



# Meeting Turkey's Power Demand

## Combined- cycle conversion at Bursa

For nearly two decades, Turkey has been one of the fastest growing power markets in the world, with a young and growing population, rapid urbanisation and generally strong economic growth.



*“This recent award by Bis Enerji demonstrates its trust in Foster Wheeler which has been present in the Turkish market for over half a century.*”

*“This project is going to be another occasion to prove our expertise in the power sector. I am confident that the challenging fifteen-month schedule will be met by the fully integrated project team of Bis Enerji and Foster Wheeler Bimas.”*

**Deniz Metin Kaya**  
General Manager, Foster Wheeler Bimas

Although power demand was hit by Turkey's 2001 economic crisis, the Turkish government anticipates the need for significant increases in power generating capacity in the coming years, possibly 54,000 MW by 2020, requiring billions of dollars in foreign investment.

In order to cope with this growing demand Bis Enerji, one of Turkey's largest independent power producers, has decided to expand its Bursa Power Plant and recently awarded Foster Wheeler Bimas in Istanbul a contract to provide engineering and construction management services.

### **Current configuration**

The total installed capacity of the existing facility is around 320 MW and almost 60% of this capacity is integrated combined-cycle power generation.

The remaining 140 MW is produced by three GE LM 6000 PC gas turbine generator sets operating on a simple-cycle mode, emitting exhaust gases to atmosphere via by-pass stacks.

### **Efficiency gain**

The current simple-cycle capacity is being converted to a combined-cycle mode to increase plant efficiency to 53%.

An additional 40 MW will be introduced with the combination of the existing gas turbine generators with a steam turbine.

The combined-cycle principle is based on the utilisation of gas turbine flue gas heat for steam production through heat recovery steam generators and the use of this steam as input heat to the steam turbine generator.

At Bursa, a heat recovery steam generator will be added to each of the existing three gas turbine sets. In addition, one common steam turbine generator, including all necessary facilities such as a steam condenser and cooling tower and utility systems will be installed. The new combined-cycle system will also be integrated with the existing power generation facilities to achieve operation flexibility.

### **Our role**

Our Turkish team will also draw on the plant optimisation and basic engineering experience of our power experts in Milan. Basic engineering follow-up, detail engineering, procurement and subcontracting services will be performed at our Istanbul office.

The project will take full benefit of readily available vendor information for the long lead equipment such as the steam turbine generator and heat recovery generators which were ordered by Bis Enerji long before the award of engineering services.

Upon mobilisation of construction subcontractors, our construction management personnel will be assigned to site, where we will also manage the commissioning and start-up phases, including the plant performance test.

Meeting Bis Enerji's target schedule of fifteen months to commercial operation is a challenging task. Both Bis Enerji and Foster Wheeler believe that this important target can be reached by good communications, a streamlined decision-making process and implementation of efficient project execution methods.