Inlet chilling adds intermediate, base and peak capacity

Inlet chilling is no longer just a peak power solution, says Houston-based supplier Turbine Air Systems (TAS). Depending on climate and geographic conditions it can function as intermediate or even as base load generation capacity.

Inlet chilling can correct gas turbine performance curves, which degrade up to 20% or more due to ambient conditions. It has traditionally been considered a peak-capacity solution in which inlet chilling has competed against other inlet cooling technologies.

Inlet chilling is also recognized for its ability to follow load. Thermal Energy Storage (TES) adds a load-shifting function using chilled water storage (p. 23, March/April 2005).

Now market dynamics are shifting in favor of cleaner power generation technologies, says Peter Armstrong TAS' director of marketing. Demand has increased in high heat and humidity climates, where inlet chilling has an advantage because the technology does not inject water, increasing relative humidity.

In recent years with the run up in both oil and natural gas prices, natural gas generation has been viewed as peak capacity options, as only peak power prices could justify fuel costs. But with energy efficiency and environmental factors emerging as strong considerations and a demand for base load growing, combined cycle plants are likely to log more operating hours, claims Armstrong. And inlet chilling could be used to maximize output for 500, 1,000 or even 2,000 hours. "The greater the heat, humidity, load growth and emissions restrictions, the greater the need for inlet chilling as an intermediate or base load power augmentation solution for combined cycle plants."

An inlet chilling plant in Brazos valley, Texas