American Municipal Power
Fremont Energy Center

2012 Summary Report

February 2013

American Municipal Power, Inc. (AMP) and Akron, Ohio-based FirstEnergy Corp. finalized the purchase of the Fremont Energy Center in July 2011. The project was formerly owned by Calpine Corporation, which filed for bankruptcy in 2005. With construction still incomplete, the plant was auctioned in 2007 as part of the bankruptcy settlement. AMP conducted due diligence and bid on the facility in 2007, with FirstEnergy ultimately having the winning bid. After acquiring the facility from FirstEnergy, AMP oversaw construction completion and startup of the facility. The 707 MW (fired) facility supplies power to 87 AMP member communities, as well as the Delaware Municipal Electric Corporation, the Michigan Public Power Agency and the Central Virginia Electric Cooperative.

2012 Summary

The AMP Fremont Energy Center (AFEC) has been operating commercially since AMP assumed care, custody, and control of the facility on January 20, 2012. Deliveries to participants began on Hour Ending 0100 on January 21, 2012. The plant is currently staffed by 3 AMP personnel and 21 full-time NAES personnel that support AFEC maintenance and operations.

Overall, the year saw higher output (capacity factor) than was projected in the SAIC AFEC Initial Project Feasibility Study (59% actual compared to 49.1% projected). This was due to lower than projected gas prices resulting in more dispatched hours. For the year, AFEC generated 3,525,792 MWh.

AMP executed a Long Term Agreement with Power Systems Manufacturing (PSM) for major maintenance on the gas turbines and inspections of the steam turbine. The length of the agreement is for 96,000 equivalent operating hours and includes all labor and parts associated with scheduled maintenance for the turbines.

The spring scheduled outage saw the unexpected discovery of foreign object damage on seven last-stage (L-0) turbine blades on the Low Pressure (LP) Turbine. These seven blades were replaced and the plant was successfully restarted following reassembly of the LP steam turbine.

The summer months saw a high market demand and the plant responded with high availability as needed throughout the season. The plant commissioned the inlet fogging systems on both combustion turbines to maximize plant output during hot days.

To improve reliability heading into the winter, an Inlet Bleed Heat system was installed on both combustion turbines to eliminate the possibility of inlet pluggage or icing damage to the combustion turbine components.

In late October, Siemens, the steam turbine manufacturer, issued an Urgent Technical Advisory regarding cracking that had been seen in similar designed steam turbine generators at the core frame ring to spring bar attachment welds. The plant was brought offline to perform inspections and repair cracks that were identified. After repairs were completed by the OEM, the plant was brought back online and released for dispatch operation successfully in mid-November.

Lower market demand in December and PJM transmission constraints called for downturn at times. Despite the more frequent cycling of the units, the plant saw high reliability when called upon, finishing out a successful first year of operation for AFEC.

Safety

There were no OSHA recordable accidents for 2012. There were eight Near Miss incidents throughout the year. Each incident was investigated and shared with all personnel. To avoid reoccurrence corrective actions were developed and implemented for each incident.

Environmental Compliance

From an environmental perspective, there were no compliance issues in 2012. The state-of-the-art emissions control and monitoring systems at the facility performed as expected in AFEC's first year of commercial operation. Performance testing was completed in both winter and summer operating conditions and no immediate issues were identified. Waste water was monitored throughout the year (both process and storm water) with no significant issues or concerns. There were also no reportable spills at the facility in 2012.

Financial

AMP completed permanent financing of the AFEC project in June 2012. The 4.27 percent all-in True Interest Cost (TIC) was well below the original estimates for the project, which was 6.0 percent.

