

Energy Efficiency Initiatives Make a Difference Now and in the Future
by Andrew Baker, Charlotte County Director of Facilities Construction & Maintenance

In 2006, the Charlotte County Facilities Department began work on a strategic plan to incorporate energy efficiency initiatives into our operating procedures as soon as possible once hurricane recovery began to wind down. As hurricane recovery work minimized in early 2007, the department began implementing steps towards looking at the total energy use by the County as a whole using methods that would have an immediate and long term payback in real dollars and reduced usage. These steps included, but were not limited to, evaluations with FPL for efficiency, an in-house tracking system for FPL metered accounts, installation of programmable thermostats and lighting controls, reductions in HVAC run times, retrofitting for efficient lighting, sensor controls in restrooms, and facility upgrading for LAN HVAC controls.

Efficiency initiatives such as these over the last two years have resulted in budgetary savings of over 1.4 million dollars Countywide. As we look to expand the broad spectrum of efficiencies there are further steps to take towards maximizing our energy efficiencies and ensuring that Charlotte County is a leader in energy and carbon reduction well into the future.

The County is partnering with FPL Services to do an initial energy audit of 26 of our largest facilities, including the Event Center, Justice Center, Jail, and County Administration. FPL Services, one of 11 state-contracted energy service contracting companies, will perform an initial audit of these facilities and identify energy-related projects that can reduce usage over and above our current operating utility budget. These identified projects will be brought to the County with an engineering cost and a construction cost associated with the project. There will be an analysis of a projected payback over time, with the intent that the savings in utility usage over this period of time will pay for the total cost of the project. If the County does not have an interest in the project, the analysis will go no further but if the County authorizes the engineering portion of the project, those costs would be analyzed as part of the savings payback.

In addition to the above facilities we have approximately 230 other facilities of all types that are over 500 square feet each. We will be paring down that list and looking at buildings that have significant energy usage to create a master use list. With the master use list we can look at using outsourced engineering or future staff to analyze each facility on a case basis for efficiency opportunities. Inclusive of this list we continue to upgrade lighting in facilities that have older T-12 or T-9 lighting, with updating currently being performed at the Family Services Center. As funding becomes available we are looking at installing LAN control packages in nine mixed-use County facilities. In addition, staff is currently inputting data into a free energy star utility monitoring system that will allow us to apply for energy star rated status on qualifying buildings.

The County is also establishing an Energy Coordinator position to develop, monitor and educate the County and its employees for the purpose of reducing utility consumption in all departments and constitutional offices. Additionally we are researching the purchase and operation of an energy management software system (EMS), which is used to reduce energy cost and consumption. Cost and consumption data from a number of buildings can be compared with the software, saving time relative to manual reporting.

EMS is valuable by offering more detailed energy information than utility billing can provide, and offers the advantage of including outside factors that affect energy use, such as weather or building occupancy, as part of the reporting process. This information can be used to prioritize energy savings initiatives and balance energy savings against energy-related capital expenditures. Initiatives such as demand shaving, replacement of malfunctioning equipment, retrofits of inefficient equipment, and removal of unnecessary loads can be discovered and coordinated using the EMS. For example, an unexpected energy spike at a specific time each day may indicate an improperly set or malfunctioning timer. These tools can also be used for Energy Monitoring and Targeting. EMS uses models to correct for variable factors such as weather when performing historical comparisons to verify the effect of conservation and efficiency initiatives.

We also intend to be proactive in behavior modeling, which connects an occupant's daily choices with building energy consumption. By displaying real-time consumption information, occupants see the immediate impact of their actions. The EMS software can be used to promote energy conservation initiatives, offer advice to the occupants and provide a forum for feedback on sustainability initiatives. Studies have shown that if occupants know their real-time consumption, they can be responsible for a 7% reduction in energy consumption.

Even though significant progress has been made in efficiencies over the past few years, we continue to pursue opportunities for the County to match or exceed these reductions by setting an aggressive reduction goal (such as reducing energy usage overall by 15% in the next 3 years) and implementing steps towards achieving the goal on a sustainable basis.