

Effective Strategies for Saving Electricity and Money

Practical methods to reduce energy consumption efficiently



Agenda Overview

- Understanding Energy Consumption
- Implementing Energy-Efficient Lighting Solutions
- Optimizing HVAC and Water Equipment Performance
- Building Envelope
- Engaging Employees in Energy-Saving Practices



Understanding Energy Consumption



Analyzing Energy Bills and Consumption Patterns

Consumption Trends Analysis

Analyzing energy bills over time highlights trends and helps identify inefficiencies.

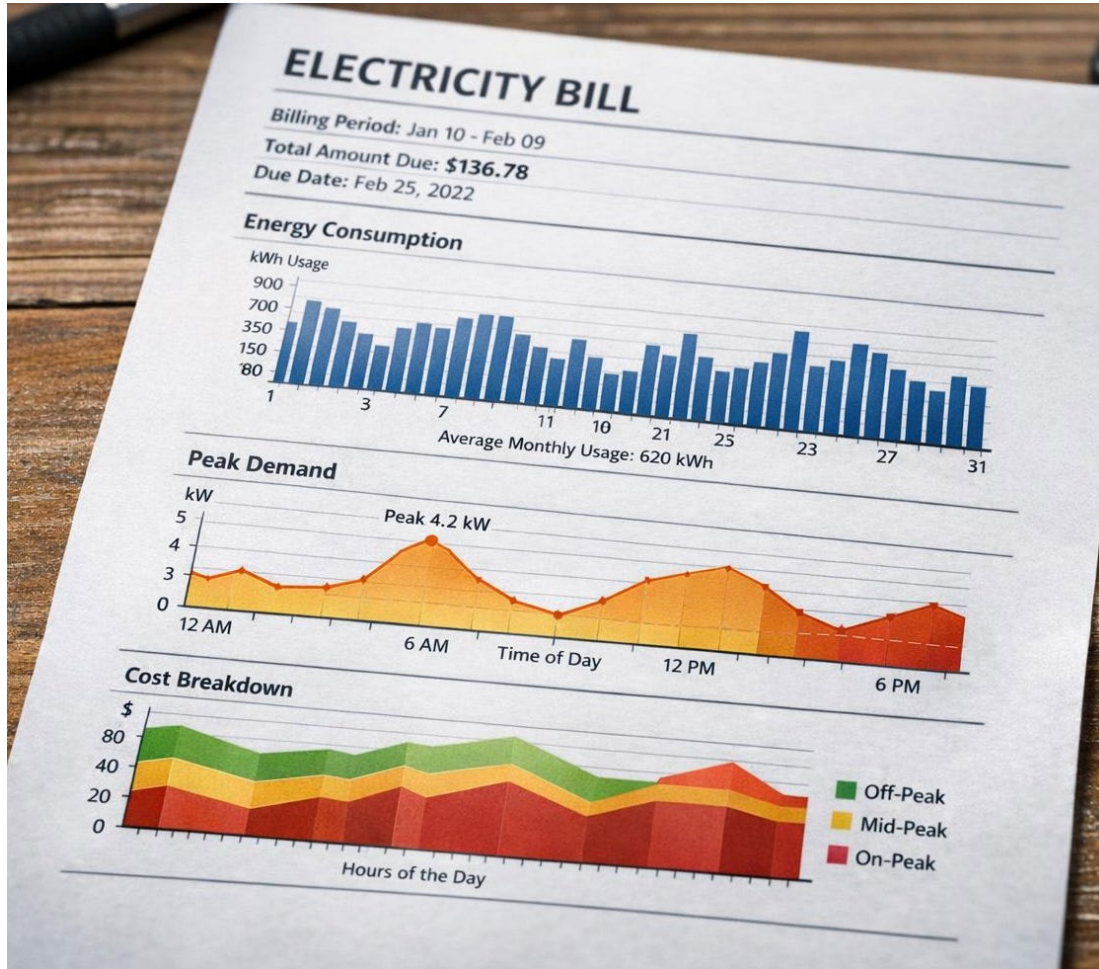
Usage Breakdown by Time

Breaking down energy usage by month, day, or hour reveals peak times and opportunities to reduce demand. You must have an IDR meter to get this data.

