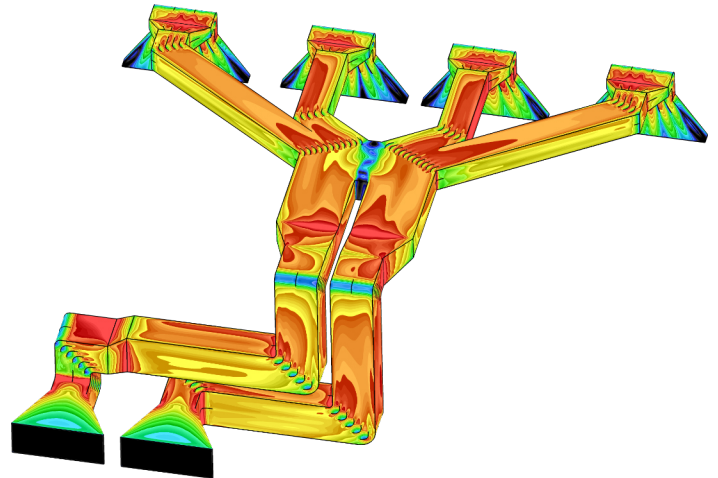


Power Plant Ductwork

Engineering Challenge

A large power plant wanted to optimize a ducting system located between the boiler and pollution control equipment at the plant. The design of both the duct routing and internal flow control devices were considered. A CFD simulation evaluated the gas velocity, temperature, and pressure patterns within the ducting system.

While the geometry involved in this case may seem simple at first glance, it is in fact nontrivial when you consider the need to model viscous flow with many flow control devices and flow paths.



Azore Solution

A hybrid polyhedral, hexahedral, and tetrahedral mesh was used to most effectively model the viscous flow with multiple turns and many flow control devices. An up-wind scheme was employed to solve the incompressible Navier-Stokes equations. A standard K-epsilon turbulence model was used with wall functions.

A stable solution was achieved with maximum efficiency. The customer was able to significantly improve the ductwork system armed with the highly cost-effective Azore solution.

