

Public Power PARTNERS



S&P 500	2,171	+25	+1.00%	
GlobalDow	1,104	+13	+1.14%	
Gold	1,965	+30	+1.53%	
Oil	1,165	+18	+1.56%	
	77.66	0.09	0.12%	



POWER SUPPLY

GENERATION

FINANCIAL

MEMBER SERVICES

SUSTAINABILITY

American Municipal Power, Inc.



American Municipal Power Fremont Energy Center

Mike Perry
AMP Senior Vice President
Generation Operations

History of AMP

- American Municipal Power was founded in 1971 when a group of municipally owned electric systems joined forces to lower costs and increase reliability of their power supply to benefit their consumer-owners

Who AMP is Today

- Public Power Agency with 129 members in 7 states
 - Members in Ohio (82), Pennsylvania (30), Michigan (6), Virginia (5), Kentucky (3), West Virginia (2), and the Delaware Municipal Electric Corporation
 - Members comprise of more than 625,000 customers

American Municipal Power, Inc.

- Owned and operated by the members
- Assists members in entering power supply agreements
- Provides a diverse power supply portfolio for the members
 - Hydro, Wind, Solar, Natural Gas, and Coal

AMP Generation Assets: Hydro

- Largest developer of new run of the river hydroelectric power
- Four plants under construction along the Ohio River
 - Cannelton – 88 MW
 - Smithland – 76 MW
 - Willow Island – 44 MW
 - Meldahl (along with City of Hamilton) – 105 MW
- AMP constructed and currently operates the Belleville Hydroelectric Plant since 1999 – 42 MW

Cannelton Hydroelectric Project



Belleville Hydroelectric Project



AMP Generation Assets: Wind

- AMP members own the first utility scale wind farm in Ohio as part of OMEGA JV6
- The four Vestas wind turbines have a capacity of 7.2 MW and are located in Bowling Green, Ohio

OMEGA JV6



AMP Generation Assets: Solar

- AMP members are installing solar arrays inside their communities
- Member communities see the benefits of solar power to offset some of their peak load
- The Napoleon Solar project is 3.2 MW and includes over 17,000 solar panels

Napoleon Solar Project



AMP Generation Assets: Coal

- AMP members are the largest equity owner of the Prairie State Energy Campus in Southern Illinois with a 23.3% ownership or 368 MW
 - Plant came online this year and is supplying members with base load energy
- Some members also own and operate their own coal generation facilities inside their communities

Prairie State



Prairie State Energy Campus
May 22, 2012

AMP Generation Assets: Diesel

- AMP operates and maintains 66 small diesel fired reciprocating engines behind members' meters – 117.2 MW
- These assets are used to curve members peaking exposure to the wholesale energy market and to reduce transmission peaks

Diesel Peaking - CAT 3516B



AMP Generation Assets: Natural Gas

- AMP operates for the members nine simple cycle peaking gas turbines – 142 MW
- AMP Fremont Energy Center, with 87 owners, is the largest natural gas asset inside members' portfolios at 685 MW
 - AFEC became commercial on January 20, 2012