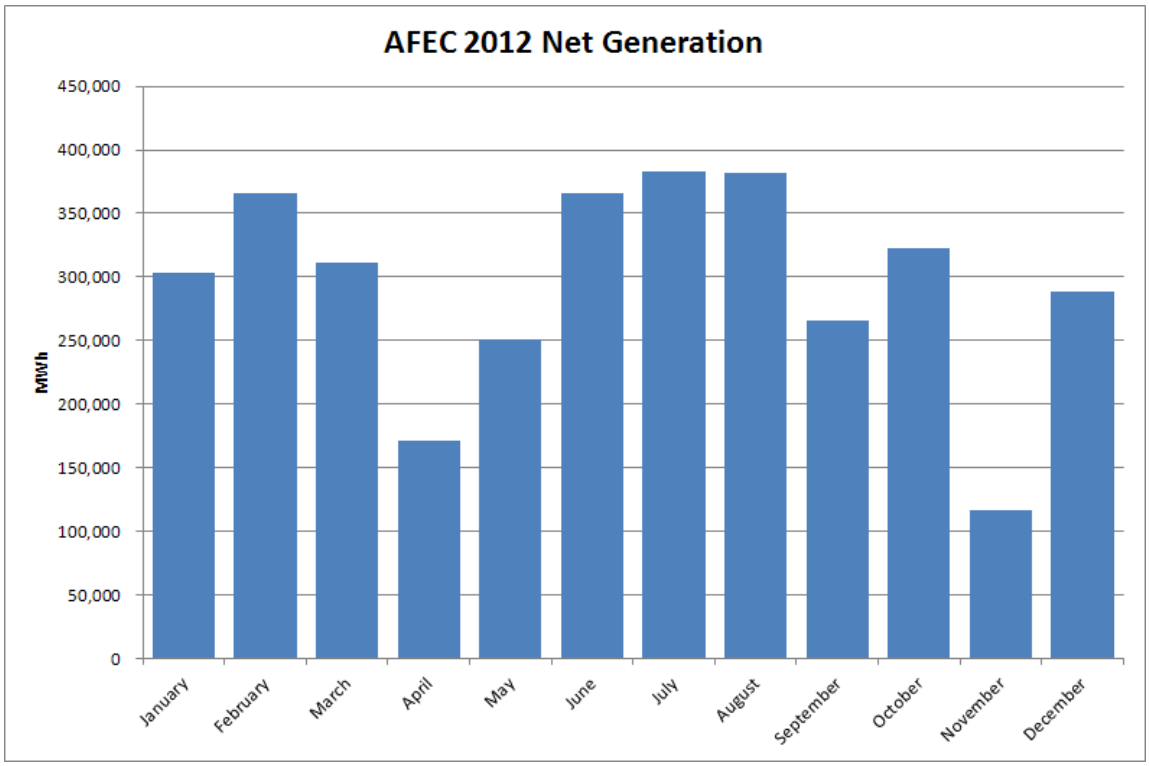
Natural Gas Supply

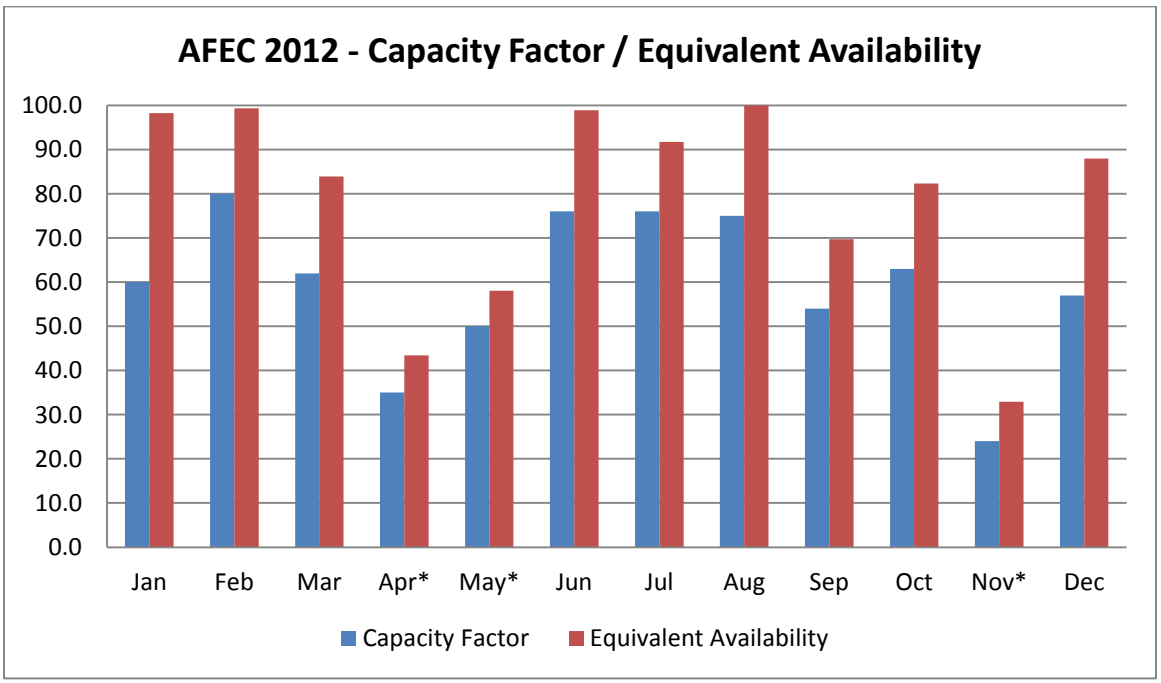
In 2011, AMP expanded our existing contract with The Energy Authority (TEA) to include natural gas and risk management services. TEA assisted AMP with the development and implementation of a natural gas hedging program. Throughout 2012, TEA continued to manage the gas hedging strategy, as well as management of the physical natural gas delivery to AFEC.

