Reducing the energy bill at Bermuda Bay

There's probably not a condo, HOA board that doesn't worry about money at some point or another, which is why staying on top of the latest money-saving opportunities is vital for any community to be successful. One of the biggest ways to save money is to cut energy costs, when thinking of ways to reduce the energy bill we need to think of the Common Areas: It is essential that board members develop energy conservation plans for common areas and administration facilities that address sustainability. To help lower Bermuda Bay's energy bill we should look at three areas- Installing switch plate occupancy sensors, changing outdated light bulbs, and conserving water with aerators.

The eclectic bill is through the roof! A few ways to address this issue and to lower the electric bill is by installing switch plate occupancy sensors in proper locations to automatically turn lighting off when no one is present, and back on when people return. This can be done in laundry rooms, bathrooms, community rooms, hallways and any common areas that aren't always in use. Think of all the times we have social events at the pool and everyone leaves the bathroom lights on all night long. If we were to install the occupancy sensors then we can cut back on the amount of energy being wasted during these times. Occupancy sensors have a timer that allows the lights to stay on at a 5 minute interval and shut off when there is no movement detected. A study was conducted on these sensors by the EPA where they concluded that the 5 minute time delay showed a huge energy savings when used in bathrooms. It had an increased energy savings of up to 60%.

Just like the motion sensors, one other energy concern to take note is the sunset sensors. I have noticed that many of them are not working properly and stay on all day. If we were to change out the sunset sensors at the units we could help reduce the electric bill.

Another key issue for our energy costs are our out dated light bulbs. We did a great job upgrading the street lights to LED. With that said if were to continue these lighting upgrades throughout the complex we could see a tremendous change in our bill. Installing LED Lighting is an energy-efficient, semi-conducting light source and uses 75 percent less electricity than the standard incandescent light bulbs, and LED bulbs last 50 times longer than standard bulbs, saving you money. LEDs offer more energy savings compared to other types of bulbs, which means it doesn't consume as much power. Furthermore, it is offering years of service since LEDs will last a maximum of 100,000 hours. That's nearly 10 years of good use. Plus there is an affordable price tag to go with it, so the value is unquestioned. If Bermuda Bay were to replace just 6 incandescent 60watt bulbs with 6 LED bulbs the association would save roughly $324.74 a year. That's just by switching out 6 regular bulbs.

An alternative lighting option that will help save money is the addition of compact fluorescent lights (CFLs), which are high-efficient and cost-efficient light bulbs and can be used in many areas throughout an HOA, such as walkways, offices, hallways, pools and front gate. Each bulb will save about $50 over the course of its lifetime and the simple ones only cost around $2.00

Each tree that is lit as well as the guard house and front gate area is using standard 100watt incandescent bulbs. If we replace those bulbs with LED or CFL we will see a significant change in our electric bill within the first month. As per the attached lighting chart you can see the differences in energy consumption with each bulb as well as the environmental impact and life expectancy.
This is not something we should sit on and change as the bulbs burn out. This is a change we can make now that will have us saving money instantly. By changing out our old incandescent light bulbs to a more energy efficient bulb we should see a return on investment in a few short months leaving the HOA with a lower energy bill.

To further our energy savings Bermuda Bay could look at implementing faucet aerators for sinks and showers. Showering is one of the leading ways we use water in the home, accounting for nearly 17 percent of residential indoor water use. Before 1992, some showerheads had flow rates of 5.5 gpm. Therefore, if you have fixtures that pre-date 1992, you might want to replace them if you're not sure of their flow rates.

In the U.S. alone, we consume nearly five billion gallons of water daily. New high efficiency showerheads use less water than standard models without sacrificing performance, helping you conserve water and saving on energy. The average household could save more than 2,300 gallons per year by installing WaterSense® labeled showerheads.

Along with showerheads we could look at sinks. By simply turning off your tap when brushing your teeth can save as much as 3,000 gallons of water per year. We can conserve even more by installing WaterSense® labeled bathroom sink faucets or faucets accessories. Doing so, an average household can reduce its water consumption by 500 gallons each year.

