



Overview of Burbank Water and Power Magnolia Power Plant Global Power Plant of the Year - 2005

- **MPP is a clean, high-efficiency, natural gas fueled combined cycle unit that has the capacity of being operated at up to 310 MW (megawatts).**
- **MPP is twice as efficient as previous power plants; it generates more power, uses less fuel and produces 98% fewer emissions.**
- **MPP operates exclusively on reclaimed water waste.**
- **MPP significantly increases the amount of local electricity generation, improves regional electric ability and reduces the reliance on long-distance transmission lines.**

Overview of MPP

The Magnolia Power Plant (MPP) is a clean, high-efficiency, natural gas-fueled, combined cycle unit that has the capacity of being operated at up to 310 MW (megawatts). MPP began as the vision of Burbank Water and Power in early 2000 and was constructed as a result of the utility's advocacy efforts.

Located on four acres of land on a 23-acre site adjacent to Magnolia Boulevard on the Burbank Water and Power campus, it generates more power than previous plants, while using less fuel and creating less pollution.

In September 2005, the Magnolia Power Project won the *Power Magazine* Project of the Year award.

Collaboration with Municipal Utilities

Magnolia Power Plant was built in 2003 and went into service in 2005 via a partnership with BWP's fellow local Southern California Public Power Authority (SCPPA) members (Anaheim, Glendale, Pasadena, Cerritos and Colton).

Through the partnership with SCPPA, Burbank owns 31 percent of the plant and output; Anaheim owns 38 percent; Glendale owns 17 percent; Pasadena owns 6 percent; Cerritos owns 4 percent; and Colton owns 4 percent. This partnership enabled the power plant to be much larger than a power plant built only for one city, enabling these public utilities to cooperatively provide needed energy to their customers. Each of the six cities owns a share of the plant and may use its power at each city's own particular discretion.

BWP personnel staff the Magnolia Power Plant 24 hours a day. MPP operates in base load mode; that is, 8,000+ hours a year.

Local and Regional Reliability

More than merely providing energy to the six cities that own it, the Magnolia Power Plant improves the reliability and stability of the regional grid. With MPP, Burbank is able to ship power to other public power agencies.

MPP utilizes state-of-the-art technology to significantly increase the amount of local electricity generation in Southern California, improving regional electric ability and reducing reliance on long-distance transmission lines for energy delivery. Locating the power plant close to the demand center, that is, homes and businesses that will ultimately use the electricity, reduces losses that normally occur when sending electricity over major transmission lines by as much as 50 percent. This is a strategy favored by public power utilities in order to help serve consumers efficiently and cost-effectively.

How It Works

A combined cycle power plant uses one fuel source to power two electric generators. MPP uses natural gas to spin a combustion turbine generator; heat from igniting the natural gas is then recovered to power a steam turbine generator. It is comprised of a combustion turbine generator which has the ability to boost plant output by 9% on warm days, a heat recovery steam generator that allows the unit to create steam regardless of the plants operating profile, a steam turbine generator, cooling towers, a zero liquid discharge system and the control and services building and stack.

The new Magnolia plant is twice as efficient and produces 98 percent fewer emissions than the old units it replaced. It replaced four units with the total capacity of 115 MW, however, it only uses a third of the fuel they consumed. Besides controlling nitrogen oxide and carbon monoxide emissions, the use of MPP will also result in lower overall operating costs.

Technology: Zero Liquid Discharge

MPP uses two million gallons of water daily, all of which is recycled water from Burbank Water and Power's Water Division. BWP installed an innovative Reclaimed Water Treatment System to serve all the water needs of MPP. This system treats reclaimed water through micro-filtration, reverse osmosis and demineralization processes to produce water pure enough for use in BWP's power plant boilers, saving about one million gallons of potable water each day required to operate the plant. The zero liquid discharge system allows all of the processed wastewater from the plant to be captured and continuously recycled, making it one of the first power plants in the world to operate exclusively on reclaimed water waste. The plant does not discharge any water from the BWP campus.

MPP Sustainability Fast Facts

- The plant produces 98% less air pollution than the 2 units it replaced
- The plant has *zero* liquid discharge
- All wastewater is used on-site, so none is ever discharged into the LA River
- 2 water treatment systems make it possible to reuse the water in the plant
- 1 million gallons of potable water are saved via the water treatment systems that would have otherwise been required to operate part of the plant

History

The state-of-the-art MPP replaced the original Magnolia Power Plant units, which were built on the eve of WWII and were a vital source of power for the production of WWII aircrafts at the Lockheed Aircraft Factories in Burbank. Prior to the construction of the new Magnolia plant, the old and decommissioned Magnolia Units 1,2,3 and 4 were removed and the new MPP was built in their place. In addition, in order to handle the increased power output, BWP's existing electrical switchyard was upgraded to a gas-insulated substation.

The Magnolia Services Building was retained to maintain the required substation serving Downtown Burbank. BWP was able to economically and sustainably renovate this building and make effective use of it with a minimum impact on the environment and landfill.

The Magnolia Power Plant is the largest municipal plant since 2001 to be approved by the California Energy Commission (CEC). The project created more than one million man-hours of work during its construction and achieved a stellar safety record – not one lost-time accident, which earned the project a prestigious safety award by Cal-OSHA.

Cost

The construction of the Magnolia Power Plant was financed by the SCPPA at a cost of \$246million.

More Information

More detailed information can be found in the "Environment" section of the BWP website at www.burbankwaterandpower.com/environment