Operations

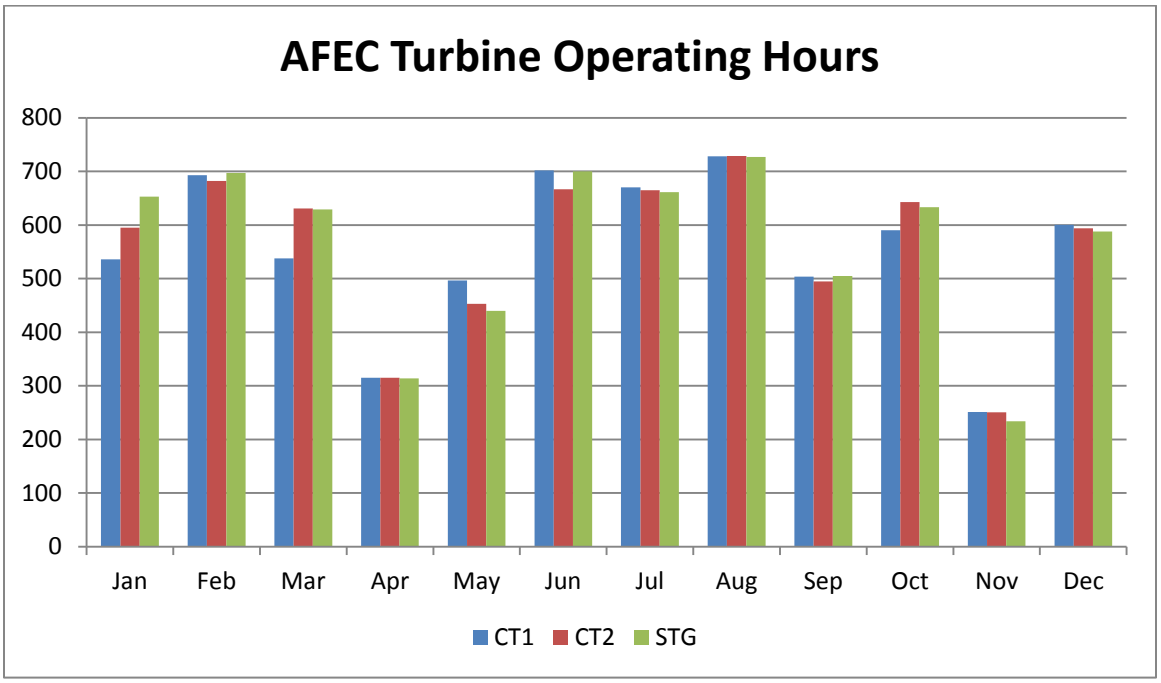
AFEC operated for the year at a capacity factor of 58.9% which exceeded the estimated capacity factor of 49.1% from the Initial Project Feasibility Study, performed on behalf of AMP by SAIC.

Below are several graphs charting different performance metrics on a monthly basis.

