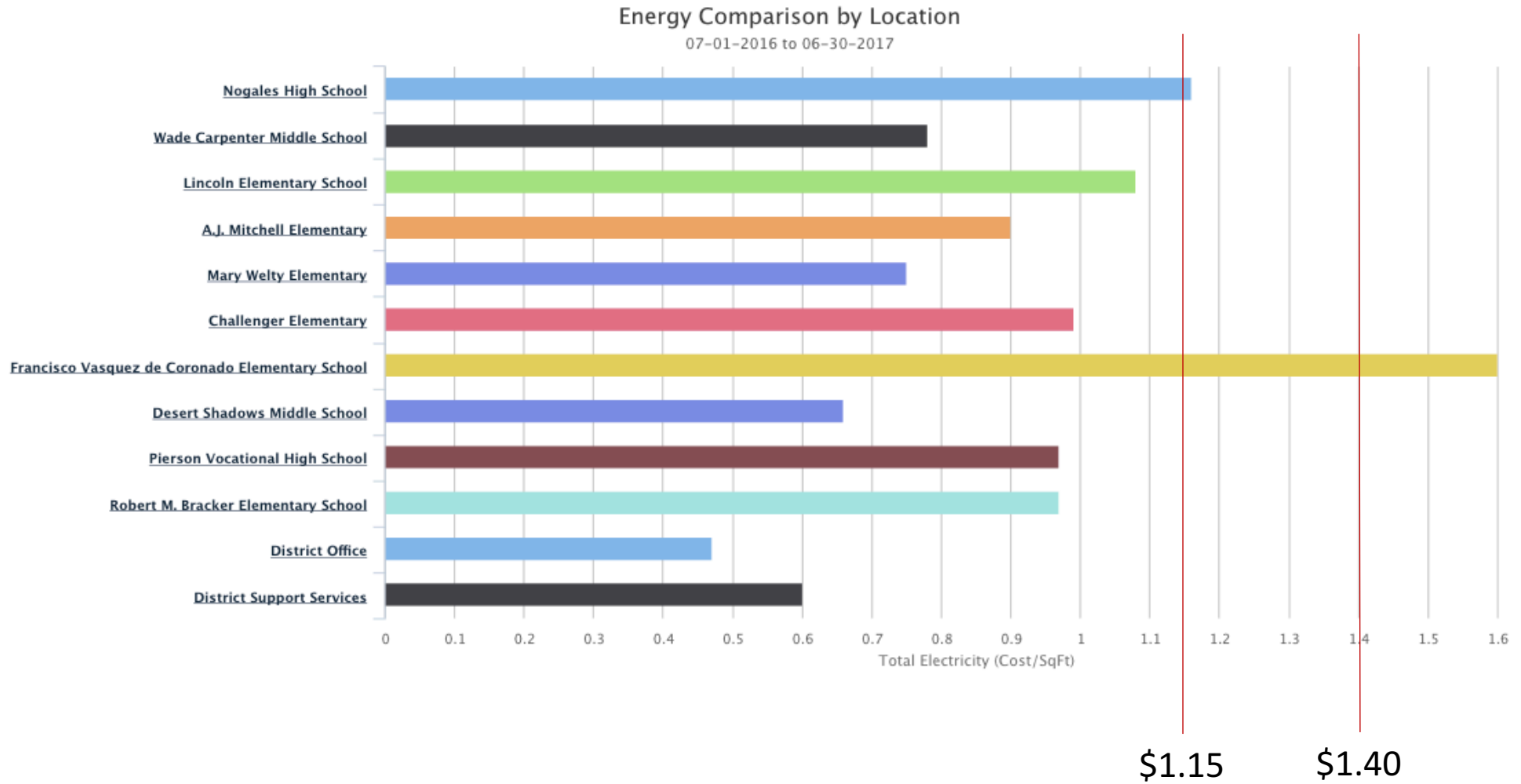
Location	2017		2016		Percentage Change	
	Usage (kWh)	Cost (\$)	Usage (kWh)	Cost (\$)	Usage	Cost
Wade Carpenter Middle School	263,797	51,463.60	365,251	63,462.06	27.78↓	18.91↓
Nogales High School	1,343,406	221,332.74	1,764,074	268,679.91	23.85↓	17.62↓
A.J. Mitchell Elementary	230,836	54,188.57	300,184	58,938.29	23.10↓	8.06↓
Challenger Elementary	316,520	56,130.45	398,640	65,476.17	20.60↓	14.27↓
Desert Shadows Middle School	394,240	60,894.66	486,880	72,761.04	19.03↓	16.31↓
Robert M. Bracker Elementary School	181,440	32,768.21	219,720	35,486.50	17.42↓	7.66↓
Lincoln Elementary School	243,011	51,141.55	289,536	57,466.47	16.07↓	11.01↓
District Office	152,960	23,552.87	180,000	26,043.30	15.02↓	9.56↓
Pierson Vocational High School	298,280	63,439.40	338,400	67,266.02	11.86↓	5.69↓
Francisco Vasquez de Coronado Elementary School	363,840	67,783.18	404,320	77,671.75	10.01↓	12.73↓
Mary Welty Elementary	201,944	34,078.32	211,853	35,786.69	4.68↓	4.77↓
District Support Services	57,103	7,724.66	59,012	7,937.96	3.23↓	2.69↓



Cost/Sq. Ft.

FY2017 Data

\$1.15 & \$1.40 is the PEP recommended cost/sq. ft. for elementary and high schools, respectively



This is not a measurement and verification document for the Midstate Energy project. Tables in this report display data from all electric and natural gas utility bills showing usage for all meters and campuses.

