eBook

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ENERGY EFFICIENCY PLAYBOOK

Your Guide to Smarter Energy Management and Savings

INDEX

INTRODUCTION

This eBook is designed as a quick reference and playbook for those looking to get started, or continue, with their energy conservation initiatives. Based on a recent guide published by ENERGY STAR, the playbook summarizes tactics and strategies within three easy-to-understand phases:

Phase 1: Find your energy baseline

Phase 2: Plot your energy savings journey

Phase 3: Evaluate, adjust, recognize success

In 2013, the U.S. Environmental Protection Agency unveiled its ENERGY STAR Guidelines for Energy Management, and challenged the commercial building industry to reduce its energy intensity by 10% within five years or less. Using these guidelines, many organizations have been able to achieve significant savings, with top performing office buildings reducing energy use 26%. Through these guidelines, you can embark on your own energy savings journey, and achieve your own record results.

PHASE 1:

Find Your Energy Baseline

FIND YOUR ENERGY BASELINE

There are three steps within this phase:
Step 1: Make a commitment to energy improvement
Step 2: Assess current performance
Step 3: Set goals

This is where you start your energy savings journey. During this important phase, you'll assemble a team, create advocates for the program, institute energy policy, and begin to understand how long your energy savings journey is going to be. You'll use your own data and industry benchmarking tools to assess your current performance, and you'll set goals for the first year of your energy journey.

Phase 1 Activities:

- ☑ Designate a team
- ☑ Institute a formal energy policy
- ☑ Collect current energy data
- ☑ Assess performance
- ☑ Determine scope
- ☑ Estimate potential for improvement
- ☑ Establish goals

CUSTOMER SUCCESS STORY: WEBER STATE UNIVERSITY

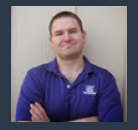
In 2007, Weber State University committed to becoming a carbon-neutral campus by 2050.

The sustainability team, led by Weber State's Energy & Sustainability Manager Jacob Cain, installed sub-metering systems for the university's entire portfolio to make data instantly accessible using Lucid BuildingOS.

The team of 11 employees have prioritized ongoing energy efficiency, renewables, and behavioral change programs and have focused on data analysis, site development, utility planning, water management, waste management, and recycling priorities. Their efforts reduced their energy use by more than 33%, saving over $3 million in energy costs in the first two years of implementation.

"We had to get data that was relevant, timely, and gave us the information to make good decisions about how to use our resources... I can't imagine doing it any other way."

Kevin Hansen, VP of Facilities
Weber State University



STEP 1: MAKE A COMMITMENT TO ENERGY IMPROVEMENT

Appoint an Energy Director: No journey is successful without a leader who is dedicated to the success of the rest of the team. This expert has the authority, bandwidth, and knowledge to affect change across the organization.

- Set goals
- Track progress
- Lead and support the energy management team

Establish a Team: The team will work together to execute energy management activities throughout your journey, across different parts of the organization.

Institute an Energy Policy: Provide the foundation for setting performance goals and integrating energy management procedures and best practices for the organization.

Attributes of a High Functioning Energy Team:

- ☑ Dedicated leader
- ☑ Authority to lead
- ☑ Bandwidth to perform
- ☑ Members across the organization
- ☑ Consensus on and support for energy policy

lucid ENERGY HERO

ANNA KLOVSTAD, TAHOE TRUCKEE SCHOOL DISTRICT

Using Lucid, Anna was able to uncover and amend massive energy spikes that were impacting the environment and the district's pocketbook. Her energy reduction efforts helped saved thousands of dollars a day, and the district was recognized for its conservation efforts, ranking 3rd nationally in the U.S. Department of Education Green Ribbon Schools awards.

STEP 2: ASSESS CURRENT PERFORMANCE

Gather data: The first step on any journey is to assess where you stand. To do this, begin by gathering all energy data you have. Gather data from utilities, sensors, and systems. You can get most historical energy data directly from your utility. Using this data, you can determine the current baseline.

