



4 STEPS TO REDUCE GRID STRAIN

BY LIZ JOHN, MANAGING DIRECTOR & SHAUN AUCKLAND,
LOCAL GOVERNMENT PROGRAM MANAGER, SOUTH-CENTRAL PARTNERSHIP
FOR ENERGY EFFICIENCY AS A RESOURCE (SPEER)

Local governments and their leaders are playing a mounting role in the fight for resiliency to combat increasing extreme weather-related issues wreaking havoc on local economies, its residents, and infrastructure. Texas county leaders and city managers can overcome many of our current grid-related issues by increasing energy efficiency in our buildings and training facility operators to properly manage these energy-consuming structures. During periods of peak demand, of which ERCOT set 11 new records in the summer of 2023, the main contributors are often small commercial (and residential) buildings, contributing up to 70% of the load during those vital hours. Lack of energy efficiency measures such as adequate insulation, proper duct work, and sealing gaps in windows and doors, are often the root of the cause, however this is not the only source. Many of these buildings are old and were built prior to energy code implementation. Unless steps have been taken to retrofit these buildings, they most likely do not have proper controls and automation that can aid in reducing energy consumption. Potential solutions include installing smart devices, such as smart thermostats, heat pump water heaters, sensors and automatic controls, while also ensuring the workforce receives suitable training to fully utilize their benefits.

When well trained and educated facility managers can effectively improve the operation of buildings through energy efficiency implementation the results lead to more sustainable, efficient, and cost-effective public infrastructure. Let's dive into several actionable steps that can reduce energy consumption, lower operating costs, and ultimately alleviate strain on the grid.

1. Energy Audits and Benchmarking: Cities can and should conduct regular energy audits to identify inefficiencies. The first step to saving energy at your building is to benchmark, and a great place to start is benchmarking your building with ENERGY STAR's Portfolio Manager, which measures and compares your building's energy use to similar buildings, past consumption, or a reference performance level. This will help identify operation gaps.

2. Upgrading Building Systems: According to the U.S. General Services Administration, commercial building space cooling and heating systems represent 44% of energy consumption in U.S. buildings. Replacing outdated HVAC systems, lighting, and insulation with energy-efficient alternatives is a guaranteed way to not only increase your building's comfort and efficiency, but also lower utility bills. To further increase savings, you can implement smart building technologies for real-time energy management.

3. Maintenance and Operations: To help combat grid strain often caused by the built environment, building owners and cities can adopt preventive maintenance practices. This will ensure equipment runs efficiently and staff is trained on energy-efficient practices and the importance of regular maintenance. A nationally recognized training program that does just this is the Building Operator Certification (BOC). BOC teaches building operators to competently manage many moving pieces from HVAC and electrical systems, to lighting, code compliance, data collection and more.

4. Funding and Grants: The Property Assessed Clean Energy (PACE) model is a great way to help fund efficiency upgrades in commercial buildings and other structures. As of 2022, more than 38 states and the District of Columbia have enacted PACE enabling legislation for commercial buildings. For example, Texas's program is known as Texas Property Assessed Clean Energy (TX-PACE). When local governments approve and adopt PACE statutes they help reduce peak demand, enhance grid reliability, expand distributed generation as resilient power source, and improve their community's air quality and water conservation. PACE programs enable building owners to lower their operating costs and use the savings to pay for eligible water conservation, energy efficiency, resiliency, and distributed generation projects. PACE is a proven financial tool that incentivizes property owners

to upgrade facility infrastructure with little or no capital outlay. Approved by State legislation and established by local governments, building owners gain access to private, affordable, long-term (typically 10-20 years), low-cost fixed rate financing that is not available through traditional funding avenues.

The need to enhance energy efficiency, reduce operational costs, and maintain feasible, effective practices spotlights the essential role facility managers play. Applying the right measures can yield significant and immediate benefits. While we touched on several steps cities can take to help improve their community's efficiency and energy waste, several measures stand out to further shift energy usage and help build a more resilient grid.

Switching to LED lighting systems, particularly for street lighting, is a straight forward and impactful measure. LED technology is known for its superior energy efficiency and long lifespan compared to traditional lighting options. This upgrade not only reduces energy consumption but also significantly cuts maintenance costs due to the longer intervals between replacements. For instance, El Paso, Texas, implemented an LED streetlight retrofit and anticipates \$2.4 million in annual savings from avoided costs and maintenance. The energy savings and durability of LEDs make this an attractive option for facility managers aiming for quick wins in energy efficiency and cost reduction.

Effective temperature management and adjusting indoor temperatures during peak demand periods, often through incorporating demand response technologies, has a significant impact on efficiency and utility savings. Even buildings designed for maximum efficiency can experience significant energy wastage due to improper occupant behavior and inefficient operation of building systems.

Not turning off lights when a room or building is not in use or failing to program thermostats correctly can lead to unnecessary energy consumption. Former ASHRAE president Gordon Holmes highlighted in the "2009 Energy Efficiency Guide for Existing Commercial Buildings: The Business Case for Building Owners and Managers" that operational changes could result in a 10-40% reduction in energy use. As mentioned earlier demand response is a demand-side strategy that helps to optimize energy use, reduce peak demand charges, and enhance overall building performance.

The adage "You can't manage what you don't measure" underscores the importance of energy benchmarking. Energy benchmarking allows facility managers to identify inefficiencies, track improvements, and set performance goals. Free resources are often available through regional energy efficiency organizations (REEO) and state energy offices. Benchmarking tools, such as the Texas Benchmarking Toolkit, can be found on SPEER's website, and the Texas State Energy Conservation Office (SECO) offers remote audits and onsite preliminary energy assessments. By utilizing these tools, facility managers can gain insights into their energy use, identify cost-saving opportunities, and effectively manage energy and water consumption.

To conclude, implementing LED lighting systems upgrades, adjusting temperatures during peak demand, conducting energy benchmarking, and the adoption of PACE are highly effective measures for facility managers. These strategies not only provide immediate impacts in terms of energy efficiency and cost savings but also ensure the long-term sustainability and optimal performance of facilities. By adopting these practices, local governments can achieve significant improvements with minimal disruption and investment. ✨

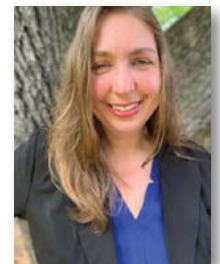


LIZ JOHN, MANAGING DIRECTOR, SPEER

As the Managing Director, Liz builds relationships with funders, partners, and members to manage day-to-day internal operations, including communications, deliverables, and reporting. Liz has been with SPEER for the past 10 years and in her current role she works closely with staff and the organization's efficiency initiatives to ensure that all SPEER programs achieve success and meet the SPEER's mission of expanding energy efficiency products and services as well as promote sustainability in our communities. Alongside SPEER's Executive Director, she closely monitors grant statuses to achieve maximum outputs for federal, state, and private grants

SHAUN AUCKLAND, LOCAL GOVERNMENT PROGRAM MANAGER, SPEER

Shaun Auckland manages the Local Government Program for SPEER. With over 15 years of experience, Shaun has developed, led, and implemented strategic waste diversion programs across various sustainability sectors, including greenhouse gas inventory, energy and water conservation, and policy development.



The South-central Partnership for Energy Efficiency as a Resource (SPEER) is a regional energy efficiency organization (REEO) that aims to accelerate the adoption of advanced building systems and energy efficient products and services in their region, Texas and Oklahoma.