Savings Through Monitoring

Knowing how you use energy is the first step in determining how to save it. The Gexa Portal allows for reports and graphs to be downloaded by meter, all accounts, and billing group. Historical usage can be downloaded for up to 3 years. For older data, send a request to Gexa at tcap@gexaenergy.com





Audits

Review your bills

- Do you have Zero usage bills?
 - You are paying TDSP charges on these bills every month.
- Are you keeping your Christmas Lights or Annual Festival meters on all year long?
 - The power can be shut off until needed again.

Field Audit

- Conduct a review of all your meters .
 - Have crews verify meters by meter number.
 - Are they still needed? Could the usage be consolidated with another meter? Is there a meter that was a temp and forgotten about?

Remember: TDSP charges are the most expensive part of your bill



Identifying Major Sources of Energy Use

HVAC Energy Consumption

HVAC systems typically consume about 40% of energy in commercial buildings, making them the largest energy users.

Lighting Energy Use

Lighting accounts for approximately 20% of energy use, highlighting the importance of efficient lighting solutions.

Water Pumping

Pumping can account for approximately 10% or more of your annual energy usage. Operation as well as efficient pumps can help to reduce your usage.

Office Equipment and Devices

Office equipment and other devices contribute significantly to electricity consumption in business environments.

Implementing Energy-Efficient Lighting Solutions





Transitioning to LED and Smart Lighting Systems

Energy Efficiency of LEDs

LED technology reduces lighting energy use by up to 75% compared to traditional bulbs, enabling major energy savings. This will also cut down on the residual heat from other types of bulbs - saving AC usage.

Smart Lighting Optimization

Smart lighting systems adjust brightness and switch off lights in unoccupied areas to optimize energy usage.



Utilizing Natural Daylight and Occupancy Sensors

Maximizing Natural Daylight

Using natural daylight reduces reliance on artificial lighting, saving energy and enhancing occupant comfort.

Occupancy Sensors for Lighting

Occupancy sensors automatically switch off lights in empty rooms, reducing unnecessary electricity consumption. Great for file rooms, restrooms, conference rooms.

Window Film

Window film can help reduce heat in areas, especially if the windows are 2 or more stories.



Automating Controls for Lighting, HVAC, and Equipment

Coordinated Operation

Automation technologies synchronize lighting and HVAC based on occupancy, schedules, and environment to optimize usage.

Energy Efficiency Benefits

Automated controls reduce energy waste by ensuring usage only when necessary.

Improved Comfort and Performance

Automation enhances occupant comfort and overall building performance by maintaining optimal environmental conditions.



Routine Maintenance for Optimal Lighting Efficiency

Cleaning Lighting Fixtures

Regular cleaning removes dust buildup, preventing efficiency losses and maintaining optimal light output.

Replacing Aging Equipment

Timely replacement of old lighting fixtures and controls prevents performance degradation and energy waste.

Sensor and Timer Maintenance

Regularly checking sensor functionality and recalibrating timers ensures consistent lighting performance and energy savings.



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Ballfield Lighting

TDSP charges are high on these accounts.

- Make sure lights are LED or similar to cut down on usage
- Have each pole turned on independently of each other.
- Turn each light on 16 minutes apart to avoid spike and higher TDSP charges.
- Consider timers that will turn the lights off at a specific time. Avoids a person forgetting to turn off the lights.

Optimizing HVAC and Water Equipment Performance



Scheduling Regular HVAC Maintenance and Upgrades

Routine Maintenance Benefits

Regular filter replacement, duct cleaning, and calibration improve HVAC efficiency by up to 15%.

High-Efficiency Upgrades

Investing in modern HVAC units or retrofitting older systems significantly lowers energy use. Aim for highest SEER rating possible.

Energy Cost Reduction

Commercial facilities report energy cost savings between 10-25% after HVAC upgrades.



Using Programmable Thermostats and Energy Management Systems

Tailored Temperature Settings

Programmable thermostats adjust temperature based on occupancy schedules to prevent unnecessary energy use.

Real-time Energy Management

Integration with energy management systems enables real-time temperature adjustments and remote control.

Energy Savings and Comfort

Data-driven control leads to 10-15% savings and improves occupant comfort and operational flexibility.