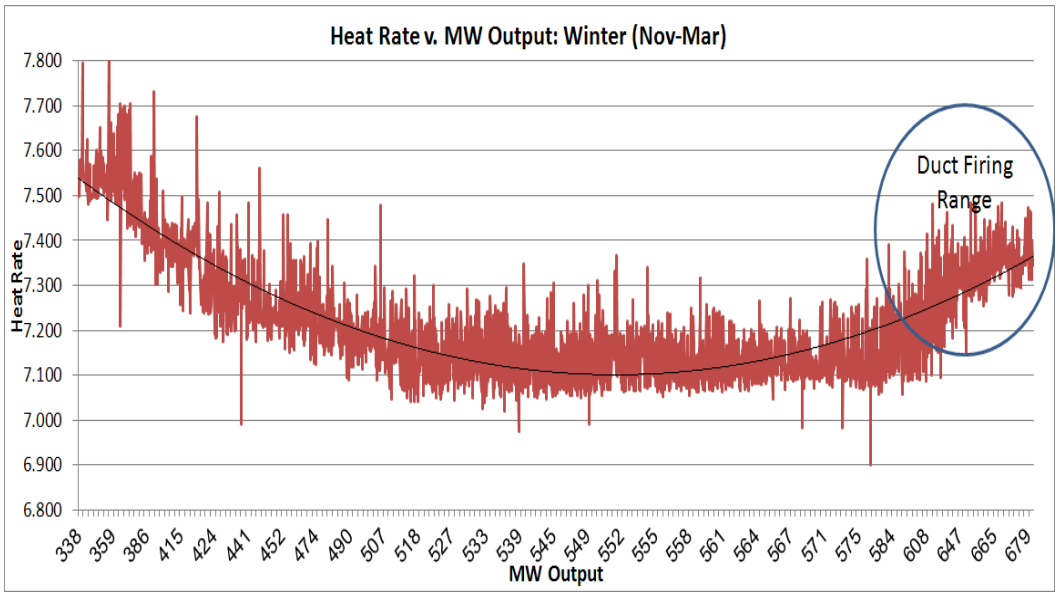


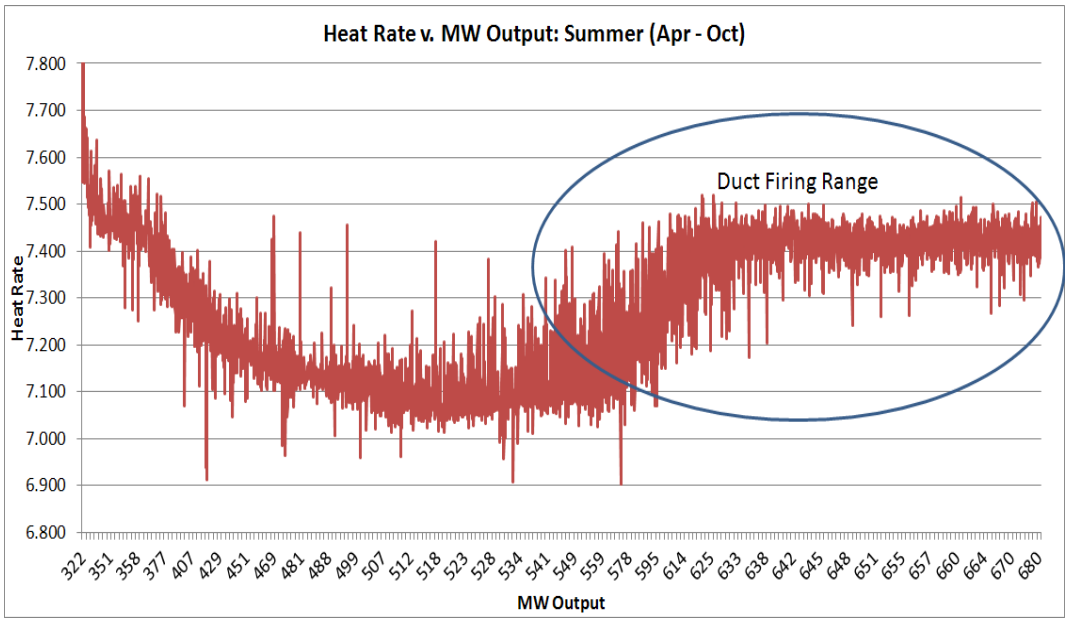


*April, May, and November results are related to the LP Turbine outage and STG Spring Bar Outage
NOTE: Availability takes into account all scheduled planned and maintenance outages. EFORd does not take these into account.



For the year, AFEC used 25,762,533 MMBtu of natural gas for generation. This resulted in a net heat rate of 7,300 MMBtu/MWh.





