An Overview of the Diagnostic RGA system for ITER.

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ITER is a large tokamak (fusion-grade plasma device) under construction at the CEA Cadarache site in southern France. ITER is being managed, designed, and constructed by a seven-government international consortium, including the United States. Among the tasks awarded to the US, and subsequently to the ORNL Fusion Energy Division, is the design and fabrication of the Diagnostic Residual Gas Analyser (DRGA) system for ITER. The DRGA is expected to be a key "first plasma" diagnostic for the commissioning of ITER, which is estimated to being operation in 2016. The DRGA design consists of two separate and complete systems, one located on the machine midplane (equatorial port 11) and one on the bottom of the machine in the divertor region. The ORNL design for the DRGA system is currently in the Preliminary Design phase, and active R&D is being carried out to address key issues, such as the amounts of magnetic and radiation shielding required to enable successful operation of the DRGA systems. An overview of the design of the DRGA system for ITER will be given, along with the current status of R&D into outstanding design issues and concerns.