

FOR IMMEDIATE RELEASE**TIAX Report Analyzes Energy Savings Potential within
U.S. Commercial Buildings**

Study for the Department of Energy concludes that a combination of controls and diagnostics could reduce national commercial building energy consumption by approximately 40 percent

February 14, 2006 (Cambridge, MA) – TIAX, a leading collaborative product and technology development firm, recently released a comprehensive report evaluating the energy savings that could be achieved in U.S. commercial buildings from controls and diagnostics. The report, “The Energy Impact of Commercial Building Controls and Performance Diagnostics: Market Characterization, Energy Impact of Building Faults and Energy Savings Potential,” was commissioned by the Department of Energy (DOE) and is one of several studies TIAX has conducted for the DOE on energy consumption and efficiency.

“Commercial buildings represent about 17 percent of total United States energy consumption and 35 percent of the nation’s electricity use,” said John Ryan, Leader of the Commercial Buildings Team in the DOE’s Building Technologies Program. “To help reduce energy consumption, it is essential for the DOE to assess and prioritize promising opportunities to improve the energy efficiency of commercial buildings. TIAX’s thorough examination of the inefficiencies of these buildings and the controls and diagnostics technologies available to improve efficiency is an important step in this process.”

The TIAX report was divided into four primary segments:

1. The identification of faults that exist within commercial building systems and an evaluation of the national energy impact of these faults
2. An assessment of the energy saving potential of a range of building controls and diagnostics systems
3. An analysis of barriers associated with wide adoption of these controls and diagnostics systems
4. An examination of drivers that could encourage wider adoption of controls and diagnostics within commercial buildings

TIAX identified more than 100 faults found in commercial building HVAC, lighting, and water heating systems. Faults identified included duct leakage, HVAC and light systems left on when office space was unoccupied, and simple software programming errors.



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TIAX's analysis found that as much as 20 percent of the energy consumed by commercial building HVAC and lighting systems could be wasted due to these faults.

The company then evaluated 10 current, new, and advanced building controls and diagnostics systems including optimal whole building control systems, packaged rooftop unit fault detection diagnostics, occupancy sensor-based lighting controls, building commissioning, and HVAC sensors. Diagnostics save energy by identifying energy-wasting faults to be fixed, while controls reduce energy consumption by improving the effectiveness and intelligence of building systems. TIAX concluded that applying a combination of these sophisticated controls and diagnostics to the entire commercial building stock could reduce HVAC and lighting energy consumption by approximately 40 percent on a national basis.

Despite their energy savings potential, more sophisticated controls and diagnostics have very limited market penetration. TIAX found that many building owners are hesitant to invest in controls and diagnostics systems due to a variety of barriers including uncertainty of the upfront cost and payback of these systems, concerns over reliability and implementation, and a general lack of awareness and understanding of these systems.

To address these barriers, TIAX investigated a number of possible factors that could increase building owner confidence and encourage broader adoption of building controls and diagnostics technology. The company recommended the development of rigorous and credible cost-benefit analyses for several controls and diagnostics systems, as well as targeted market promotion and transformation activities. TIAX also identified a range of research and development activities to reduce the cost and increase the effectiveness of controls and diagnostics.

“New innovations in building controls and diagnostics, such as lighting controls and HVAC sensors, have great potential to save energy and reduce costs in commercial buildings nationwide,” said Dr. Kurt Roth, project manager and senior engineer in TIAX's Building and Appliance group. “To spur greater adoption of commercial building controls and diagnostics, we should work to better understand the value these technologies may offer owners and tenants.”

The full report is available at <http://www.tiaxllc.com>.

About TIAX LLC

TIAX LLC (pronounced Ty-ax) is a leading collaborative product and technology development firm that accelerates innovation to help its clients create an impact in the market – and in people's lives. It integrates business, industry, and hands-on technology



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expertise to transform ideas into products and problems into solutions. Formed out of Arthur D. Little's Technology & Innovation business, TIAX (www.tiaxllc.com) builds on more than a century of breakthrough innovation and client success using collaborative R&D. TIAX was selected as a Technology Pioneer 2003 by the World Economic Forum and is ISO 9001 certified with more than 50 research and development laboratories.

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