Benchmark your performance against others: Building benchmarking has come a long way in the last ten years, and is one of the most important and useful steps in this phase. Once you clearly understand your baseline energy use, then you can assess your performance against similar buildings, in similar climates.

You can compare the energy performance of your buildings and those of your peers, and competitors. Use this data to prioritize which facilities to focus on first.

Analyze your energy use by looking at the data: Look for energy use patterns and trends across your facilities to better understand opportunities for improvement.

Using technical assessment and energy audits you can evaluate the operating performance of facility systems and equipment to determine improvement potential. This will help you set goals.

Benchmark Your Buildings Using ENERGY STAR and DOE Datasets

Lucid and the Department of Energy (DOE) national lab teamed up to provide a free benchmarking tool for energy managers, building operators and sustainability managers. Using the tool, called BenchMarkMyBuilding.com, users can compare energy cost and consumption performance against similar buildings using 3 simple inputs.

BenchmarkMyBuilding benchmarks against ENERGY STAR and DOE datasets representative of 68 billion square feet of commercial building space in seconds.

STEP 3: SET GOALS

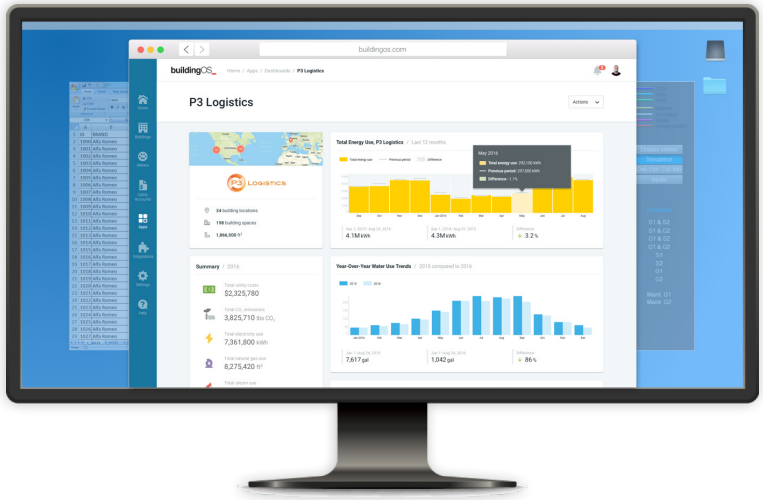
You've arrived at the place in the journey where you have the opportunity to finally get going. But before you take action, you need to clearly define goals.

Set the scope: You'll need to identify organizational and time parameters that can affect the success of your energy savings journey. Once you understand your energy baseline, you can determine which facilities require immediate focus, and where future opportunities for improvement lie. Establish the scope for the first year, so you can determine what success looks like.

Estimate the actual potential for improvement: Review baselines and benchmarks to determine the potential for improvement. With this information you can prioritize upgrades, set priorities and define metrics for success.

Establish clear goals: You're finally ready to create and communicate clear, measurable goals. Include progress milestones and target dates for completion of each goal. Communicate goals across the organization, and let everyone know how you'll communicate progress.

BuildingOS Gives You Insights So You Can Set Goals



Unify Building Data Across Your Portfolio

Lucid BuildingOS collects and unifies all building performance data and provides a real-time, integrated view of operations for each building, or across the portfolio.

Improve Building Operations

Lucid BuildingOS uses historical, utility, real-time and field data to find waste and to identify opportunities for savings. Analytics detect inefficiencies or issues, and generate alerts on key performance indicators.

Drive Action and Collaboration

Seamless sharing and engagement tools deliver findings to any audience. Automatic reporting, dashboards and storyboards inspire collaboration and drive action.

PHASE 2:

Plot Your Energy Savings Journey

PLOT YOUR ENERGY SAVINGS JOURNEY

Now that you've established a team for your energy expedition, and you've agreed upon goals, priorities, and communication strategies, you're ready to get started! In this phase you'll take action and make changes that will reduce energy use, increase savings, and bring you closer to your Energy Hero status.

