



Message from the Executive Director, Pat Chavez

The Utilities Department is pleased to present the December issue of the Facilities & Services monthly newsletter. We take great pride in being able to serve the campus community and always strive to provide our customers with the best possible service. As such, we are constantly looking for new and more efficient ways to increase the quality and quantity of our services. We wish you a wonderful holiday season and look forward to serving you in the new year.

Who is Utilities and Energy Management ?

NMSU's Utilities is a \$19M per year operation that is comprised of 3 departments to include Plant Operations, Utilities and Energy Management. Plant Operations is a 14 member team that functions in a 24 hour, 365 days a year operation and is responsible for providing Electricity, Chilled Water and Steam to the campus community.



Enrique, Isaac, Eric, Jacob, Andrew, Gilbert (Day Shift)

The Utilities Department is a 4 member team that is responsible for maintenance and operation of the campus Domestic Water, Wastewater and Natural Gas Systems. Lastly, the Energy Management Department is a 4 member team that maintains the university's Energy Management Enterprise System with a focus on energy efficiency projects, smart metering implementations, building automation commissioning and energy consumption measurement and verification. Here at NMSU, these team members play a significant role in managing energy and natural resources responsibly. In the past 10 years, substantial energy savings have occurred at NMSU and we currently outperform our composite peers in the energy per gross square foot category. In those same years, NMSU has realized approximately \$15M of avoided utility cost for the university.

What does Utilities and Energy Management do?

NMSU Utilities Department performs maintenance and inspections of campus Water Wells, Distribution Piping and Storage Tanks. Monthly water testing is performed at 50 sites across campus to ensure the delivery of safe drinking water as per New Mexico Environmental Department (NMED) compliance requirements. Other tasks include corrosion testing of the university natural gas pipelines and maintenance of the sanitary sewer system and lift stations.

Energy Management performs automation control performance testing, commissioning and communications analysis on building automation systems which include HVAC, Lighting, Smart Metering and Utility Production equipment control and monitoring.

Plant Operations produces approximately half of the university's electricity needs out of the Strickland Central Utility Plant on Sweet Street. Chilled Water is produced primarily for comfort cooling of the campus buildings and delivers this utility to approximately 60 buildings. Steam production supports a more diverse need for the campus and is utilized for chilled water production, space heating, autoclaves, humidification, domestic hot water, Corbett Center dishwasher and heating for the swimming pools.

Our Staff

Administration

Pat Chavez, Executive Director
Lorraine Silva, Manager, Utilities

Utilities

- Javier Sanchez, Plumber Lead
- David Apodaca, Plumber
- Daniel Munoz, Plumber
- Andres Bencomo, Utility Locator

Energy Management

- Jared Balderas, Instrumentation & Controls Technician
- Ramon Jimenez, Instrumentation & Controls Technician
- Ryan Aragon, Instrumentation & Controls Technician

Plant Operations

- Victor Palafox, Supervisor, Plant Operations
- Gilbert Perez, Plant Operator Lead
- Jacob Andazola, Plant Operator
- Eric Berard, Plant Operator
- Hugo Correa, Plant Operator
- Isaac Gonzalez, Plant Operator
- Francisco Guaderrama, Plant Operator
- Jose Paque Garcia, Plant Operator
- Sal Saiz, Plant Operator
- Tommy Vargas, Plant Operator
- Andrew Vargas, HVAC Mechanic Lead
- Enrique Orozco, HVAC Mechanic
- Gloria Montes, After Hours Dispatch (Student)

Satellite Chilled Water Plant

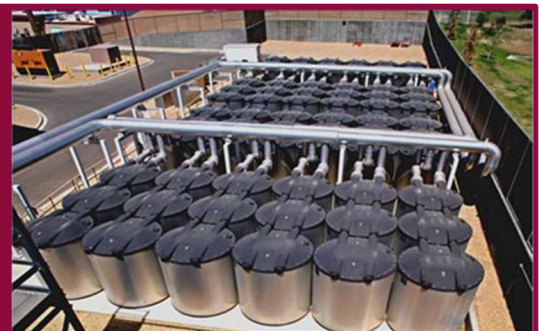
The year 2013 brought new opportunities to provide chilled water for our current campus size and for future growth. We now have a new chilled water plant, the Satellite Chiller Plant.



This plant is for chilled water production which is accomplished with a 2,500 ton chiller, a 900 ton Glycol chiller, and a 2,000 ton ice storage system which, like the thermal storage reservoir, allows us to store cooling capacity in the form of ice made at night for use during the day.

Satellite Utility Plant

Utilizing thermal storage displaces energy consumption rather than reducing it; instead of generating cold water during the day when electrical rates are high, it allows for this production to occur at night when energy costs are low in order to reduce the overall utility bill. At night, the air is cooler and makes for a more efficient fuel (natural gas or coal) combustion process.



When dealing with the ice thermal storage, the chiller and pumping loop is a mixture of glycol (antifreeze) and water so that the chiller can produce below-freezing temperatures in the primary flow loop to create the ice.

Utilizing the new plant enables the campus to shut down 879 horsepower worth of individual building chilled water pumps, which roughly equates to a savings of 4.85 gigawatt-hours of electricity per year. If we consider the efficiency of the new chiller compared with industry requirements, we can get an additional energy savings of .68 gigawatt-hours per year.

In total between these two elements, the new plant is affording an annual energy savings on the order of 5.24 gigawatt-hours per year which is about \$678,537.00 savings! According to the US Energy Information Administration, the average US household in 2019 used 10,649 KWH per year. According to this statistic, the new plant would offset on the order of 492 houses worth of electricity in energy savings.

New Staff

Ryan Aragon, Instrumentation & Controls Technician

Interesting NMSU Fact

Tunnels: If we were to construct the tunnels today, it would take 1,121 trips from an average cement mixer to haul all the concrete. The weight of this much concrete would be 45,500,000 pounds.



Javier, David, Daniel, Andres

Chiller Water and Thermal

The central utility plant produces chilled water which is used to provide air conditioning for the campus. Until 2013, we had three electric chillers, two absorbers, and a 3,000,000 gallon underground thermal storage reservoir, with the capability of producing 7,500 tons of chilled water.

It is cheaper to produce chilled water at night because of the way the electric company charges us (\$.12 per kilowatt during the day and \$.004 per kilowatt at night). The water is not needed when we produce it therefore we store it during the day under parking lot #59.

To use the water during the day all we have to do is run smaller (much cheaper) circulating pumps.