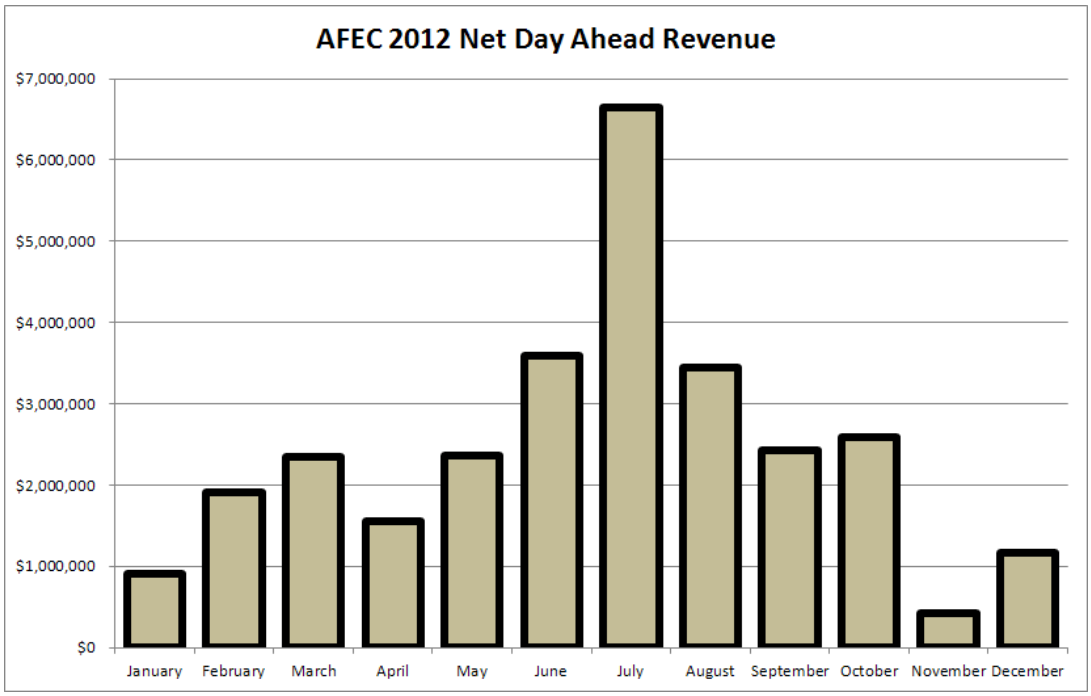
Variable operating costs of the plant for the year averaged $25.02 / MWh and were made up of:

Natural Gas:	$22.00 / MWh
Variable O&M:	$2.19 / MWh
Net Real Time Purchases / Sales:	$0.83 / MWh

Natural gas hedging costs added $4.60 / MWh to the operating costs to provide an average energy rate from the plant to members of $29.62 / MWh.

The positive hedging cost was due to the drop in natural gas prices throughout the year, which meant that hedges that were purchased in late 2011 and early 2012 were higher than the daily market.

During the hours that AFEC operated and delivered energy to members, energy costs from the plant were a cumulative $29.3 million lower than the PJM market. During the month of July, high temperatures and prices led to the plant providing members over $6 million in net energy benefits. Monthly net energy savings compared to market are shown below:



AFEC also began providing PJM Installed Capacity (RPM) benefits to members beginning June 1, 2012, which was the start of the PJM 2012/2013 planning year. 685 MW of capacity was sold into the PJM RPM auction at a rate of $0.60 / kW-mo. This $411,000 of capacity benefits was credited to participants on a monthly basis proportional to each participant's contractual allocation in the AFEC project. This equated to a total of $2.8 million capacity credit over the seven (7) month period.

Capacity revenues from the plant will increase in future years as the PJM RPM market prices increase, with the latest auction for planning year 2015/2016 clearing at $10.94/kW-Mo.

Reliability

Scheduled Outages were performed in the spring and fall. These outages were optimized to ensure a great number of projects could be completed in a short duration to enhance the performance and reliability of the plant.

The projects included:

- **Inlet Bleed Heat** – The 1st quarter of operation in 2012 saw derates and outages due to snow and ice pluggage of the CT inlet filters. PSM was contracted to install an Inlet Bleed Heat system that directs hot air from the combustion turbine compressor discharge to the inlet filters to eliminate snow pluggage on the filters and icing in various stages of the machine.
- **Combustor Dynamics Monitoring System (CDMS)** – PSM, as part of the LTA, installed their CDMS system on both CT1 and CT2 to continuously monitor combustor dynamics that have been seen to cause equipment failures throughout the industry.
- **LP Steam Turbine L-0 Blade Replacements** – During the Spring Outage an inspection on the LP Turbine L-0 Blades found foreign object damage on seven blades which warranted replacement. These titanium blades are 42" long and are free-standing and have a high propensity for cracking. ALSTOM Power removed the LP Turbine from the casing and replaced these seven blades with new blades provided by Siemens.