JV2 - Hamilton



AMP Fremont Energy Center



Intermediate Power Resource

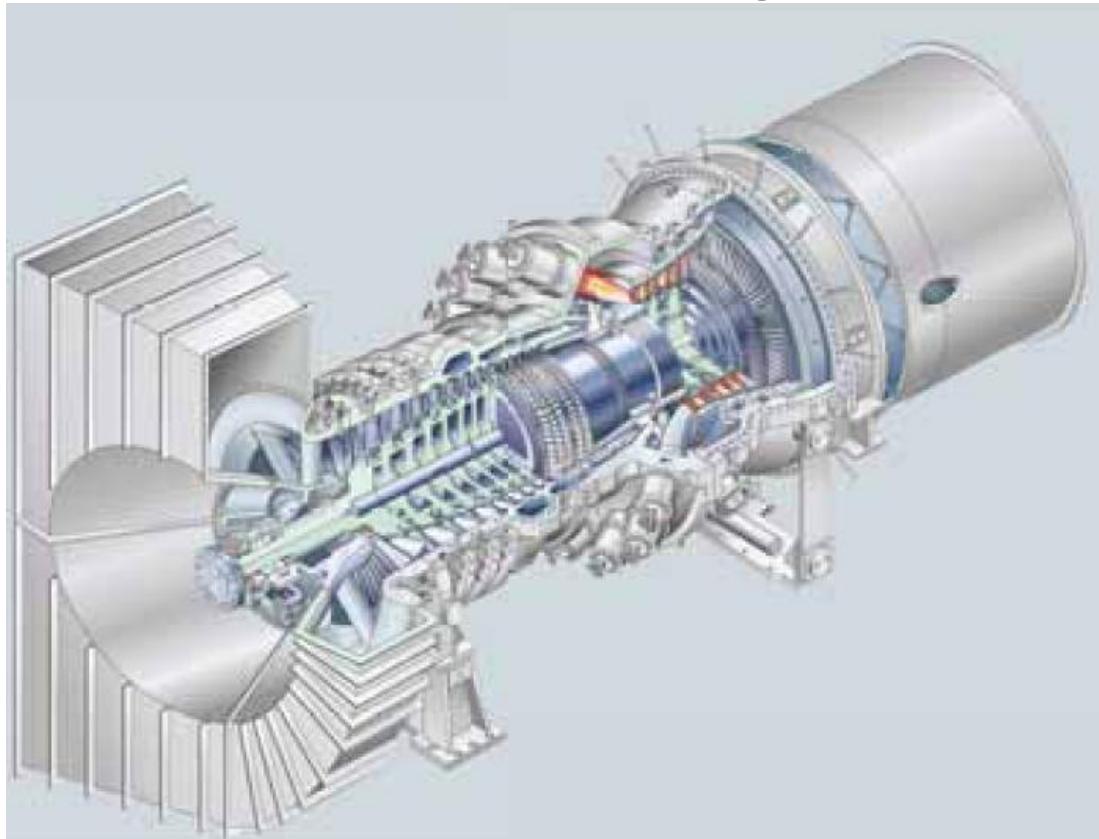
- AMP members' portfolios for intermediate power was subject to the volatile wholesale market
- Members who joined AFEC had need for this resource
- Rate Planning is very important for each member when considering ownership in a project like AFEC

Natural Gas Combined Cycle

- Low Heat Rate – as low as 7,000 btu/kW
- Quick Starting – in a hot start condition, plant can reach base load in 2.5 hours
- AFEC is a 2x2x1 configuration with two gas turbines, two heat recovery steam generators, and one steam turbine

AFEC Gas Turbines

- 180 MW Siemens Westinghouse 501FD2



AFEC HRSG

- Manufactured by Nooter/Eriksen
- Three-drum boiler – HP, IP, LP



AFEC STG

- 363 MW Siemens three section – HP, RH, LP (42” titanium LP blades)



Fremont Energy Center

History of the Facility

Fremont Energy Center

- Project was originally developed by Calpine Corp. and broke ground in 2001



Construction Photo



East Side of Plant in 2003

Construction Photo



HRSG Tube Bundle

Construction Photo 2004



Construction Photos



Plant Building Progress in 2004

Fremont Energy Center

Calpine to New Ownership

Calpine Bankruptcy

- In 2005, Calpine filed for bankruptcy and the Fremont Energy Center was auctioned off
- AMP underwent extensive due diligence and was the stocking horse in the bankruptcy auction
- However, FirstEnergy outbid AMP for the project and took ownership in 2007

FirstEnergy

- FirstEnergy continued construction in 2008



Laydown Area and Plant Building

FirstEnergy Construction



Cooling Tower Construction

FirstEnergy Construction



Steam Piping Construction

FirstEnergy Construction

- Construction continued for two years, completing HRSG, cooling tower, and steam piping construction
- FirstEnergy contracted PIC in 2010 to begin commissioning activities

FirstEnergy Commissioning

- PIC performed gas blows and steam blows in October 2010



FirstEnergy Transition

- FirstEnergy slowed commissioning activities just after steam blows
- Construction activities were slowed down
- FirstEnergy and AMP began discussions in early 2011 about purchasing the facility

AMP Fremont Energy Center

AMP's Purchase and Commissioning

AMP Due Diligence

- AMP and FE signed an MOU for the purchase of the facility in February 2011
- AMP staff arrived on site to perform due diligence
 - Plant was 99% mechanically complete
 - CTs ran for steam blows to approximately 65 MW
- SAIC performed a feasibility study projecting the plant within AMP members' power supply portfolios

