



BTU
BUILDING TUNE-UP

THE NEW 2004/05 BUILDING TUNE-UP PROGRAM

Improve Your Building's
Operations and Efficiency.

Save Energy and Money.



Help your building perform at its peak

WE CAN MAKE IT HAPPEN

With California electricity costs higher than ever and gas costs rising to record levels, now - more than ever - managing energy consumption is a number one priority in commercial facilities.

Property managers and building owners throughout the State must retain a competitive edge by providing tenants with clean, well-run buildings at the lowest possible prices. By reducing your operating costs today, you can increase your margins and the value of your building, now and well into the future.

Quantum Consulting's Building Tune-Up (BTU) Program will deliver immediate energy savings to you, while also helping you to run your building more effectively and efficiently.

OUR NEW 2004/05 BUILDING TUNE-UP PROGRAM

With new funding from the California Public Utilities Commission (CPUC), the BTU Program from Quantum Consulting is now available throughout California. This unique new retro-commissioning program provides no-cost engineering services to building owners and operators, while also providing incentives for the installation of measures that improve building operations and save energy.

Quantum will provide a team of engineering experts - at no expense to you - to analyze all aspects of your building's performance. We'll collect data on multiple building parameters, troubleshoot problem areas, assess system operations and schedules, and then recommend measures that improve system operations and reduce energy consumption.

The end goal - to improve your building's efficiency and save you money.

"Our systems have been running reliably with energy bills typical to Oakland buildings this age so we didn't expect to find cost effective energy savings. We were pleased to see their audit uncovered over \$78,000 in yearly energy savings from changes to the air handler, central plant controls and EMS systems, all with only a one-year payback! In addition, BTU staff reported another \$174,000 in yearly savings potential from longer term equipment retrofits"

Patrick J. Lane
Managing Director
Oakland Convention Center
Oakland Marriott City Center

WHY PARTICIPATE IN THE BUILDING TUNE-UP PROGRAM?

A building's use may change over time. The original design intent may no longer meet the current space use requirements, and other problems may exist that are not apparent in daily operation.

Studies show that building tune-ups can result in a 5 - 15% improvement in building energy performance. The corrective measures identified during an analysis are cost effective to install and typically have a simple economic payback of less than three years (many measures have a payback of less than one year).

Participating in our BTU Program can substantially reduce such overall costs to you, sometimes resulting in a payback of only a few months. For example, the table below demonstrates the average savings of participants by category.

AVERAGE SAVINGS BY BUILDING TYPE

BUILDING TYPE	SQ. FT.	NUMBER OF MEASURES	TOTAL ANNUAL ENERGY COSTS	TOTAL ANNUAL SAVINGS	MEASURES COST AFTER REBATES	PAYBACK (YEARS)
OFFICE	328,571	9	\$713,967	\$35,838	\$23,551	0.7
HOTEL	750,000	21	\$496,284	\$79,005	\$61,920	0.8
COLLEGE	430,500	16	\$857,922	\$71,566	\$70,681	1.0

Without this Program, owners and operators must find the time to hire qualified professionals, develop and execute work authorizations, and verify that savings are realized and persistent.

With our Program, we provide the engineers - at no cost to you - who are experts in building operations. They utilize the latest diagnostic tools, metering, and monitoring to detect operational and energy use inefficiencies.

IT'S A LOW COST, HIGH RETURN PROPOSITION

Most of the measures found in Quantum's BTU Program are related to small changes to air handling systems controls adjustments. The cost to participants is, therefore, generally low.

Program incentives are provided for energy efficient improvements - typically these incentives can reduce the payback to a year or less.

RETRO-COMMISSIONING - NOT YOUR TYPICAL AUDIT

We offer detailed engineering services, focused on measures you may have missed, or were previously unknown to you - even after your building staff may have just performed their own checks.

The BTU Program difference is that we start by identifying energy saving measures in your building's existing systems and equipment. Most other utility programs focus on retrofit measures, which generally are capital intensive and do not necessarily help you realize the full potential of what you already have in place.

Our BTU Program ensures existing systems operate as efficiently and effectively as possible. Below are examples of recommendations BTU makes to enhance building performance.

TYPICAL BTU AUDIT RECOMMENDATIONS

SYSTEM	EFFICIENCY MEASURE
CENTRAL PLANT	<ul style="list-style-type: none">• Cooling Tower: Balance and service cooling tower cells• CHW loop: Reset chilled water supply temperature• Improve utilization of water side economizer• Repair leaking control valves• Revise cooling tower control strategy
BOILER PLANT	<ul style="list-style-type: none">• Secondary Loop: Modify control sequence• Revise operating schedule• Outside air temperature reset• Tertiary Loop: Schedule based on occupancy
MULTI-ZONE AIR HANDLING	<ul style="list-style-type: none">• Clean cooling/heating coils• Identify fighting heating and cooling demands• Reduce ventilation in underused areas• Reset supply air temperature based on demand• Implement economizer control strategies• Implement optimum start and stop control strategies• Check and repair damper operations
EMS	<ul style="list-style-type: none">• Calibrate pneumatic controls• Identify faulty sensors and controls• Install sensors/controls to augment EMS functionality• Plug leaky air tubing• Repair or replace pneumatic control system elements

CASE IN POINT - OAKLAND'S FEDERAL OFFICE BUILDING

A typical example of the type of measures that might be identified were recently presented to building operators of the 1.1M square foot Ronald V. Dellums federal office building in Oakland's City Center. Our Program engineers found several simple ways to improve energy efficiency in the building's air handling systems through retro-commissioning (r-Cx).