Choosing Energy-Efficient Office Equipment and Appliances

Certification Benefits

Energy Star certification guarantees lower electricity use without sacrificing performance in office equipment.

Energy Savings Range

ENERGY STAR-rated devices consume 20-50% less energy compared to conventional models. Rebates exist for Energy Star appliances. More information on TDSP sites.

Cumulative Impact

Switching to energy-efficient appliances significantly reduces overall commercial electricity demand.



Water Pumping

Efficient Pumping

- Implement variable frequency devices to match pump speed with demand.
- Turn pumps on every 16 minutes to reduce peak load.
- Don't run all the pumps at the same time if possible.
- Run an analysis of the electric system running the pumps to ensure that the power factor remains high.
- Consider voltage regulators on equipment.
- Pump water during lower demand periods.
- Participate in demand response programs.
- Implement leak detection, or AMI meters to reduce loss water and revenues.

Building Envelope





Building Efficiency

Window and Doors

- Replace single-pane windows with double- or triple-pane, low-emissivity (Low-E) windows.
- Seal gaps around windows, doors, and utility penetrations using caulk, foam, or weather stripping. A tighter envelope prevents conditioned air from escaping, which can cut energy use by roughly 10%.

Roofing

- If replacing roofing, consider lighter colored materials to reflect sunlight.

HVAC Ductwork

- Inspect for any leaks.

Insulation

- Increase the R-value of walls, roofs, and foundations using spray foam, rigid insulation, or specialized barrier coatings.

New Facility

- Inform your TDSP that you are firing up a new facility beforehand. That “all on” spike will cost you for the next year.

Engaging Employees in Energy-Saving Practices





Promoting Awareness and Training Programs

Employee Awareness Campaigns

Awareness campaigns motivate employees to engage actively in energy-saving behaviors within the workplace.

Behavioral Energy Savings

Simple actions like turning off unused equipment can reduce electricity usage by up to 10%.

Sustainability Culture

Training programs help build a workplace culture focused on sustainability and environmental responsibility. US Department of Energy has a program that can be downloaded and tailored for your needs.

www.energystar.gov/work



Turning Off Unused Devices and Lights

Reducing Electricity Waste

Turning off devices and lights significantly lowers unnecessary electricity consumption.

Standby Power Consumption

Standby or “vampire power” can make up 5%-10% of energy use, leading to hidden electricity waste.

Energy-Saving Habits

Unplugging chargers and using power strips to turn off electronics help minimize phantom loads and improve energy efficiency.



Encouraging Responsible Use of Office Equipment

Energy-Saving Policies

Implementing policies like shutting down computers overnight reduces unnecessary energy consumption effectively.

Encouragement Through Signage

Signage and reminders in the workplace increase employee compliance with energy-saving behaviors.

Measured Consumption Reduction

Behavior-focused initiatives have led to measurable reductions up to 7% in office equipment energy use.



Setting up Incentive Programs for Energy-Saving Ideas

Employee Motivation

Incentive programs encourage employees to suggest and adopt innovative energy-saving practices effectively.

Reward Mechanisms

Rewards, like recognition, and competitions boost engagement and foster continuous improvements.

Energy Savings Impact

Companies report 5-10% energy savings from employee-driven energy efficiency measures.

Helps with SECO reporting

Starting an employee energy conservation program can be used on your SECO report as an example of your organizations' ways of reducing energy.

Conclusion: Final Thoughts

Empowering You to Save Energy





Continuous Improvement and Resources

Ongoing Energy Data Review

Regularly reviewing energy data helps identify new savings opportunities and assess the effectiveness of measures.

TCAP as your partner

- TCAP provides annual budgets
- New Gexa billing format will now show if an account is billed by kWh or a demand kW.
- Webinars and resource guides
 - Energy Conservation
 - Understanding Power Factor and TDSP charges
 - TDSP energy conservation programs
 - Examples of other TCAP members' programs
 - HVAC and Ballfield lighting

QUESTIONS?

Website: <https://tcaptx.com>

Webinars: <https://tcaptx.com/events>

Energy Resources: <https://tcaptx.com/energy-resources>

<https://tcaptx.com/energy-resources/energy-conservation-library>

Conservation Awards: <https://tcaptx.com/awards>

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