AFEC Closing

- FirstEnergy completed construction in June 2011
- PIC signed off on turnover packages
- AMP accepted the mechanically complete facility and closed on the purchase of the facility on July 28, 2011

AFEC Commissioning and Start-up

- AMP contracted PIC to complete commissioning activities
 - PIC was commissioning contractor under FE
- PIC began commissioning activities as soon as AMP took over the facility

AFEC Start-up: Condenser

- Condenser was opened up and cleaned and inspected for operation



AFEC Start-up: STG Commissioning

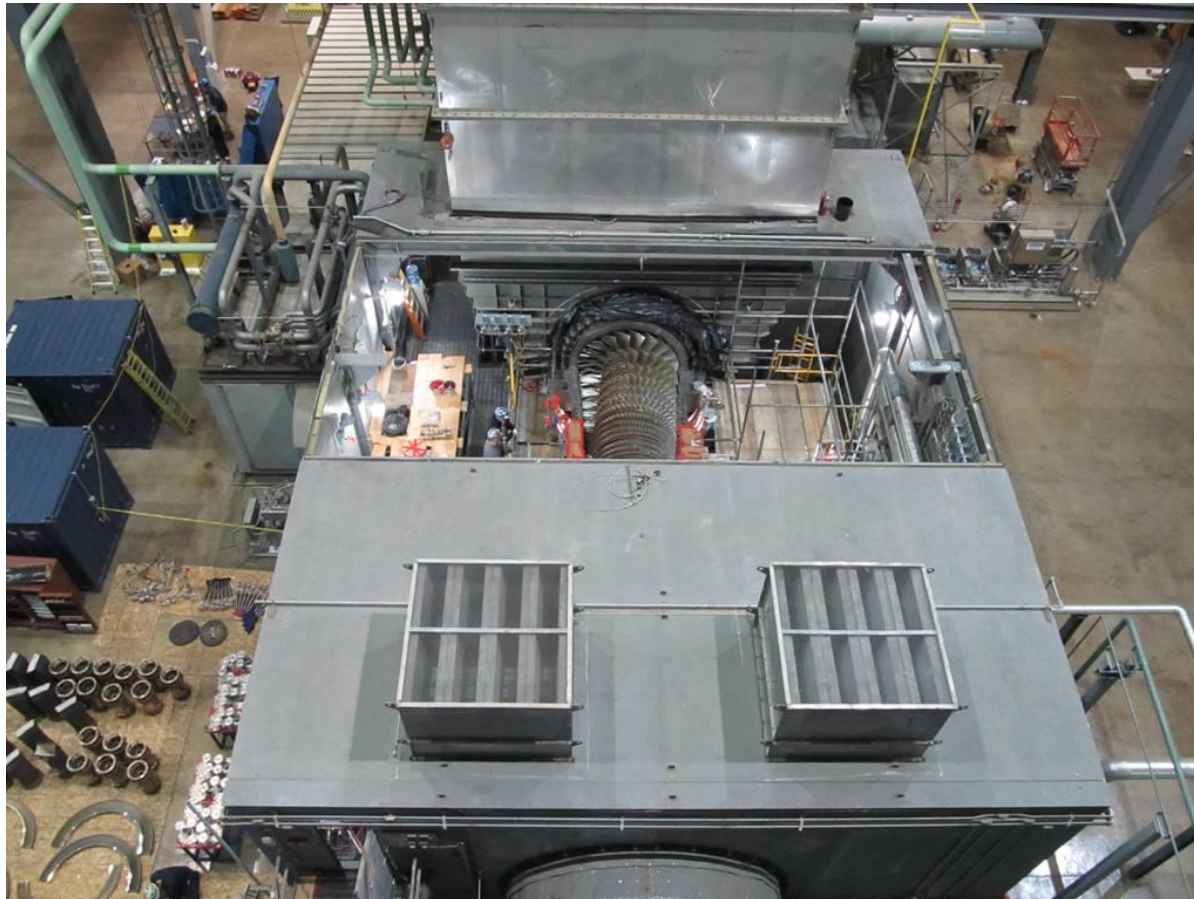
- The STG was not commissioned under FE
- Siemens prepared unit to be operated



