SIEMENS

First City Tower

Siemens Demand Flow® Helps CB Richard Ellis Achieve Annual Energy Reduction Targets.

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Leveraging Demand Flow technology, Siemens and CB Richard Ellis have helped First City Tower reduce energy consumption, maintain LEED Gold certification and receive significant utility rebates.

In downtown Houston, First City Tower is a 49-story, Class "A" CB Richard Ellis property. Approximately 2,500 people work in the 1.3 million square foot facility, which is committed to sustainability and efficient operations. Through the efforts of the management team, First City Tower has achieved the LEED® Gold accreditation.

In 2011, First City Tower's building owners met the Siemens Industry team during a Houston Green Office Challenge that Siemens had sponsored. Siemens introduced its Demand Flow chiller plant optimization as a new strategy for facilities that had already implemented a wide variety of energy-efficiency programs. At the same time, First City Tower was looking for additional energy-saving opportunities that would help reduce energy consumption and maintain LEED Gold certification.

Client Objectives

To maintain its LEED Gold status, First City Tower has an overall sustainability strategy that includes annual energy reductions of 5% for the facility. By working with Siemens, First City Tower wanted to achieve that target and find a holistic solution that would generate a rapid return on investment.

Siemens Solutions

Siemens proposed Demand Flow to help First City Tower achieve its objectives by making the central chilled water plant more energy efficient. Demand Flow is a proven control strategy that optimizes the complete central chilled water system, including potential air-side savings. With its Controller's specialized algorithms the Demand Flow solution would deliver chilled water system efficiencies through First City Tower's existing Johnson Controls' Metasys®, building automation system.

The building's owners compared Demand Flow with a competitive chiller plant optimization solution that requires variable frequency drives (VFDs) on compressor motors. The compressor motors at First City Tower are original to the building—since the 1970s—and the plant's design presented a challenge in replacing the chillers. To achieve maximum efficiency, while avoiding the technical risks and high costs of compressor VFDs, First City Tower selected Siemens Demand Flow.

Demand Flow is a patent-pending, proven control strategy for chiller plant optimization that reduces a central plant's total energy consumption by 20-50%. It offers a holistic approach for the entire chilled water system, including potential airside savings. This optimization increases the deliverable tonnage and simplifies plant operations and controls, without sacrificing occupant comfort. Demand Flow's specialized algorithms can deliver chilled water system efficiencies to any existing building automation system.

Client Results

Once Demand Flow is fully implemented in First City Tower's chiller plant, Siemens estimates the following results for First City Tower:

- 30% reduction in energy usage within the central chilled water plant
- 8% overall energy reduction for the entire facility

By helping reduce the overall energy usage for the building, First City Tower will easily achieve its energy reduction goal—a mandate from the building owner—and earn additional points that will help the building maintain its LEED Gold certification. Demand Flow and First City Tower are now saving energy, saving money, and saving carbon emissions.

In addition to optimizing the chiller plant operations, Siemens is also helping First City Tower's owners pursue a utility rebate for the project. Once successful, this would represent the first time a project of this type received a rebate in the Houston area.

Together, Siemens and CB Richard Ellis are creating buildings that are smart, efficient, and sustainable.

Highlights

- 49-story Class A commercial office tower managed by CB Richard Ellis
- 30% reduction in energy usage within central chilled water plan
- 8% overall energy reduction for entire facility

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