ScientificConservation
Energy Efficiency Through Advanced Diagnostics

SCI Company Overview

In June 2009, Scientific Conservation Inc., (SCI) formally announced SCIwatch,™a predictive analytics software solution designed for the $5 billion Retail and Commercial Building markets. SCIwatch automatically and persistently predicts, detects, diagnoses, prioritizes and monetizes system faults and anomalies, which can quickly "turn green buildings grey" due to unforeseen sources of energy leakage.

SCI was founded in 2007 after decades of pioneering work at thousands of sites by its founders, experts in commercial building automation and control systems, facility commissioning, energy management measurement and verification, web-enabling gateway deployment, and software development.

SCIwatch provides Automated Continuous Commissioning (ACC) and fault detection of commercial buildings through existing building automation and metering systems allowing customers to realize a sustained reduction in annual energy spend of 15% to 25% or more. As data reaches SCI servers, SCIwatch employs proprietary experiential data benchmarking and advanced analytical algorithms to identify energy waste and predict equipment failures with exceptional accuracy. Findings are reported and tracked via a secure web user interface and email. The platform is designed and architected as a highly scalable and extensible Software as a Service (SaaS) solution enabling SCI to handle literally thousands of buildings per server.

SCIwatch performs its diagnostic service by remotely connecting to an existing building's automation system and meters, transparently gathering data and continuously running advanced mathematical models to identify system anomalies. The service then alerts facility operators, initiates and prioritizes work orders by cost and severity, and tracks resolution.

"SCIwatch is the embodiment of where building management is headed."

- *Mark Boraski, Vice President of Property Management with Neiman Marcus*

By deploying SCIwatch, building managers can easily identify which mechanical and electrical equipment or building systems require attention, allowing "preemptive" service work and adjustment to avoid costly outages or catastrophic failures. Prior to SCIwatch, such diagnostic work was largely manual, intrusive and inefficient. Consequently, system diagnostics were conducted far too infrequently, causing buildings to drift persistently resulting in wasteful energy expenditures or complete system failures. From energy savings alone, customers realize a payback on SCI fees in a matter of months and additional savings in maintenance costs. "System failure avoidance" further accelerates payback.

> *"Through its disruptive technology, SCI enables customers to reap the benefits arising from integration of automation and control systems and maximize the value of time sensitive information in a building."*
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> - *Jorge Moreno, program manager in Frost & Sullivan's environmental & building technologies practice.*
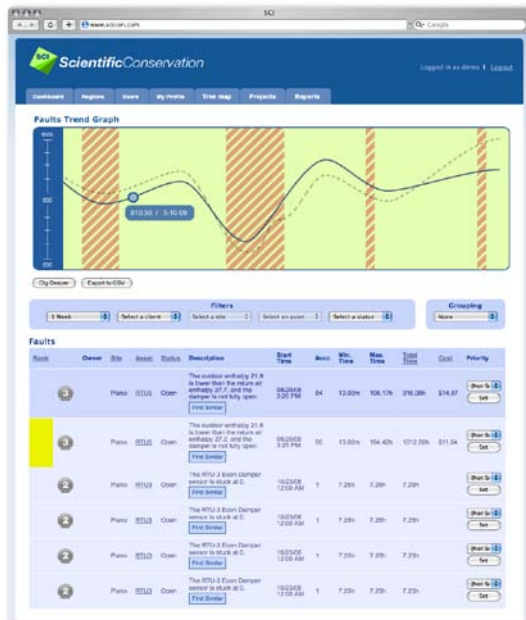
SCI Received the Frost & Sullivan 2009 Enabling Technology of the Year Award

The Opportunity

Virtually every commercial building is "commissioned." Commissioning is a quality assurance program that verifies that a building's operating systems are functioning as designed and meeting the building owner and operator's needs. Commissioning requires a team of highly skilled engineers to insure all electrical and mechanical aspects of a building are properly "tuned" to minimize energy and operating costs. However, over time, buildings "go out of tune" as occupants adjust and readjust HVAC settings; seasonal changes stress and disrupt systems; equipment is not maintained properly or simply degrades with time; and, complex components malfunction. While each event might have only a modest impact on the building's overall operating costs and performance, eventually the "events" accumulate to degrade energy efficiency significantly, or worse, result in a complete system failure.

Historically, when a system failed or became noticeably "out of tune", buildings were "re-commissioned" requiring visual inspections and hands-on readjusting, a labor and knowledge intensive process that was rarely completed properly or fully. With the advent of networked building automation systems and metering over the past decade, the flow of monitoring data has become sufficient to allow the "continuous commissioning" of buildings, i.e., the ability

to constantly monitor and adjust electromechanical systems so that "drifting" and faults could be detected and corrected before becoming costly. Research has proven continuous commissioning can save up to 20% or more in energy usage annually and immeasurable savings in prevented system failures. However, until the introduction of SCIwatch™ software, industry systems lacked the ability to "digest" the data flow and convert measured performance into actionable advice.