By replacing regular faucets with aerators we will dramatically cut down on the water consumption, ultimately reducing our water bill. In order to do this we would need a complete buy-in from all owners.

This option does not have Bermuda Bay changing out every faucet but just the faucet head that can be easily unscrewed and replaced by an aerator. Faucet aerators that use a maximum of 1.5 gallons per minute can reduce a sink's water flow by 30 percent or more from the standard flow of 2.2 gallons per minute without sacrificing performance. Bermuda Bay could save hundreds of thousands of gallons of water a year just by replacing the faucets and shower heads. Replacing old, inefficient faucets with aerators can save the average family 700 gallons of water per year, equal to the amount of water needed to take 40 showers. Also, since these water savings reduce demands on water heaters, households will also save enough energy to run a hairdryer 10 minutes a day for a year. Achieving these savings can be as easy as twisting on an aerator, which can cost as little as a few dollars.

Aerators are inexpensive to replace and they can be one of the most cost-effective water conservation measures. For maximum water efficiency, we should look at purchasing aerators that have flow rates of no more than 1.0 gpm.

There are considerable energy savings to be gained from a well-developed energy management program. And by implementing these three small changes we should see a huge energy reduction within the first month.

Comparison Chart
LED Lights vs. Incandescent Light Bulbs vs. CFLs

Energy Efficiency & Energy Costs	 **Light Emitting Diodes (LEDs)**	 **Incandescent Light Bulbs**	 **Compact Fluorescents (CFLs)**
Life Span (average)	**50,000 hours**	**1,200 hours**	**8,000 hours**
Watts of electricity used (equivalent to 60 watt bulb). LEDs use less power (watts) per unit of light generated (lumens). LEDs help reduce greenhouse gas emissions from power plants and lower electric bills	**6 - 8 watts**	**60 watts**	**13-15 watts**
Kilo-watts of Electricity used (30 Incandescent Bulbs per year equivalent)	**329 KWh/yr.**	**3285 KWh/yr.**	**767 KWh/yr.**
Annual Operating Cost (30 Incandescent Bulbs per year equivalent)	**$32.85/year**	**$328.59/year**	**$76.65/year**

Environmental Impact	 **Light Emitting Diodes (LEDs)**	 **Incandescent Light Bulbs**	 **Compact Fluorescents (CFLs)**
Contains the TOXIC Mercury	**No**	**No**	**Yes** - Mercury is very toxic to your health and the environment
RoHS Compliant	**Yes**	**Yes**	**No** - contains 1mg-5mg of Mercury and is a major risk to the environment
Carbon Dioxide Emissions (30 bulbs per year) Lower energy consumption decreases: CO2 emissions, sulfur oxide, and high-level nuclear waste.	**451 pounds/year**	**4500 pounds/year**	**1051 pounds/year**

Important Facts	 Light Emitting Diodes (LEDs)	 Incandescent Light Bulbs	 Compact Fluorescents (CFLs)
Sensitivity to low temperatures	None	Some	Yes - may not work under negative 10 degrees Fahrenheit or over 120 degrees Fahrenheit
Sensitive to humidity	No	Some	Yes
On/off Cycling Switching a CFL on/off quickly, in a closet for instance, may decrease the lifespan of the bulb.	No Effect	Some	Yes - can reduce lifespan drastically
Turns on instantly	Yes	Yes	No - takes time to warm up
Durability	Very Durable - LEDs can handle jarring and bumping	Not Very Durable - glass or filament can break easily	Not Very Durable - glass can break easily
Heat Emitted	3.4 btu's/hour	85 btu's/hour	30 btu's/hour
Failure Modes	Not typical	Some	Yes - may catch on fire, smoke, or omit an odor

Light Output	 Light Emitting Diodes (LEDs)	 Incandescent Light Bulbs	 Compact Fluorescents (CFLs)
Lumens	Watts	Watts	Watts
450	4-5	40	9-13
800	6-8	60	13-15
1,100	9-13	75	18-25
1,600	16-20	100	23-30
2,600	25-28	150	30-55