Annual Gas (Therms) Compared

FY2017 Data

Location ↕	2017		2016		Percentage Change	
	Usage (therms/Btu) ↕	Cost (\$) ↕	Usage (therms/Btu) ↕	Cost (\$) ↕	Usage ↕	Cost ↕
Challenger Elementary	5,293	4,592.02	8,949	7,479.42	40.85↓	38.60↓
Nogales High School	19,475	15,591.29	31,470	25,127.10	38.12↓	37.95↓
Mary Welty Elementary	2,634	3,538.88	4,180	4,766.65	36.99↓	25.76↓
A.J. Mitchell Elementary	5,183	5,239.48	7,956	7,384.64	34.85↓	29.05↓
Wade Carpenter Middle School	6,606	5,858.75	10,110	8,623.05	34.66↓	32.06↓
Francisco Vasquez de Coronado Elementary School	4,514	3,738.77	6,706	5,460.20	32.69↓	31.53↓
Lincoln Elementary School	3,763	3,903.34	5,119	4,964.79	26.49↓	21.38↓
Pierson Vocational High School	7,165	6,050.46	8,583	7,158.01	16.52↓	15.47↓
Desert Shadows Middle School	10,243	8,085.77	12,094	9,578.69	15.31↓	15.59↓
District Office	4,611	3,789.52	5,295	4,291.79	12.92↓	11.70↓
District Support Services	2,582	2,242.81	2,833	2,442.83	8.86↓	8.19↓
Robert M. Bracker Elementary School	3,641	2,969.35	1,669	1,524.03	118.15↑	94.84↑

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Maximum Monthly Demand – FY2017



Maximum Monthly Demand

- Compared to FY2016, many schools are showing an increase in their demand (KW)
- Strategies to lower demand include 15-20 minute **staggered start-up times on HVAC equipment, adjusted set-points, or scheduling shifts.**

FY2017 Data

KW higher than last year

CAMPUS NAME	JUL (KW)		AUG (KW)		SEP (KW)		OCT (KW)		NOV (KW)		DEC (KW)		JAN (KW)		FEB (KW)		MAR (KW)		APR (KW)		MAY (KW)		JUN (KW)	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
R.M. Bracker Elementary K-5	98	117	121	116	126	114	118	109	88	99	79	84	74	87	70	99	69	60	87	69	94	97	108	109
Challenger K-5	129	134	207	164	227	199	209	169	140	149	73	149	70	66	77	68	73	62	133	134	127	152	150	164
Coronado Elementary K-5	46	61	196	165	227	154	227	142	104	142	73	74	77	73	74	66	65	69	76	81	94	136	101	140
Lincoln Elementary K-5	65	11	134	52	82	64	75	58	46	53	35	34	35	112	35	120	38	109	32	62	49	69	32	88
A.J. Mitchell Elementary K-5	71	60	132	112	155	139	136	117	136	81	63	56	52	52	58	61	53	52	52	35	65	80	102	145
Mary Welty Elementary K-5	29	41	92	77	99	88	88	83	59	72	62	50	59	42	59	66	47	46	59	55	62	75	70	75
Desert Shadows MS 6-8	147	106	258	210	240	215	245	193	187	176	140	164	113	114	131	116	144	129	141	135	168	142	133	179
Wade Carpenter MS 6-8	57	93	107	80	152	113	122	90	114	77	114	66	116	41	122	99	107	54	118	42	75	67	81	80
Nogales High School	385	324	542	424	595	499	542	482	478	449	389	330	346	309	310	320	284	289	329	299	371	468	420	418
Pierson Voc. High School	85	51	92	59	82	81	117	67	117	48	117	33	117	35	212	144	173	88	74	106	87	40	63	49
District Office	69	59	72	63	74	71	62	54	55	41	56	53	62	47	66	62	54	48	43	41	37	35	42	47
District Support Services	25	0	25	0	25	0	23	/	15	/	8	/	10	/	8	/	9	/	/	/	/	/	/	/



Energy Usage Concern



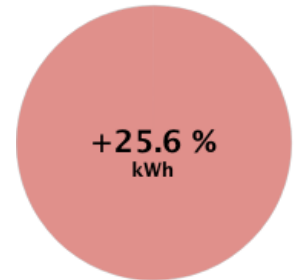
July Electric (kWh) and Cost (\$) Compared – District Total

- Energy usage continues to increase compared to the year prior
- Both June 2017 and July 2017 are higher than the same months in 2016

FY2017 Data

Organizational YTD Energy Change		
	Jul-2017 to Jul-2017	Jul-2016 to Jul-2016
Total Usage (kWh)	328,929	261,891
Total Cost (\$)	54,712.53	57,824.34
% Change Usage		25.60% ↑
% Change Cost		5.38% ↓

Percentage Change Usage



Percentage Change Cost



Energy Conservation Strategies



Energy Saving Opportunities

Energy Tips

- Make sure all extraneous appliances are removed.
- Unplug electronics, and turn off power strips when not in-use.
- Turn off computers on weekends and holidays.
- Make sure all doors and windows remain closed.
- Open window blinds, when possible, to use natural lighting and reduce overhead lighting, and in summer months, close blinds when not in classroom to lower excess heating due to sunlight.
- Ensure consistent set-points and HVAC schedules throughout all schools in the district.
- Formalize Green Teams at each school for SY 2017-2018

What else can you do??



THANK YOU!

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