AFEC Start-up: CT2 Damage

- Prior to operating the CTs in October 2011, Siemens inspected the units. CT2 was found to have compressor damage.
- Siemens did a boroscope inspection and there was extensive damage through the compressor section
- PSM was contracted to make repairs to the unit

AFEC Start-up: CT2 Repairs



Above view of CT2 package during dismantle

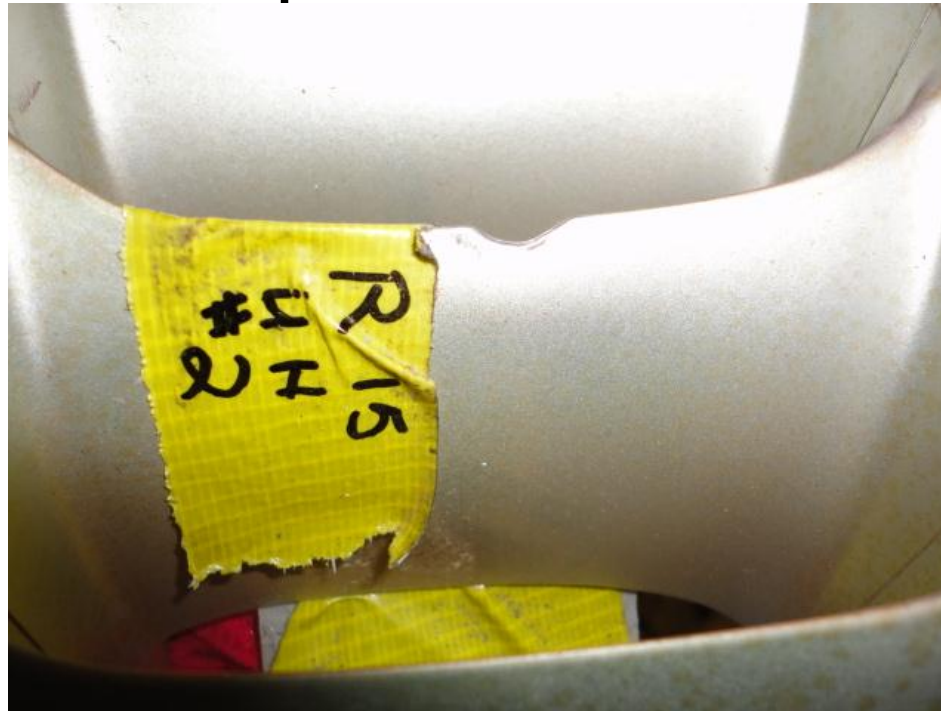
AFEC Start-up: CT2 Repairs



CT2 Compressor Section

AFEC Start-up: CT2 Repairs

- 22 blades had to be replaced by PSM
- An additional 48 blades were blended as shown in example below



AFEC Start-up: CT2 Repairs

- The W501FD2 have known issues in the compressor section that AMP decided to address while the machine was apart
- AMP contracted with PSM to install their “Hook Fit” corrected compressor diaphragms in Rows 1-3

AFEC Start-up: CT2 Repairs

- AMP also contracted with PSM to install 12k parts. The new transition pictured.



AFEC Start-up: 2x1 Base Load

- Once CT2 was repaired, the unit started up and ran to achieve steam purity
- CT1 and CT2 then had to operate together to achieve steam purity before emitting steam to the STG
- 2x1 base load operation was achieved on December 9, 2011

AFEC Start-up: 2x1 Full Load

- Each HRSG has approximately 80 MW of duct firing capacity to bring the plant to the 685 MW limit – achieved December 17, 2011



AFEC Commercial Operation

Commercial Operation Date, O&M
Contractor, and LTA

AFEC Commercial Operation

- After achieving max load, the plant was put through tests to ensure correct operations' abilities
- Tests included:
 - Cold Start/Warm Start/Hot Start
 - 1x1 to a 2x1
 - 2x1 full load to base load
 - 2x1 full load to offline

AFEC Commercial Operation

- SAIC was on site to witness tests
- SAIC signed a letter to AMP stating the plant is ready for commercial operations on January 20, 2012



