



→ How utilities can navigate the new lighting standards

As EISA-imposed era of efficient lighting begins, where do utility programs go next?

By Shana Doby, David Meisegeier, John Turnmire, and Dan White, ICF

Executive summary

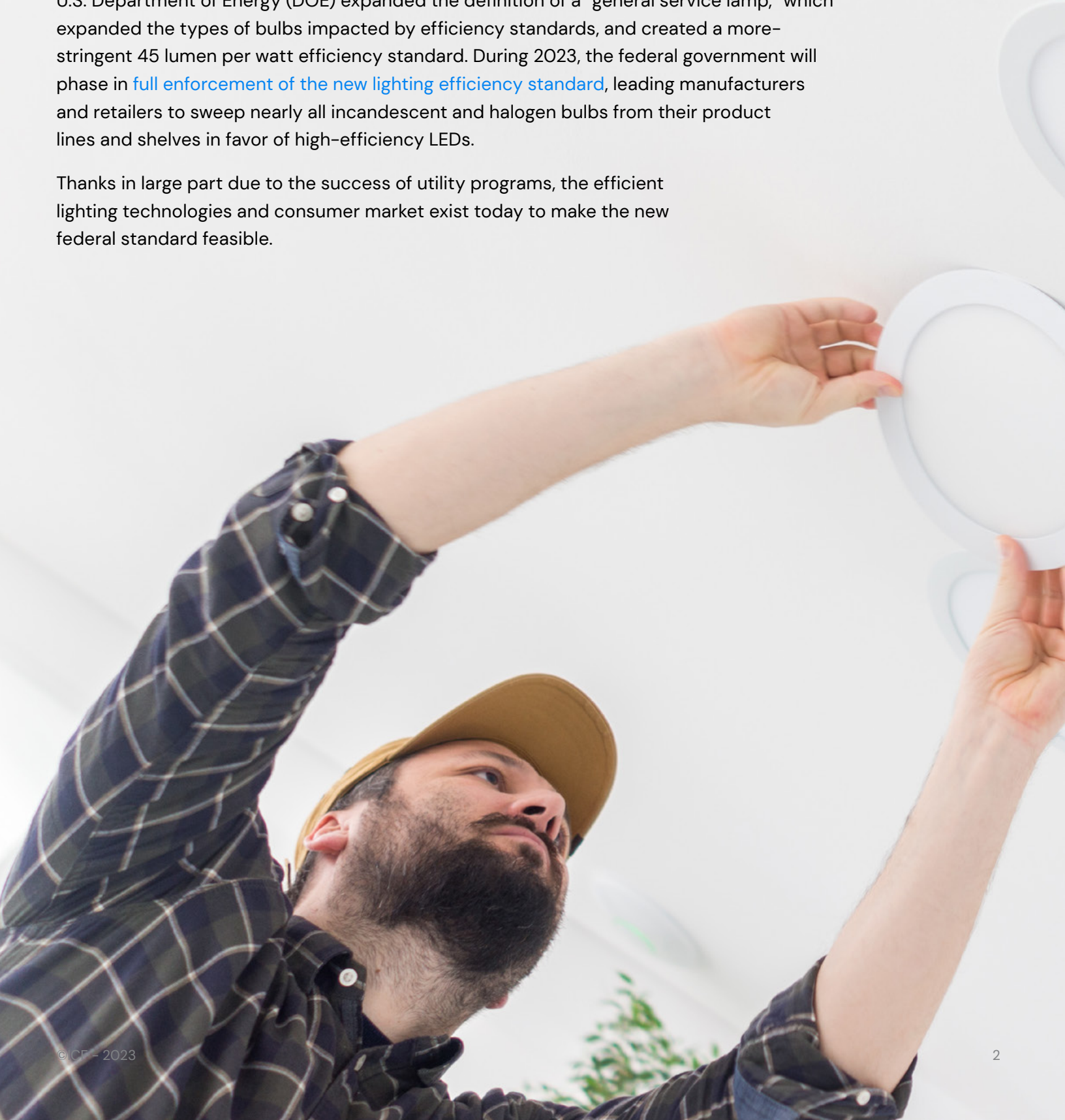
Decades ago, when U.S. utilities first launched programs to incentivize customers to install more efficient lighting to reduce their electricity usage, there was very little market for high-efficiency lightbulbs. However, efficient lighting-driven energy programs became a huge hit nationwide for utilities, customers, and regulators thanks to the energy bill savings for consumers and cost-effective, easy-to-verify kilowatt-hour savings for utilities. The market for efficient lighting grew, and new LED lighting technology was introduced—improving in performance and decreasing in cost over time.



