Efficient maintenance contracts

Day-to-day maintenance of equipment and control settings can have a significant impact on energy consumption, yet few maintenance contracts explicitly include energy efficient operation of systems as a requirement. As a result, the plant is often run constantly and at maximum settings that waste energy. Consider using a performance-based contract where the maintenance contractor and staff are obliged to operate building systems efficiently to minimise energy consumption whilst providing an optimum internal environment.

Top tip

Heat exchangers and cooling towers must be kept clean and water treatment processes carefully maintained. This saves energy and prevents health problems such as Legionella.

Upgrading existing plant

Sub-meter the system

Chillers can account for up to a third of electrical consumption in a building. Installing sub-metering and collecting energy data enables inefficient areas to be identified, investigated and eliminated. By gaining an understanding of the energy used by air conditioning components, performance targets can be set and monitored regularly. Sub-metering and the corresponding monitoring and targeting can save up to 5% of the energy consumed by the equipment that is being metered. Therefore, sub-metering can be a good investment if the costs of its installation are less than 5% of the yearly energy used by the air conditioning system.

Review zoning arrangements

Many air conditioning systems are set up in ‘zones’ to provide different levels of cooling to specific areas within a building. Whenever building use changes, these zones should be reviewed to ensure that they are still delivering required conditions without wasting energy. In addition, a yearly review of zoning arrangements should be carried out to ensure that systems are operating to peak efficiency.

Replace old, inefficient plant

Advances in technology mean that more efficient, modern equipment is available to replace older, inefficient components in air conditioning systems. This includes pumps, motors and fans, and payback on these can be relatively quick. Investigate all components in relation to the equipment, application, hours of use and the life cost. Spending time considering the options will help make the most energy efficient purchase.

Fit variable speed drives (VSDs)

Fans and pumps do not always need to operate at full speed all of the time. VSDs can help to reduce costs by enabling the output speed of the motors to match requirements at different times of the day. This reduction in speed saves energy and there are corresponding cooling cost savings too. More information can be found in the Carbon Trust’s technology guide to Variable speed drives (CTG070).

Did you know?

Energy consumption can increase by up to 30% if regular maintenance is not undertaken. Cleaning fans, filters and air ducts can improve efficiency by up to 60%.