AFEC Environmental

- 501FD2 equipped with Dry-Low NOx Combustors
- Each HRSG equipped with CO catalysts and SCRs
- We are in complete compliance with our environmental permits

NAES – O&M Contractor



- AMP contracted O&M activities at AFEC to NAES
- NAES is a leader in the industry and operates over 120 power plants across the world
- NAES brings experience and knowledge needed for AFEC to succeed

PSM – Long Term Agreement

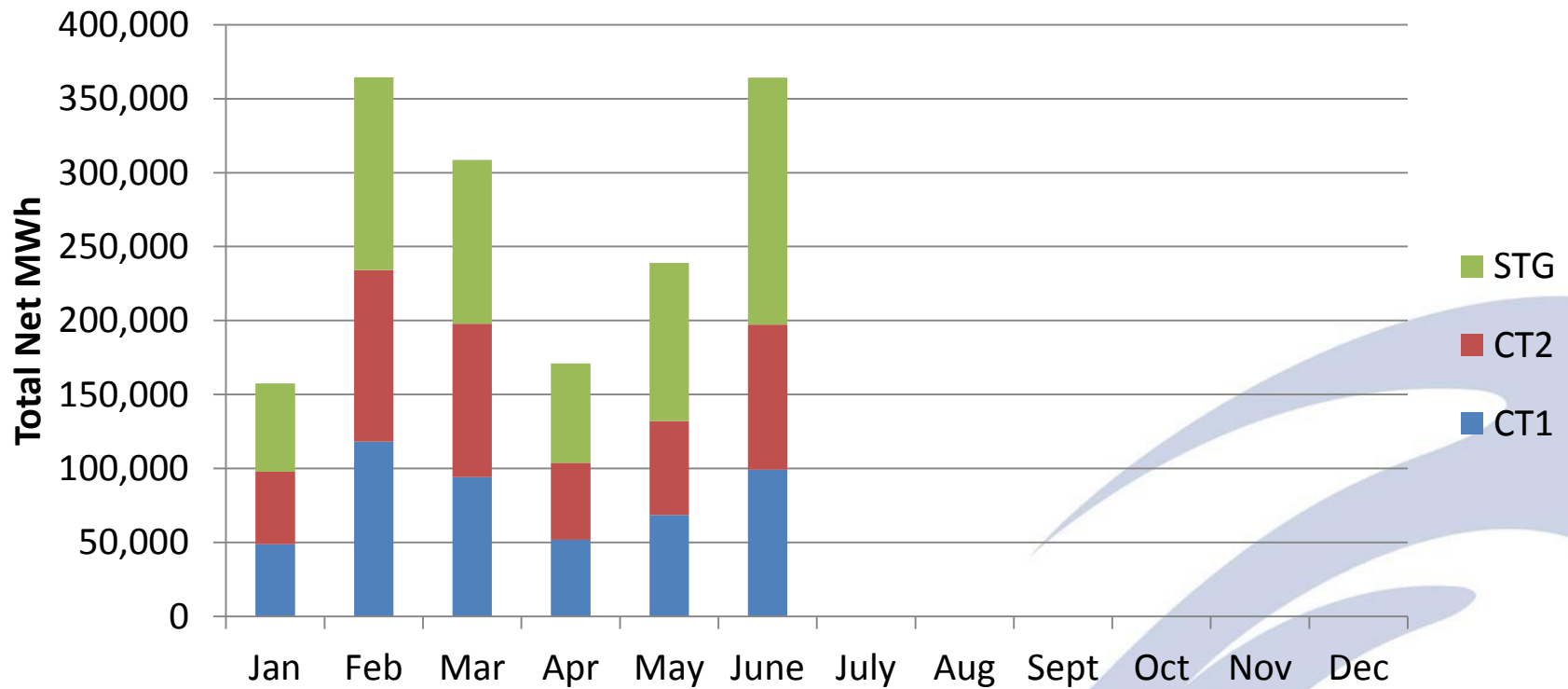
- AMP contracted with PSM for a long term agreement for major maintenance on the Combustion Turbines and the Steam Turbine
- PSM is quickly becoming a LTA industry leader, specializing in third-party parts manufacturing and major maintenance