Efficient lighting: A utility success story

In 2007, the U.S. Congress passed the Energy Independence and Security Act (EISA), starting a 15-year journey toward enforced mandates for more efficient lighting. In 2022, the U.S. Department of Energy (DOE) expanded the definition of a “general service lamp,” which expanded the types of bulbs impacted by efficiency standards, and created a more-stringent 45 lumen per watt efficiency standard. During 2023, the federal government will phase in [full enforcement of the new lighting efficiency standard](#), leading manufacturers and retailers to sweep nearly all incandescent and halogen bulbs from their product lines and shelves in favor of high-efficiency LEDs.

Thanks in large part due to the success of utility programs, the efficient lighting technologies and consumer market exist today to make the new federal standard feasible.



And a cause for concern

With enforcement of the efficiency standard, utilities will no longer be able to rely on residential efficient lighting to achieve the cost-effective energy savings targets previously promised to regulators through their energy efficiency programs. For large residential efficiency programs, lighting has accounted for as much as 90% of the energy savings delivered. Given that fact, it's no surprise the new efficiency standard is causing anxiety for affected utility program leaders who wonder: What will we do next?

In this paper, ICF aims to help utility leaders see a path forward. While cost-effective energy savings are still important, it's time to reposition programs to address recent critical state policies and goals that have created new priorities for utilities. For example, managing load growth will be an even more pressing concern for utilities in the coming years, driven by electrification goals that seek to transition energy use to an increasingly decarbonized clean energy grid. This paper will cover:

- Utility approaches to energy efficiency programs in 2023
- Emerging priorities for utilities, such as load growth, electrification, and decarbonization, and how those priorities might shape demand-side management programs moving forward
- Questions to ask and steps to take to ensure state policies, regulatory oversight, and utility programs align

EISA enforcement and utility energy efficiency programs in 2023

DOE's plan to phase in enforcement of the 45 lumens per watt lighting standard reveals that there is ample time for utilities to continue pursuing energy savings through residential lighting programs in 2023.

DOE began issuing warning notices to lightbulb manufacturers and importers and pursuing reduced penalties in fall 2022, and it began full enforcement against these lighting providers in January 2023. Lighting distributors and retailers—anyone from the local mom-and-pop-owned hardware stores to brick-and-mortar giants such as The Home Depot and Lowe's—started receiving warning notices from DOE for selling noncompliant lighting in January 2023. Full enforcement will begin in July 2023, though DOE has signaled that small retailers may receive additional flexibility.

Amid this shifting landscape, utilities had to forge ahead designing their 2023 energy efficiency programs and seeking regulatory approval.

Due to factors such as the enforcement schedule, the timeline of anticipated changes in the market, and TRM changes, utilities made decisions about 2023 programs to best navigate the shifting landscape within the context of their service territory. Some are treating their 2023 programs as "business as usual," while others are pursuing lighting-based savings for only part of 2023. Some lighting-related energy savings goals are in line with historical goals while others were reduced. In either case, utilities will seek to achieve their goals before the inventory of lighting in stores has turned over to the most efficient technologies.

Utilities are not abandoning traditional energy efficiency efforts like lighting in 2023, where such efforts make sense, but now is the time to start thinking about how to prepare for the implications that larger state policy mandates—including decarbonization, resiliency, and equity—will have on their ability to continue providing safe, reliable, affordable, and clean energy to their customers.

2024 and beyond: The post-lighting future of utility demand-side management programs

Regardless of whether a utility's energy efficiency portfolio includes lighting-related savings in 2023 or not, programs are set and the wheels are in motion. Planning for 2024 is when all utilities must meet the challenge and answer the question that continues to vex many program leaders: What's next?

Many utilities' grids face pressing challenges due to expected large-scale load growth driven by electrification, and utilities also face a mandate to reduce carbon emissions, even as loads grow. Planning for 2024 is an opportunity to redefine what demand-side management programs should be, based on emerging priorities for customers, regulators, and utilities related to decarbonization, electrification, and resilience.

Utilities should consider testing systems, approaches, and customer communications now to find out what works.

ICF recommends utilities explore four areas as they work to reposition for a successful post-lighting era program future.

The imperative to achieve deep carbon reductions, combined with a more distributed and dynamic energy grid, creates a demand for even greater levels of efficiency that can be targeted to where and when it is most needed.

