

THE FACTS

Renewable Energy

The US accounts for about 5% of the Earth's population, but we consume 26% of its primary energy.

Of the renewable energy utilized, 1% is solar, 47% biomass, 5% geothermal, 45% hydroelectric, and 2% wind.

Geothermal energy is almost 100% efficient; the only real source of energy loss is from turbine friction. It emits only about 3% of the greenhouse gases emitted by a fossil power station.

There is much work to be done in solar energy technologies, but consider the enormous potential: the energy that can be extracted from Earth's existing reserves of coal, oil and natural gas can be matched with just 20 days of sunshine

Nearly 50% of US territory has the wind velocity needed to effectively generate wind energy. Offshore winds could produce enough energy to power the entire nation.



Hydropower provides about 20% of the world's electricity, and is the main energy source for more than 30 countries. It is the least expensive renewable energy source in the US.

Biodiesel is derived from vegetable and animal oils. Did you know that the diesel engine was originally designed to run on vegetable oil, rather than fossil fuel?

BENEFITS OF RETRO-COMMISSIONING

Retro-commissioning is the application of the commissioning process to existing buildings. This process seeks to improve how mechanical, electrical and controls systems function interactively to enhance overall building performance.

The ultimate goal of retro-commissioning is to ensure that a building is meeting the unique needs of its owner and occupants while operating as efficiently as possible. Retro-commissioning can resolve problems that occurred during design or construction, or address problems that have developed over time.

Why is Retro-Commissioning Important?

Many factors can affect building systems performance. Commercial buildings frequently undergo operational changes that can challenge systems and hinder optimal performance. Today's sophisticated control systems are highly complex, and small problems can trickle down and significantly affect building operations. Time takes a toll, as well. Even well-constructed and properly maintained buildings and systems will experience performance degradation over time, and energy waste and reliability problems can occur.

What are the Benefits of Retro-Commissioning?

Retro-commissioning provides a wide array of benefits to a building owners, managers and occupants. Typically retro-commissioning saves owners 5% to 20% of total building energy costs. Most improvements do not require expensive equipment retrofit and can be achieved through controls changes alone.

Other Benefits Include:

- Improved equipment performance
- Better system manageability
- Improved documentation and staff training
- Improved indoor environmental quality
- A more comfortable work environment

MSC specializes in commissioning and retro-commissioning. If you would like to find out more about retro-commissioning and how it can help you save money and energy, please contact us at (973) 884-5000, or email smeigh@mscnj.com.



NJCEP: Working Toward a Clean & Green Future

NEW JERSEY CLEAN ENERGY PROGRAM...

NJCEP, recognized as a national model, is a dynamic program designed to promote increased energy efficiency and the use of clean, renewable sources of energy. NJCEP offers financial incentives, programs, and services for residential, commercial, and municipal energy consumers.

In 2007 alone, NJCEP programs directly resulted in over \$75 million in energy savings for New Jersey customers.

A number of NJCEP programs are available for New Jersey's commercial, industrial, and government sectors. The SmartStart Buildings program provides these consumers the opportunity to upgrade the energy efficiency of their projects, which can include ground-up construction projects, renovation projects, and equipment upgrades. Pay For Performance (PFP) is directed at large existing facilities, linking incentives to energy savings in a whole-building approach. These incentives are awarded as program milestones are completed and savings targets have been met or exceeded. PFP projects that incorporate the new Combined Heat & Power Program (CHP) are eligible for up to an additional \$1 million in incentives.



Among the many other programs offered by NJCEP are the Renewable Energy Incentive Program, which provides incentives for renewable energy projects using solar, wind, and biopower technologies,

Teaching Energy Awareness with Children's Help (TEACH), which offers information for teachers and administrators in k-12 schools statewide, and Clean Energy Manufacturing Fund (CEMF), which provides up to \$3.3 million in grants and no-interest financing to qualified manufacturing projects.

To learn more about New Jersey's Clean Energy Program and find out how you can participate, please visit their website at www.njcleanenergy.com.

PLAN OF CONTROL

WHAT'S YOURS?

In order to achieve success on any project, you have to have a plan of control... While every project has a schedule, and perhaps milestones, what is often lacking is a detailed plan for start up, sequence and functionality to desired results.

An effective plan of control should include a detailed start up schedule that compliments project milestones such as cooling for warmer weather and heating for cooler weather, ventilation for installation of finishes, and having process equipment available to support process functions. It also delves much deeper, providing a detailed sequence specific to the project and it's specified equipment and hardware. How will the chillers interact with the cooling towers? How will the boilers run, and in what sequence? What type of internal control will the VFDs have? What communication protocol, such as Modbus, will you use, and how?

At MSC, we know that the plan of control is a must-have, not an option, in today's market. A good plan of control will have everything working properly and running as efficiently as possible, support equipment longevity, and provide years of trouble-free duty.



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