2012 Operations

2012 Operational Statistics

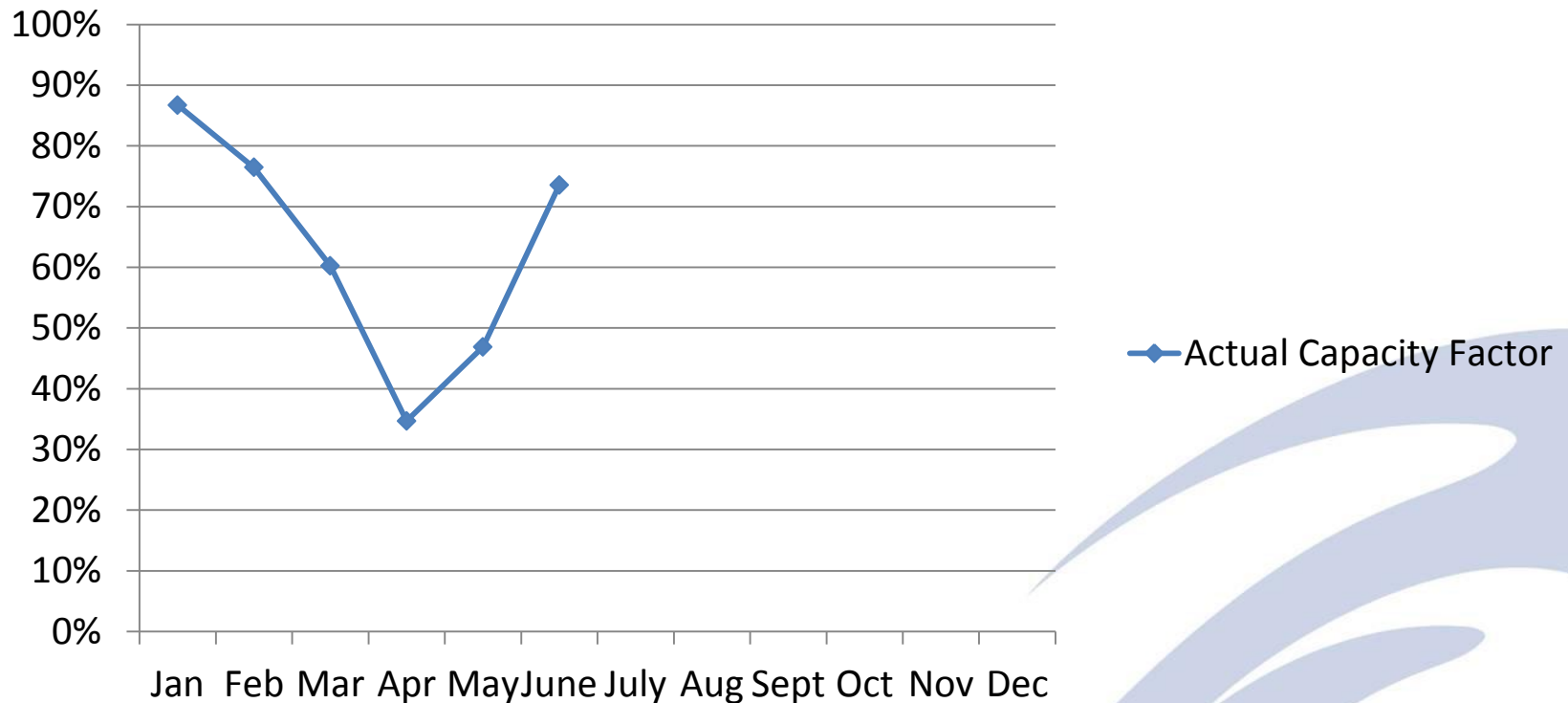
2012 MW Generation

AFEC 2012 Total Net MWh



2012 Capacity Factor

Capacity Factor 2012



2012 Year to Date

<u>AMP Fremont Energy Center</u>	
Plant Availability	98.25%
Capacity Factor	59.88%
Average Net Heat Rate	7,293
Gas Burned (MMBTU)	11,706,038
Total Net MWh	1,605,032

Future Operations

- AMP is dedicated to the success of the facility
- NAES will always be striving for the highest possible availability
- Capacity factors will depend on gas price and wholesale energy market prices