

# SPATIAL OPERATIONS

Over the last several years, there has been an effort to engage property owners, building managers and tenants in developing an awareness of the environmental and fiscal impacts of how we build and operate facilities. It has been shown that 60% of the buildings that will exist 30 years from now have already been built. With the increasing costs of energy and other operating expenses, there is pressure to begin to monitor, manage and reduce the use of energy in our automobiles, transit systems, buildings and homes.

At the same time, there has been an effort on the part of the federal government, states, counties, municipalities, corporations, and individuals to attempt to minimize the adverse impacts to our environment associated with continued development and the associated use of energy. It has been shown that U.S. buildings account for:

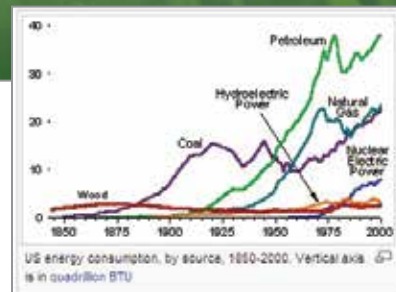
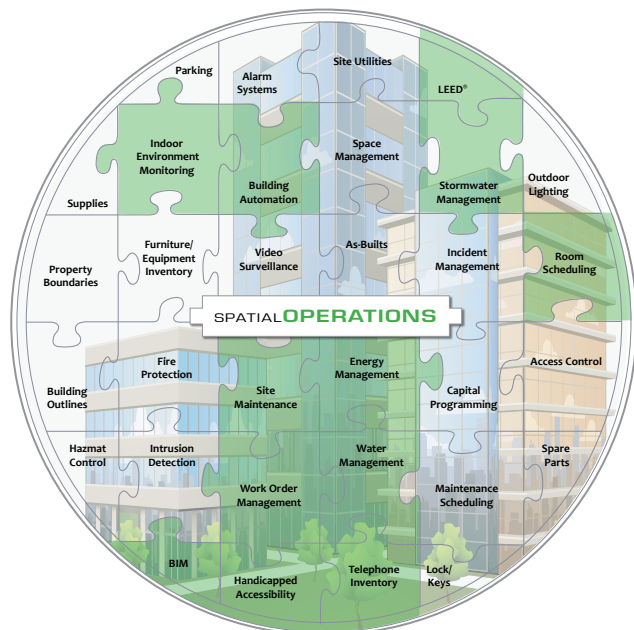
- 48% of the total energy use in the country
- 12% of the total water consumption
- 68% of the total electrical consumption
- 38% of CO<sub>2</sub> emissions
- 60% of non-industrial waste

The United States consumes over four times as much energy per capita as the world average and considerably more than most other developed countries. The federal government has begun several initiatives to attempt to require federal facilities to become less energy dependent. The government has also attempted to entice state and local government organizations, commercial interests and private individuals to reduce the amount of energy used.

A variety of executive orders, legislation, and rating systems such as those promulgated by the US EPA and US Green Building Council (USGBC) attempt to encourage sustainable development and operation of infrastructure, thus minimizing impacts on the environment while encouraging minimal use of land, energy and water while reducing operating costs.

## SpatialOperations—an Esri-based sustainability information system

Establishing guidelines and regulations are a start in an effort to reduce energy and water consumption while minimizing environmental impacts; however without a system to evaluate the effectiveness of implementing the theory, building operators really don't know whether or not the long term objectives are being met. Spatial Systems Associates, Inc., a Columbia, Maryland



based systems integrator and an Esri Silver Partner, has developed a product, **SpatialOperations**, to address many of the needs of the building operator.

**SpatialOperations allows you to:**

- Monitor and analyze indoor environmental data for a facility, including temperature, humidity and CO<sub>2</sub> levels
- Monitor and analyze power consumption information to a high degree of detail, allowing operators to understand where and when energy is being consumed
- Monitor and analyze water consumption for a building or sub-spaces in a building
- Monitor site sustainability characteristics of a facility, including locations of underground utilities, tree inventory, parking space inventory, stormwater inlet and piping, grade and drainage, impervious surface area, outdoor lighting, and plantings

**SpatialOperations also:**

- Provides a comparison of utility bill charges and observed consumption
- Integrates a complete document management capability for equipment, operating manuals, as-built drawings, maintenance contracts, etc.
- Integrates with work order management systems to automatically generate work orders, based on observed characteristics, to geographically display locations of work orders, and to associate work orders with features to facilitate analysis of historic maintenance requirements

SpatialOperations is a web-based application that requires the use of Esri’s Enterprise Server technology. Because the system is web-based, clients without dedicated computer systems can take advantage of the capabilities of the system. All that is required is access to the internet and a standard web browser.

The user interface begins with a dashboard that depicts, with colored buttons, the current status of subsystems in the building. Subsystems are accessed via pull-down menus for Indoor Environment, Power Consumption, Water Consumption, Space Utilization, and Site Sustainability.

The system also provides the ability to generate alerts when operational parameters fall outside of user-defined ranges.

The ability to Monitor and Manage operational characteristics allows the building manager to save real dollars on an ongoing basis.

Please contact us for a demonstration of SpatialOperations and an evaluation of how it may be implemented individually or collectively to assist in managing your facilities.

**Spatial Systems Associates, Inc.**

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