Step 1: Formalize your action plan
Step 2: Implement your plan

Phase 2 Activities:

- ☑ **Define steps and targets**
- ☑ **Determine roles**
- ☑ **Identify resources**
- ☑ **Establish lines of communication**
- ☑ **Raise awareness across the organization**
- ☑ **Motivate and inspire the team**

STEP 1: FORMALIZE YOUR ACTION PLAN

While you may be anxious to just get going, a detailed action plan with all associated resources, costs and targets is essential at this phase.

Define technical steps: First, you'll need to evaluate technical assessments and audit results from your assessment phase. Use this information to identify gaps between current performance and goals, by reviewing the results of the technical assessments and audits or progress evaluations.

Identify actual steps and actions: Identify the steps necessary for upgrading and moving facilities from current performance to the desired level of performance as defined by the goals. See the ENERGY STAR Building Upgrade Manual for more guidance on developing a systematic approach to building upgrades. To find information about reducing energy use in an industrial plant, see the suite of ENERGY STAR Industrial Energy Guides.

Create performance targets: Work with each facility, department, and operational group of the organization to track progress towards achieving goals.

Set timelines: Define specific actions and their schedule. Include regular meetings among key personnel to evaluate progress, completion dates, milestones and expected outcomes.

Establish a tracking system: Create a system to track and monitor the progress of action items. This system should track and measure energy use and project/program activities.

STEP 2: IMPLEMENT YOUR PLAN

This is among the most intense steps of your journey, and it separates the true energy heroes from the novices. Making real changes to energy consumption affects the entire organization, and will require awareness about consumption and dedication to achieving the goals.

Build a communications plan: Identify opinion leaders and stakeholders, and determine how to get them on board with the conservation strategy. These people will require regular updates about progress. Keeping them informed makes them part of the team, and will make it easier for you to win support for the program.

Create awareness: It's not just the stakeholders who need updates. Everyone in the organization who uses energy can become an advocate for conservation.

Consider capacity: Be mindful about your organization's capacity for change and increment your way to measurable results within the confines of this capacity.

Motivate people: Conservation requires active participation from all stakeholders, and all occupants of your buildings. You'll need to make sure that the people in the organization are on board, and dedicated to the energy savings journey.

Track and monitor: You can't achieve your goals in one big step. Improvement comes in incremental steps along the way. Track and monitor your progress in short intervals, at least weekly. Especially focus on peak times, which is where significant energy use can occur quickly.

Bottom line, know where you're going. Measure each step. Adjust and increment your way toward the goal.

Gain support for your energy journey by providing the right training.

- ☑ **Operational and procedural training:** Provides instruction on new operating methods or procedures designed to reduce energy use. Such training is typically targeted toward specific audiences, such as facility managers, operations, and maintenance staff.
- ☑ **Administrative training:** Includes reporting, monitoring, data collection, and other administrative efforts that support energy management.
- ☑ **Specialized training:** Gives specific instructions on using and maintaining equipment or tools to ensure more efficient operation.

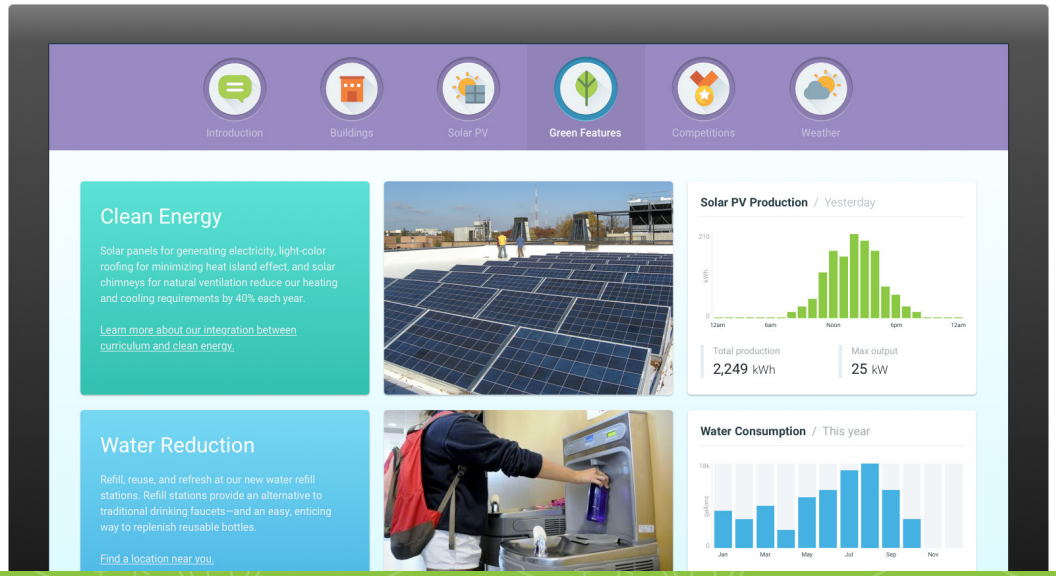
PHASE 3:

Evaluate, Adjust, Recognize Success

EVALUATE, ADJUST, RECOGNIZE SUCCESS

The good news is that you've started your journey. The challenge now is to carefully measure your progress across the goals that you set in Phase 2. Using real-time data from your building management platform will help you to analyze and adjust your energy consumption. By setting a regular schedule for measurement, you can set milestone goals, and measure at each step.

Step 1: Evaluate progress
Step 2: Adjust and correct course
Step 3: Recognize achievements



Key Steps In Reviewing:

- ☑ **Get feedback:** Solicit feedback and ideas on the plan from the energy team, implementation staff, and other departments.
- ☑ **Gauge awareness:** Assess changes in employee and organizational awareness of energy issues.
- ☑ **Identify critical factors:** Identify factors that contributed to surpassing or missing targets.
- ☑ **Quantify side benefits:** Identify and quantify, if possible, side benefits arising from energy management activities such as employee comfort, productivity improvement, impact on sales, reduced operation and maintenance expenses, or better public/community relations.

STEP 1: EVALUATE PROGRESS

With solid, measurable goals in place, you have a roadmap for your journey. Take stock in your progress along the way, and make sure that your team members are invested in the progress of the journey. With real-time data from your building management platform, you can accurately measure progress at a detailed level.

Using your energy management system to aggregate and report against diverse data points you will have access to new insights about how and when energy is used. Measure these points along the journey, and re-measure them regularly to assess your progress. You should be able to:

Centralize, visualize and analyze all building data: Using customizable, easy-to-read dashboards you can visualize and compare use trends, analyze and break down utility bills and identify trends and trouble spots.

Plan for peak demand: Along your journey, you can make adjustments and manage use through real-time data and rich data visualizations.

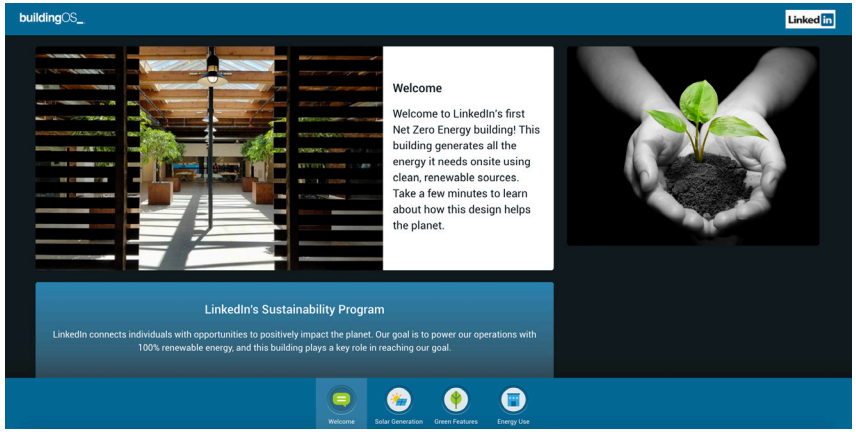
Automatically generate reports: Sharing data with stakeholders and team members will help people who are traveling the journey with you stay committed to reaching the goals. Showcase wins, and highlight opportunities to improve.

Display progress online: Establish splash pages, online resources, and kiosks in public places to drive occupant engagement and satisfaction.

