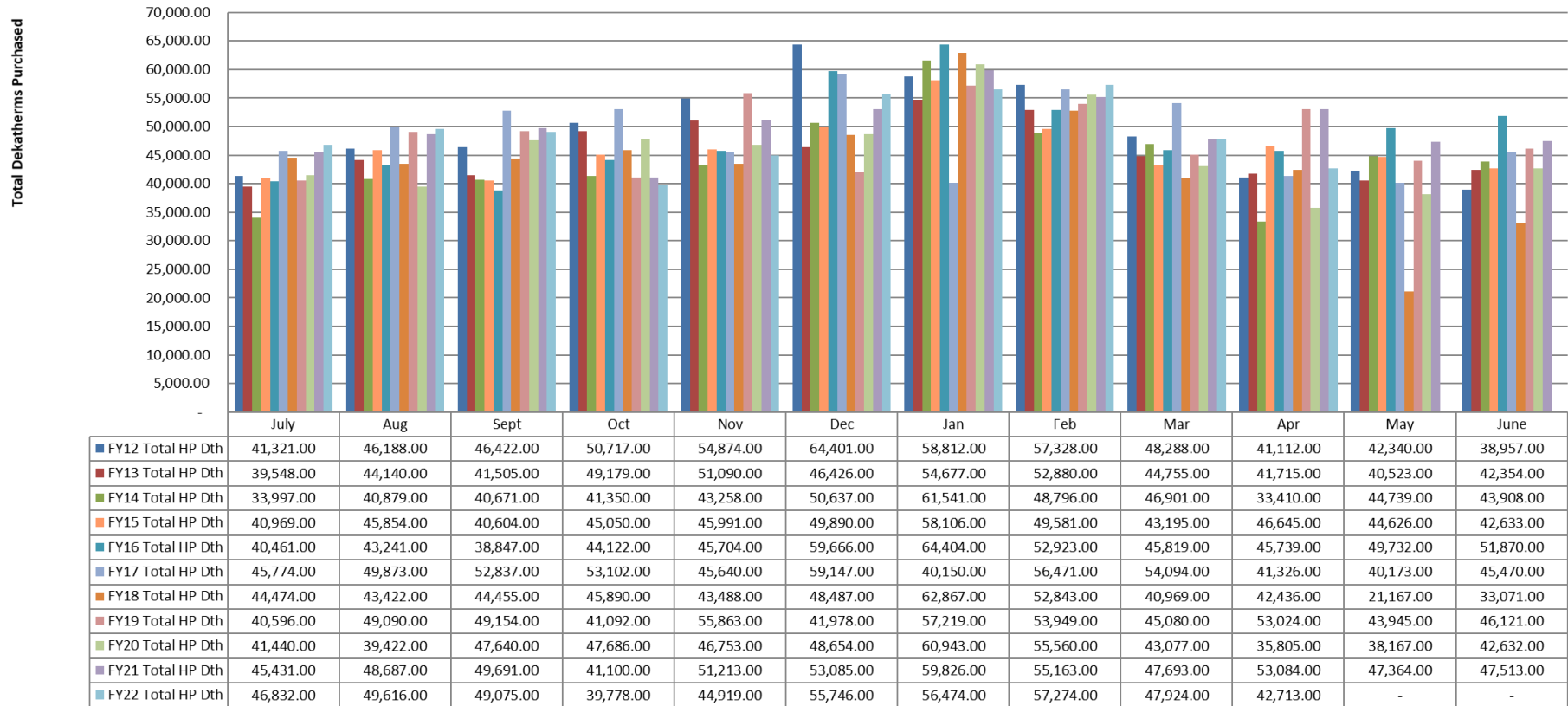


Steam System Infrastructure Energy Analysis

FY Comparison of Total HP Natural Gas Dekatherms Purchased



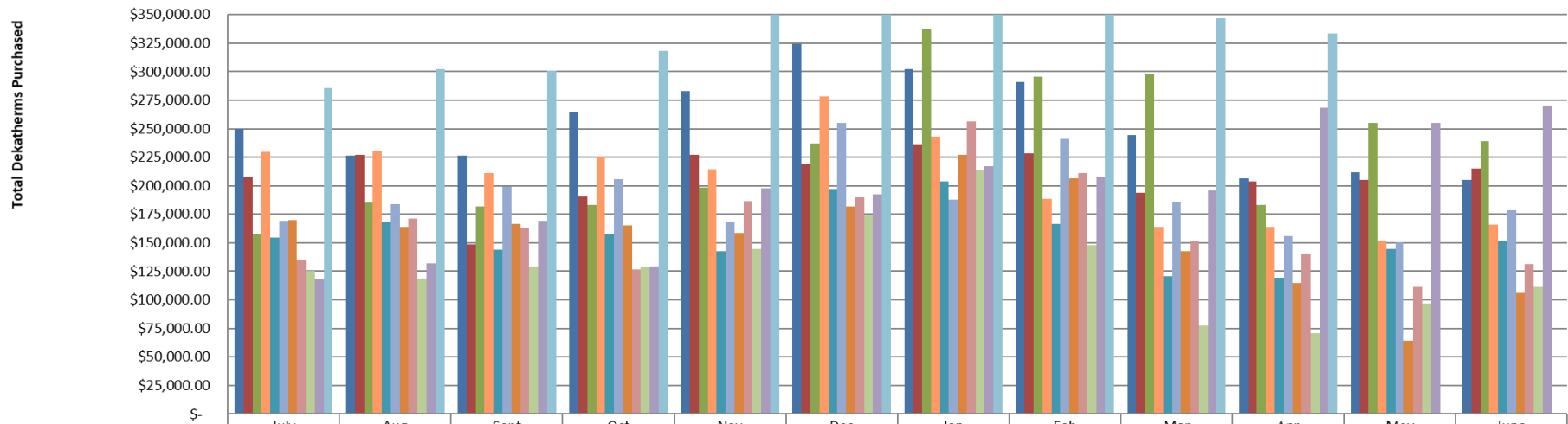
Energy Analysis:

NMSU maintains a steam system infrastructure which includes the steam distribution system, building components, and condensate return to the Central Utility Plant. This infrastructure receives routine visual inspections by Plant Operations and Utility technicians as well as Mechanical shop personnel. The inspections are critical to identifying potential leak areas, catastrophic system failures and other adjustments to improve operational efficiencies. Steam leaks in the tunnel system increase our chemical treatment costs, water consumption, natural gas fuel consumption and overall production costs for steam, chilled water and electricity. Property damage escalation is being realized which has the potential to increase insurance costs related to an increase in insurance claims. Plant Operations and Utilities technicians perform the tunnel inspections while the Mechanical shop is responsible for funding all distribution and building system repairs. Steam consumption has cumulatively increased annually by 41.2% compared to the FY18 baseline with no net increase to campus square footage.

Steam System Infrastructure Energy Analysis

When considering the recent volatility in the natural gas market, the same annual cumulative percentage increase in the cost of fuel is currently projected at 140.9%. The 4 year average cost of high pressure natural gas from FY18 through FY21 was \$1,932,753. The FY22 projected cost for high pressure natural gas is currently tracking to exceed \$4,000,000. The increased water usage and chemical treatment costs due to steam leaks within the distribution system is estimated to be \$300,000 annually at current supply costs. We have also observed a 15% increase in water treatment chemical costs this year due to supply chain issues and recent conversations with our supplier have indicated the likelihood that these costs will continue to rise.