Learn more in ICF's paper, "[Energy efficiency evolution: New opportunities for utility programs.](#)"



Program optimization

Cost-effective energy efficiency will remain an important goal for many utilities and regulators, with the familiar goal to optimize programs to deliver the most savings for the least cost. Though no single measure will be able to replace the low-cost savings from lighting, utilities can strategically pursue smaller efficiency measures to achieve future residential energy efficiency program savings. Some of the most promising residential opportunities include:

- Appliance efficiency measures for dehumidifiers and other household electric appliances
- Coordination with state energy offices to leverage Inflation Reduction Act (IRA) funding to drive sales of higher efficiency heat pumps and heat pump water heaters

Outside of the residential program space, targeted measures for high energy-use industries, such as rapidly growing controlled-environment agriculture, may offer utilities some of the best energy-saving opportunities for customers willing to invest in efficiency.

State policy and decision-maker alignment

Electrification, decarbonization, grid resilience, and energy equity are top priorities for policymakers in many states today, and policymakers expect utilities to help states reach their goals even amid rapid load growth.

However, utilities can't simply take all the actions they need to pursue those goals. They first need regulators to enable the actions needed to pursue those goals. Utilities should start the process of pursuing state policymaker goals by defining what changes they need to occur to best achieve success.

In most states, it's likely that state energy offices will have a bigger, more active role in driving the state energy agenda in the coming years. From the Bipartisan Infrastructure Law to the IRA, billions in federal funding will be available to each state, and much of it will likely land in state energy office budgets.

Now is the time for utilities to think big about their collaboration with energy offices and think of these offices as key allies for ambitious pursuits. State energy offices can help boost optimal approaches for utilities to support their goals, but only if they understand the utility perspective.

For example, when customers come asking for IRA-incentivized building electrification, many utilities will want to take a "while we're at it" approach to stack additional efficiency measures such as weatherization while the customer is allowing work inside their premises. An energy office can boost that bigger, better approach.

Regulatory change

If state policymakers are asking utilities to lead efforts to decarbonize energy use, electrify transportation and building heat, and advance energy equity, should the traditional cost-benefit tests be updated to reflect how a proposed program delivers on these goals? Some states have already answered, "Yes."

For example, working closely with utilities, the California Public Utilities Commission (CPUC) in 2021 [reformed its approach](#) to energy efficiency programs to value carbon reductions, support energy equity, and increase grid stability. The CPUC repositioned efficiency goals to maximize carbon reductions and grid benefits, rather than kilowatt-hour savings, and shifted cost-effectiveness evaluations to grade programs across specific categories.

Unfortunately, many regulators still approve or deny proposals based on cost-benefit tests designed solely around incentivizing pursuit of the lowest-cost kilowatt-hour reductions. Regulatory alignment with state policy goals is a process, and utilities can facilitate the transition by sharing ideas with regulators and finding common ground on how the status quo evaluation of program costs and benefits might evolve. As a starter, here are three ideas for [where the conversations should start](#):

1. Deescalate any past adversarial relationship with regulators. Load growth, electrification, decarbonization, and energy equity are pressing issues. Utilities must build trust, show they are willing to be flexible, and win over hearts and minds.
2. Ensure that the utility and regulators have a shared vision of the desired outcome. From there, they can move forward in a joint effort to achieve a mutually beneficial outcome, rather than regulators dictating to utilities how they should or should not achieve policy goals.
3. Bring urgency to the issues. While major goals tied to new priorities may be a decade or more away, utilities know time is already short. Regulators might feel that urgency and be more assertive allies if utilities make a compelling case regarding time pressures.

Priorities-based vision for programs

When affordable and reliable energy dominated state energy agendas, it made sense for utilities to maximize cost-effective kilowatt-hour savings through lighting-driven energy efficiency programs. Today however, states are also [urging utilities](#) to advance more complex goals to decarbonize energy use, electrify buildings, and improve resiliency. New priorities of that magnitude call for a new vision for scalable programs.

As utilities align with state decision-makers and engage in conversations with regulators, they should use the insights they learn to reimagine program goals, design, and evaluation.

In addition, utilities can tap their troves of customer and program data to create insights and trend analyses that enable an informed vision for their next big program goals. This data analysis is key to predict what programs can accomplish and at what cost.

[DTE leveraged its program data](#) with ICF's DER Insight framework to pivot their programs after the company launched a grid transformation vision that included electrification and decarbonization goals. DTE used ICF's analytical tool to estimate the potential for demand response and battery storage at a series of substations, then to design programs that were cost-effective while offering an increased incentive to drive aggressive participation goals.

The buck stops where?