Improve budgeting and forecasting: An added benefit to traveling the journey is that your organization can have access to greater detail about where energy savings are possible.

Build a Recognition Plan:

- ☑ **Individual:** Acknowledge the contributions and accomplishments of specific people.
- ☑ **Teams:** Recognize the achievements of teams, departments, and other distinct groups within the organization.
- ☑ **Facility:** Reward the accomplishments or performance of an entire facility.



Public kiosks keep occupants focused on meeting conservation goals.

STEP 2: ADJUST AND CORRECT COURSE

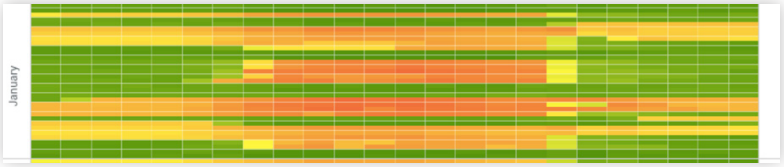
With detailed focus on energy conservation, you'll quickly notice opportunities for improvement along the way. Using heat maps, automatic scheduling and continual review of energy use via real-time data, you can recognize progress and problem spots along your journey. With this, you'll be able to recognize individuals, departments and facilities that are making real progress against goals.

Providing internal recognition: People enjoy being recognized for their work. Recognize individuals, teams, and facilities within your organization that have been instrumental in achieving goals.

Revel in external recognition: Often, organizations are recognized for energy savings from external organizations. External recognition can motivate entire organizations to stay focused on the goals and to achieve goals. Participate in contests that are held by government agencies, the media, and other third party organizations that reward achievement.

Use energy management software, like BuildingOS Heat Map, to track energy use. With this data, you can identify energy waste, make adjustments, and save.

Before



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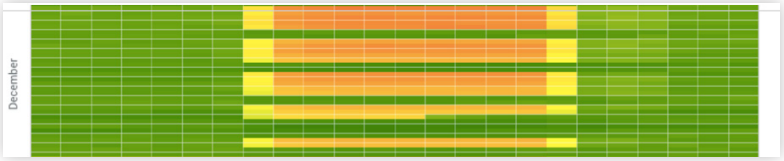


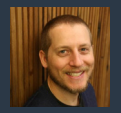
INTEGRAL GROUP & DPR CONSTRUCTION

Integral Group, an engineering, design, and sustainability consulting firm recently completed a net-positive energy retrofit for the San Francisco headquarters office of DPR Construction, resulting in the city's first energy net-zero building.

The team identified a 15-minute daily routine to analyze the facility using the Heat Map, Trends, and Comparisons applications in BuildingOS. They have successfully maintained its N+ status, even using 13% less energy than expected.

"While DPR is the first to achieve Net Positive Energy status in San Francisco, it shouldn't be the last. Current tools and technology like BuildingOS have made Net Positive commercial buildings an achievable and cost effective goal."

Dylan Connelly, PE & Mechanical Engineer, Integral Group



STEP 3: RECOGNIZE ACHIEVEMENTS

As you reach the first plateau of your energy savings journey, it's critical to share progress and recognize achievements. Each time you achieve small goals or reach milestones you have an opportunity to invigorate your team and renew focus on the longer-term, more difficult goals.

It's worth it. As individuals participate in achieving goals, they become the best advocates for the next phase in the journey.

RECOGNIZING ENERGY SAVINGS SUCCESS

Participants in Lucid's annual energy reduction competition program, Campus Conservation Nationals, recognize the value of sharing their achievements. One of the top 2017 performers, St. John's University, uses the competition as a fundraiser—their energy savings raise awareness for and are donated directly to a local non-profit. In 2017 their Conserve to Serve competition saved over 40,000 kWh, resulting in a donation of over $7,000 to Bread and Life.