FY Comparison of Total HP Natural Gas Costs



	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
■ FY12 Total HP Dth	\$249,878.08	\$226,341.05	\$226,311.79	\$264,171.75	\$283,155.54	\$324,001.39	\$302,231.59	\$290,673.02	\$244,050.07	\$206,238.71	\$211,476.30	\$204,985.85
■ FY13 Total HP Dth	\$207,616.47	\$226,875.55	\$148,877.27	\$190,550.08	\$227,169.35	\$218,840.59	\$236,085.03	\$228,430.85	\$193,823.10	\$203,931.91	\$204,957.99	\$214,960.21
■ FY14 Total HP Dth	\$157,865.86	\$184,914.88	\$181,517.77	\$183,200.05	\$198,274.57	\$237,321.11	\$337,364.89	\$295,816.88	\$298,235.21	\$183,210.93	\$255,296.65	\$238,853.12
■ FY15 Total HP Dth	\$229,531.25	\$230,219.66	\$211,271.36	\$225,990.86	\$214,746.57	\$278,098.91	\$243,376.89	\$188,303.80	\$164,007.83	\$163,644.53	\$152,024.74	\$166,091.59
■ FY16 Total HP Dth	\$154,675.18	\$168,713.16	\$143,746.88	\$157,733.59	\$142,753.38	\$197,334.07	\$203,507.69	\$166,691.89	\$120,339.75	\$119,070.92	\$144,887.56	\$151,523.17
■ FY17 Total HP Dth	\$168,880.04	\$183,859.27	\$198,983.98	\$205,517.19	\$168,026.99	\$255,106.54	\$187,575.52	\$241,261.14	\$185,968.46	\$156,227.56	\$150,699.90	\$178,706.40
■ FY18 Total HP Dth	\$169,749.39	\$163,989.28	\$166,220.20	\$165,455.56	\$158,439.94	\$181,619.84	\$226,806.87	\$206,405.60	\$142,763.74	\$114,463.83	\$63,965.09	\$105,931.72
■ FY19 Total HP Dth	\$135,611.42	\$171,008.47	\$163,383.56	\$126,720.64	\$186,706.68	\$189,882.24	\$256,295.60	\$211,346.15	\$151,129.07	\$140,851.70	\$111,222.33	\$131,388.35
■ FY20 Total HP Dth	\$125,512.73	\$118,527.47	\$128,990.10	\$128,457.71	\$144,589.59	\$173,557.20	\$213,563.62	\$147,798.47	\$77,380.60	\$70,694.16	\$96,418.38	\$111,084.73
■ FY21 Total HP Dth	\$118,033.27	\$132,204.60	\$169,023.24	\$129,578.20	\$197,544.06	\$192,392.82	\$217,069.54	\$207,660.48	\$195,807.89	\$268,637.25	\$255,066.56	\$270,061.65
■ FY22 Total HP Dth	\$285,718.53	\$302,392.24	\$300,654.74	\$318,143.54	\$393,202.17	\$446,619.01	\$518,568.41	\$456,232.15	\$346,525.98	\$333,548.42	\$-	\$-

Steam System Infrastructure Energy Analysis

	Natural Gas Consumption		
	HP DTH Usage	FY % Change	FY18 Compare
FY22	585,228.00	-0.9%	11.8%
FY21	599,850.00	1.5%	14.6%
FY20	547,779.00	-7.3%	4.6%
FY19	577,111.00	-2.3%	10.2%
FY18	523,569.00	-11.4%	0.0%
FY17	584,057.00	-1.1%	11.6%
FY16	582,528.00	-1.4%	11.3%
FY15	553,144.00	-6.4%	5.6%
FY14	530,087.00	-10.3%	1.2%
FY13	548,792.00	-7.1%	4.8%
FY12	590,760.00		12.8%

*Only includes data thru April 2022

Steam System Infrastructure Energy Analysis

	Natural Gas Costs		
	HP Gas Cost	FY % Change	FY18 Compare
FY22	\$4,226,733	39.3%	126.5%
FY21	\$2,353,080	-22.4%	26.1%
FY20	\$1,536,575	-49.3%	-17.6%
FY19	\$1,975,546	-34.9%	5.9%
FY18	\$1,865,811	-38.5%	0.0%
FY17	\$2,280,813	-24.8%	22.2%
FY16	\$1,870,977	-38.3%	0.3%
FY15	\$2,467,308	-18.7%	32.2%
FY14	\$2,751,872	-9.3%	47.5%
FY13	\$2,502,118	-17.5%	34.1%
FY12	\$3,033,515		62.6%

*Only includes data thru April 2022