The investigation phase of the project included analysis of trended data logs and extensive functional testing of the HVAC equipment. A total of 12 operational deficiencies were observed in the air handling systems, and the problems with the greatest potential for energy savings were thoroughly analyzed and corrective measures were recommended.

Over \$65,000 in energy cost savings were identified through improved placement of key air stream sensors, addressing air damper problems, and reducing pressure set points. We also made specific recommendations on how to improve the operation and comfort of the facility on other non-energy related issues. And all engineering costs for this study were provided at no cost to the building owner through the BTU Program.

NO-COST SERVICES

- A thorough building operations assessment performed by qualified engineering professionals.
- Documentation of systems and procedures to keep your facility running efficiently.

PROGRAM BENEFITS

- Better building systems operations, improved occupant health & comfort, and reduced service calls.
- Cash incentives available to offset installation and equipment costs.
- Information on tools that inform operators about building performance to quickly identify and remedy problems.
- Assistance in preparing ENERGY STAR® Building and LEED certification applications, and follow-up by a professional engineer.

ELIGIBILITY REQUIREMENTS

- Must pay the California public goods charge on your utility bills.
- Building must be in PG&E or SCE's service territory (some restrictions apply).
- Building should be approximately 100,000 square feet or larger in conditioned space, with an operating energy management and control system.
- A scoping audit performed by Quantum must show energy savings potential.

ACT NOW & SAVE

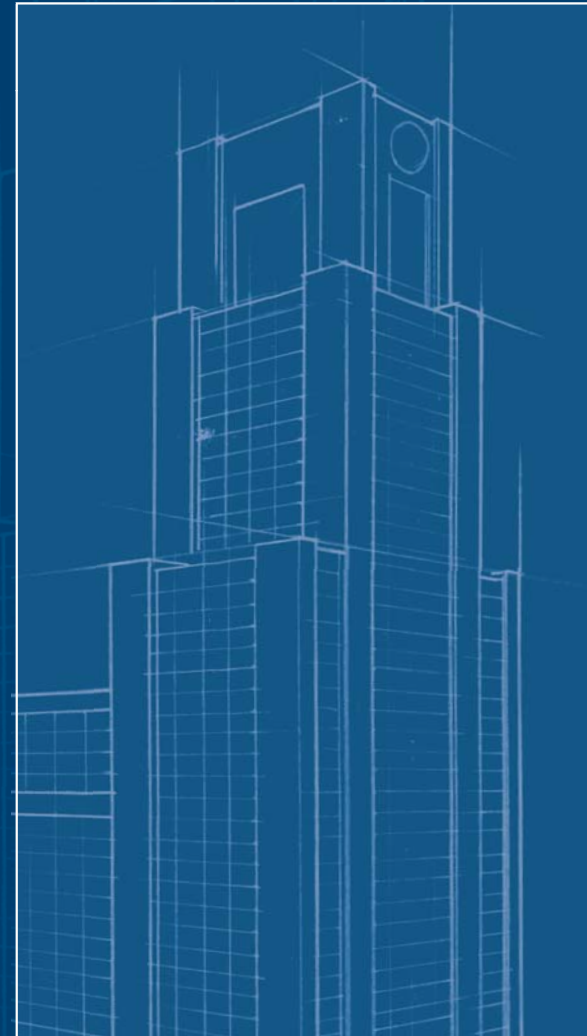
The BTU Program is funded by the CPUC. Funds are limited and available on a first come, first serve basis. All project funds must be committed by the end of 2005.

So don't wait - get in touch with Quantum Consulting today, and be on your way to improving your building's efficiency...and your bottom line. We can make it happen.

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ABOUT QUANTUM CONSULTING

Quantum Consulting is nationally recognized as the industry leader in energy efficiency consulting, engineering, and market research. Our engineering and professional staff has consistently delivered exceptional value since 1985. Our dedication to technical excellence and client satisfaction has resulted in years-long relationships with our clients. Our team includes professionals with experience in building operations, energy design engineering, and project implementation. Our goal - energy savings for the benefit of California!



Help your building perform at its peak

CPUC DISCLOSURE

California consumers are not obligated to purchase any full-fee service or other service not funded by this program. This Program is funded by California utility ratepayers under the auspices of the California Public Utilities Commission.

Los consumidores en California no estan obligados a comprar servicios completos o adicionales que no esten cubiertos bajo este programa. Este programa esta financiado por los usuarios de servicios públicos en California bajo la jurisdiccion de la Comisión de Servicios Públicos de California.