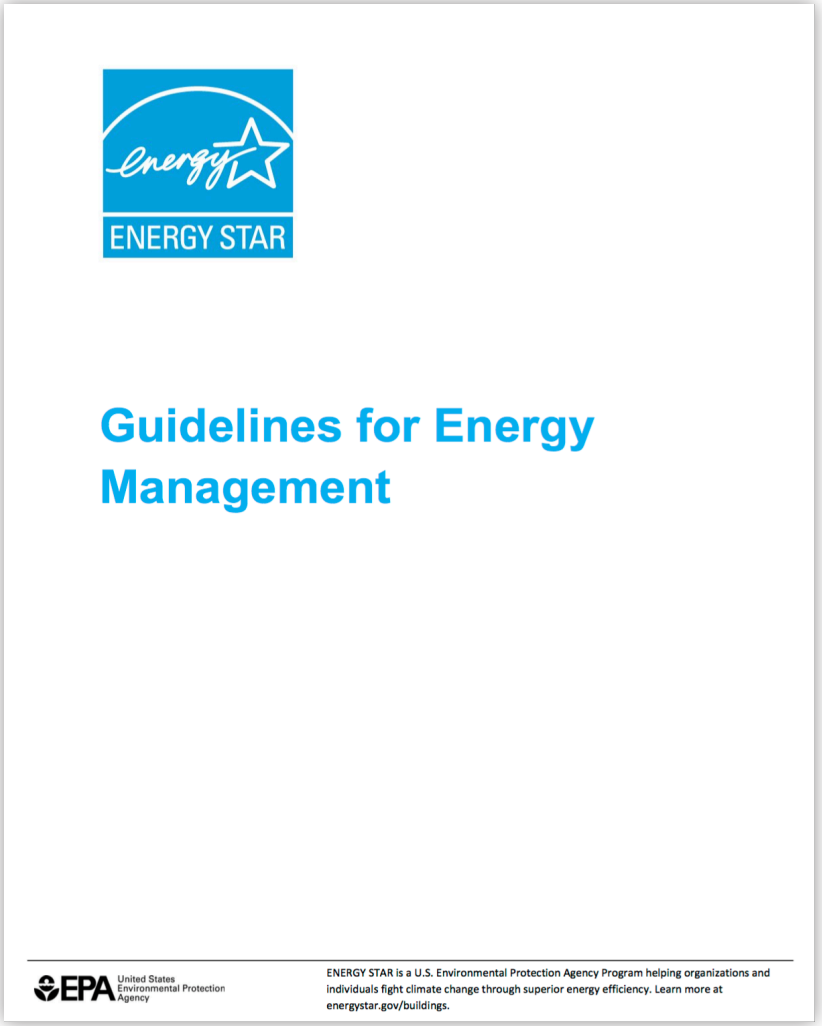
"We developed Conserve to Serve so that we all pitch in to save the energy, but the dollar savings goes to support Bread and Life."

Thomas Goldsmith,
Director of the Office of Sustainability,
St. John's University

CONCLUSION: REDUCE ENERGY, ACHIEVE SAVINGS ONE STEP AT A TIME

Energy savings is a priority for most organizations. Yet, achieving energy savings goals requires focused planning, participation of all stakeholders, and dedication to monitoring and managing actual performance. The ENERGY STAR Guidelines For Energy Management whitepaper provides a detailed strategy for implementing your own energy savings plan.

Lucid can be your tour guide on your own energy savings journey. Lucid provides a data and analytics platform to make data-driven decisions to improve building efficiency and drive energy conservation and savings. Lucid's SaaS-based BuildingOS platform is adopted by more than 500 customers, 15,000 buildings and 1.5 billion square feet under management. It empowers over 12,000 energy and sustainability management professionals in maximizing energy efficiency while improving occupant satisfaction within their buildings. For more information, visit lucidconnects.com.



Download the ENERGY STAR *Guidelines for Energy Management*

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Lucid improves the operational, environmental, and financial performance of building portfolios through the better use of building data. The Lucid BuildingOS platform unifies building data across building portfolios, improves building operations and drives collaboration and action. BuildingOS is used by over 500 organizations, in 15,000 buildings, with over 1.5 billion square feet of space across the enterprise, higher education and commercial building markets. For more information, please visit www.lucidconnects.com.

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