Even with a priorities-based program vision, optimized programs, and alignment with regulators and state decision-makers, accomplishing big state energy policy goals will be very costly. Utilities will not be able to reach for all of these goals solely on the backs of ratepayers. Instead, utilities and regulators must find a balance between what is appropriate for ratepayers to shoulder and what alternative financing solutions are available.

For example, PG&E made a proposal to the CPUC in response to the commission's [Clean Energy Financing Options Proceeding](#) that, if approved, would create a clean energy financing platform. The platform would enable comprehensive customer-sited clean energy investment at a relatively small cost to ratepayers and little upfront cost for participating customers. To support deployment of clean energy technologies at scale, the platform would enable financing through [Inclusive Utility Investment](#) programs, which use a tariffed on-bill

approach to reduce customers' up-front costs and thereby expand access to more comprehensive, cost-effective energy efficiency and electrification upgrades.

ICF helps utilities understand the nuances of a diverse mix of financing models to create the perfect package of programs to address the different needs in a utility's market.

Conclusion

Lighting-driven residential energy efficiency programs were a huge success, thanks to the innovation and accomplishments of utilities and program leaders. However, the time has come for utilities to think big about the next audacious goals and groundbreaking success stories.

For 2023, utilities have their program plans in place. But 2024 will be here soon and the end of lighting-driven residential efficiency programs is an opportunity for utilities to reimagine demand-side management programs to address the pressing priorities of the future: electrification, decarbonization, resilience, and energy equity in a climate of rapid load growth.

To reimagine these programs successfully and navigate the road ahead, it's critical utilities leverage their data for key insights and invest in state regulator and policymaker relationships.

ICF has a long track record helping utilities navigate uncertainty. We bring the resources, capabilities, and relationships to be a trusted partner that lights the way into a bright future for new utility demand-side management programs.

About the authors



Shana Doby

Director, Residential Products Programs

Shana.Doby@icf.com

Shana supports the implementation of residential energy-efficient products programs, leveraging more than two decades of experience in national retail merchandising and marketing. She understands market factors and their impacts on utility programs, including changes to federal standards, market adoption, consumer reaction, and other factors. Shana also works closely with manufacturers and retailers that produce and sell energy-efficient products to understand industry trends, market availability, promotional opportunities, and marketing plans.



David Meisegeier

Vice President, Energy Offerings and Innovation

David.Meisegeier@icf.com

David helps innovate customer-centric energy programs that meet utilities' current and future needs. He is a certified energy manager with 30 years of experience in energy efficiency, distributed energy resources, and customer engagement for utility programs. His professional skills include innovating, designing, and implementing strategic energy, decarbonization, and financing programs that improve resiliency and equity for all customers.

About the authors



John Turnmire

Senior Account Manager, National Products Team

John.Turnmire@icf.com

John manages implementation contracts and relationships with national retailers, manufacturers, and utilities in the residential energy efficient product market. He monitors and advises on regulatory developments, energy market environments, and the global supply chain. A certified LEED Green Associate with the U.S. Green Building Council, he brings a passion for building science and sustainability to DEI-centric initiatives.



Dan White

National Partnerships Manager

Dan.White@icf.com

Dan manages relationships with retailer and manufacturer partners to facilitate the implementation of utility retail programs. Relationships include small and larger partners, such as The Home Depot, Lowe's, Google, and Walmart. These relationships allow execution of program materials (e.g., point-of-purchase [POP]), education of store staff, coordination of in-store events, and problem-solving when issues arise. He provides insights on merchandising plans, industry trends and projections, and federal specifications and standards to inform utility program planning. Dan is also driving innovation through pivoting to measures outside of lighting.



Shana Doby

Shana.Doby@icf.com

+1.704.929.8389

David Meisegeier

David.Meisegeier@icf.com

+1.301.407.6854

John Turnmire

John.Turnmire@icf.com

+1.202.862.1258

Dan White

Dan.White@icf.com

+1.330.926.6884

icf.com/energy

 twitter.com/ICF

 linkedin.com/company/icf-international

 facebook.com/ThisIsICF

 [#thisisicf](https://instagram.com/#thisisicf)

About ICF

ICF is a global consulting services company, but we are not your typical consultants. We help clients navigate change and better prepare for the future.

Our experts have been embedded in every corner of the energy industry for over 40 years, working at the intersection of policy and practice. We work with the top global utilities, plus all major federal agencies and relevant energy NGOs, to devise effective strategies, implement efficient programs, and build strong relationships with their customers. From creating roadmaps to meet net zero carbon goals to advising on regulatory compliance, we provide deep industry expertise, advanced data modeling, and innovative technology solutions, so the right decisions can be made when the stakes are high.