

## **LEED, Follow, or Get Out of the Way - Sustainable Wafer Fab**

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Texas Instruments will complete construction of a 1.1 million sf 300mm wafer fab complex in early 2006. The facility, in Richardson, TX, was designed to achieve a LEED certification. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. There are 5 broad categories that force an emphasis on a holistic approach to design – site selection, water efficiency, energy & atmosphere, materials & resources, and indoor environmental quality.

The plan was to utilize integrated design to achieve LEED Gold for the admin building and LEED Silver for the wafer fab complex. The estimates during design were that the team could reduce electric consumption by over 20% and water consumption by 33% with little to no additional capital required. In fact, the project was also challenged to achieve a 30% cost reduction from the previous TI 300mm fab.

New concepts have a long path to navigate – through concept design, detailed design, construction, and start up. This presentation will provide an update on the project certification status and discuss the challenges, victories, and lessons learned from the strong push for sustainable development on such a large scale.

Items that are being implemented for the fab include: a split chilled water plant (40 deg F and 54 deg F), heat recovery on the CDA compressors and 54 degree chillers; high efficiency FFUs; extensive water reuse; and a reflective roof. On the site and admin building the team is using natural daylighting via shade screens and light shelves; CO2 occupancy sensors; controllable lighting with built in photo and motion sensors; solar water heating; a 2 million gallon rainwater collection pond for site irrigation; native landscaping; and full cutoff exterior lighting.

The team has also worked with tool suppliers and Sematech to influence the efficiency of their products – specifically vacuum pumps and remote chillers. Improvements in those devices produce cascading savings in many facilities systems.

The facility is on track to meet the 30% cost reduction goals and achieve LEED certification.