The Market

The domestic market for energy efficiency software for application in commercial buildings is estimated to be over $5 billion annually. Europe and the more developed Asian markets double this potential. To date, continuous commissioning has been the province of specialty consulting firms (e.g., Architectural Energy Corporation (AEC) with its Enforma) or remote monitoring services with large back-office staffs and cumbersome or inaccurate statistical software (e.g., Prenova). Large corporations like Johnson Controls, with a primary goal of selling costly, proprietary equipment, have combined consulting and monitoring services as a lead-in for up-selling. As a result, continuous commissioning has been difficult and costly to scale, and penetration has been slow. SCIwatch™ overcomes these obstacles and has propelled continuous commissioning into energy efficiency prime time.

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Beyond classic building operating cost concerns, new environmental initiatives have created market pull for efficient and effective continuous commissioning. Over the past decade an accelerating number of building managers have coveted U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) certification as a key component of organizational responsibility. Ongoing re-commissioning is a condition of obtaining and maintaining LEED certification, and SCIwatch's automated continuous commissioning easily fulfills the requirement. More recently, interest in carbon footprint reduction has sprung into prominence as states like Connecticut, Pennsylvania and Nevada have mandated energy efficiency "white tag" credit trading, while other non-mandate states can trade on the Chicago Climate Exchange. SCI founders developed the first successful data acquisition and analytical platform for white tags; SCIwatch's automated continuous commissioning leverages the same platform.

Competitors in the continuous commissioning arena fall into two broad categories: service providers currently offering continuous commissioning and systems providers that could enter the field.

The Management Team

David Wolins, CEO, 30+ years in the energy efficiency industry with expertise in HVAC, refrigeration and controls for commercial and industrial buildings. Prior to SCI, he co-founded EnFlex Corp, and was responsible for sales, marketing and the overall product vision. EnFlex was acquired by SunEdison in January, 2008. BS Mechanical Engineering, UC Berkeley. He is a member of ASHRAE, AEE and RETA.

John Pitcher, Founder & COO, 35+ years in energy management systems, energy conservation, building technologies and information technology. Prior to starting SCI in 2007, he served as VP of Energy Technologies at Sterling Planet where he pioneered 'White Tag" energy efficiency credits. Earlier, he was Technology Director at Service Resources, which became Prenova, the largest provider of energy services for commercial customers, where he championed the "Virtual Audit," a method of providing automated remote commissioning through existing facility automation systems. His career includes serving as COO at Envenergy, a maker of energy management gateways, which was just acquired by Cisco; the utility company Entergy Corp, where he was Director of Operations; Comfort Systems USA, where he was General Manager; and McDonald's Corp, where he was its first energy manager.

Andy Colman, CFO, 30+ years in executive management and finance in energy efficiency and clean tech generation. Prior to SCI, he was CEO of EnFlex Corp, which he led through a major expansion

and acquisition by SunEdison. Earlier, he co-founded MACH Energy, which provides pioneering energy efficiency SaaS for commercial office buildings, and was with Booz & Company's Energy Practice serving the financial and utility sectors. He started his career as an engineer at Westinghouse Advanced Reactors Division. BS and ME in Nuclear Engineering, plus MBA, all University of Virginia.

Thor Johnson, CTO, 20+ years of commercial software development experience, both in enterprise and in embedded systems. Prior to SCI, he developed software at Altea Therapeutics, Movaz Networks, Prenova, and Northrop Grumman. His expertise spans systems as small as a handheld drug delivery system up to a 144-Terabit optical switch. He has developed several scalable, enterprise management systems including one to manage enterprise deployments of Thin-Clients. BSE and BA in Computer Science at Mercer University.

Chip Pieper, VP Business Development, 20+ years in the software industry. Prior to SCI, he was a sales director at EnFlex and subsequently at SunEdison. Earlier, he held leadership positions at Microsoft, Sourcecode (K2) and US Web. He founded Alignsoft.net and co-founded both BizStorm Software and Info-One Technology. He also co-founded private equity firm Service Equity. Bachelor degrees: University of Wisconsin Milwaukee and Marquette University.

Lin Little, VP Sales and Marketing, 25+ years in enterprise software and web-based solutions. Prior to SCI, he was a sales director at EnFlex and subsequently at SunEdison. Earlier, he was a co-founder of LeadersOnline, a subsidiary of Heidrick & Struggles, one of the first full-service Internet based executive search firms. He began his career at Xerox as a design engineer, then focused on sales and marketing of advanced technology solutions. BS from U.S. Military Academy at West Point; MBA from the University of Colorado.

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