- **ST Generator Spring Bar Inspection** – An Urgent Technical Advisory was issued from Siemens to AMP regarding cracking that had been seen in similar designed steam turbine generators at the core frame ring to spring bar attachment welds. AMP decided to bring the plant offline immediately to perform these inspections. Inspections found cracking in nearly all of the attachment welds. A repair method was developed and implemented by Siemens to allow the generator to be placed back into operation. We are currently awaiting the results of Siemens' root cause analysis to determine next steps for inspection or further repairs.
- **HP Sky Vent Rebuilds** – The HP Sky Vents were seen in the first 6 months of operation to have erratic operation that saw high maintenance costs and also risked the reliable operation of the plant during upsets, startups, and shutdowns. It was determined that these valves which were installed in the early stages of plant construction were built with marginal material and installed improperly per the valve OEM instructions. Parts were replaced with superior material and expansion joints were installed in the downstream pipes to eliminate the excessive stresses previously seen on the valves.
- **SCR Blower Upgrade** – Due to a high maintenance cost and low reliability, one SCR Blower (2-2) was selected to be upgraded and evaluated. The upgrade consisted of replacing the two pillow block bearings with a more robust monoblock bearing that is more reliable. Results from this upgrade have been positive and more fans are being upgraded in 2013.
- **HRSG Drain Valve Replacements** – Several HRSG Drain Valves on both units were replaced in 2012 due to excessive leak through. This has reduced the amount of HRSG makeup water.
- **Auxiliary Steam System Upgrades –** The original design of the Auxiliary Steam System was inadequate as the control was erratic and unable to maintain proper steam pressure/temperature. The plant installed a properly sized HP steam to Aux Steam Pressure control valve, replaced the Attemperator Control Valve trim set to reduce the flow to a controllable level, replaced the Attemperator assembly to better atomize the water, and relocated the downstream thermocouples so they were no longer impacted by unevaporated water. Also as part of this project several warm-up lines/orifice drains were added to keep the system hot and available.
- **Fire Protection -** To prevent a reoccurrence of multiple false trips that were seen during commissioning we designed and purchased a voting system which allows us to visually see the indicated level of combustible gases at each of the eight (8) detectors in each of the CT enclosures. The system was installed during the spring outage. The system alarms when one detector sees 20% combustible gas content but will not send out a trip signal until two detectors each indicate at least 50%. The system has worked very well since being placed in service at the conclusion of the outage.
- **Ammonia Transfer System -** The ammonia transfer system has been a "watch item" in the design of the facility from initial startup. The pumps were slightly undersized preventing them from responding properly to upset conditions. In 2012, we redesigned the ammonia transfer skid and purchased the new system with three pumps. The final controls upgrade for this project will be completed in 2013. Also as part of this project we tied the ammonia feed from the transfer pumps to the condensate pH chemical feed pumps. With this simple fix we were able to eliminate the ammonia day tank in the lab area with the associated strong ammonia smell and chemical hazard. This fix allowed us to table the extensive chemical feed redesign for the ammonia feed system.
- **TrueSense -** In the summer of 2012, AMP directed plant operators to install the GE Betz TrueSense system at the cooling tower to monitor the chemistry of the circulating water. This was part of an overall project to raise the cooling tower cycles to 10 and reduce cycle blowdown to the sewage system while maintaining acceptable chemical stability. The system has been used for effective monitoring since installation. To further enhance the system, additional pH/conductivity instrumentation will be installed to ensure that the

circulating water system is adequately protected from a chemical upset. This instrumentation was received in December 2012 for installation in January 2013.

- **Maintenance Building –** The Maintenance Building was constructed during the second half of 2012. The maintenance department will mobilize their shop equipment into this building in early 2013. This building will provide the plant mechanics a location to efficiently work on various projects without impacting the generation area of the plant. This building will also provide a location to stage work order and outage parts which will optimize the time spent on work orders.

Conclusion

The AMP Fremont Energy Center proved to be a strong investment for the organization and its participating members in the first year of operation. A combination of low natural gas prices and above average summer temperatures increased the value; however, it also demonstrated that the facility will be a key component of AMP's power supply portfolio for years to come. The ability to vary operations at the plant in response to market conditions benefits all participants and supports AMP's strategic approach to power supply planning.