Looking Ahead in Uncertain Times:

How Evaluation Can Help Lead the Way

The tumult of 2020 onwards—with COVID-19, racial justice reckoning, climate disasters, and supply chain disruptions—challenges us to think differently about how we do our work. How do we plan for uncertainties in the market? How can utilities serve customers better and with greater impact? Traditionally, our industry has focused on solving energy problems through customers, but this moment calls us to flip our perspective to focus on solving energy problems *for* customers.

ILLUME Founder, **Anne Dougherty**, sits down with ILLUME evaluation experts **Lisa LeBeau Obear** and **Pace Goodman** to reflect on major changes in the energy industry and in our world. They discuss how analytics and evaluation tools can help us navigate these uncertain and challenging times, with customers at the forefront.

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Anne Dougherty: ***The energy industry is innovating quickly – from the technologies being deployed, to how we are delivering solutions to customers, to expanding who benefits from our solutions. What do you see as the most significant change our industry is facing right now?***

Pace Goodman: This uncertainty with COVID-19 drives home what is most important in our lives and gives us a sense of security, including access to energy services. This moment spurs our efforts to ensure access to reliable energy in the face of climate change, and decarbonization plays a key role toward that end.

It's reassuring to see energy efficiency funding going toward decarbonization measures, without pushback. If there is pushback, it's about how we decarbonize most reasonably, cost-effectively, and beneficially to customers, without ignoring our legacy infrastructure. Seeing energy efficiency funding going to decarbonization has been a big, exciting change.

Anne: ***Expanding on that, how do you see these changes impacting the practice of evaluation? How is this moment calling on us to think differently about evaluation?***

Pace: One area is measuring carbon impacts. We've been metering energy usage, we have ENERGY STAR© for appliances, and we have certified protocols for measuring the efficiency of appliances – all based on energy use. We have a nice clean box around how much energy things use, and we have a nice clean way to compare them. Carbon impacts are trickier, and we don't have a great way to measure them. We'll continue to standardize methods for estimating carbon impacts. Like all new standards, they'll probably start off too simple, some measures won't be as beneficial as we thought, and we'll improve over time.

Another area is evaluating customer financial impacts. When replacing a heating system with a more energy efficient model, for example, a customer likely will find the new model beneficial. But if switching to a more expensive fuel type, the customer could experience a negative financial impact. Rather than thinking that a program on average benefited customers financially, we need to think about what percentage of customers benefited financially, because some customers will experience negative impacts.

The last area worth noting is quantifying the benefits of reliability. We don't have a great way to include reliability in cost-effectiveness tests. For example, with Midcontinent Independent System Operator (MISO) or Pennsylvania-New Jersey-Maryland Interconnection (PJM), we have more available data on wholesale energy prices, so we can triage to provide some indication of the value of reliability and capacity. [1, 2]

Whereas in more vertically integrated utilities, it's opaque. If you're a vendor coming up with a new technology around reliability, you don't know if you'll have something viable in certain regions. For example, if a vendor or agency developed a systematic approach to enable communities to implement micro-grids for reliability needs, this vendor or agency could access data from PJM and MISO to identify areas where this service might be most beneficial for the utilities and community, but outside of these wholesale markets, they'd have no data available to understand whether their service has market viability.

Lisa LeBeau Obear: How can we help clients predict and adapt to what will happen in the next year, let alone, three months?

We need to move away from a narrow view and broaden how evaluators are consulting with clients. The norm has been to expect the status quo to continue. We need to change that mindset and help our clients come up with a plan B, C, and D. How will they continue to serve customers in the face of uncertainty? There's no other light bulb coming to energy efficiency, so what will programs offer beyond the low-hanging fruits? We must start with what problem are we solving for customers, what's the value proposition for them?

At ILLUME we talk a lot about equity and who gets left behind, and the evaluation space has transitioned to looking at this more closely. On average, participants saved X amount. But who wasn't included in that group? Who got left behind? Who didn't have the same experience, even within participants, as others? We need to drill down and be more granular in how we evaluate programs, because we know the experience and access is not the same for everyone.

Anne: ***Do you think evaluation can move to more nuanced understandings of our impact on communities and regions in a way that we haven't explored before?***

Lisa: If we have narrow definitions of program success, it remains a challenge for programs to serve low-income customers or reach customers that are more expensive to reach. Cost-effectiveness and cost savings are important goals that can be relatively straightforward to measure.

But addressing human and socio-economic considerations requires coordination across multiple groups within and beyond a utility, across industries and sectors. The power of evaluation to elucidate impacts on a more nuanced level is limited by the program goalposts. We can only measure what clients ask us to measure.

Pace: Programs are doing their best to reduce administrative costs to be good stewards of ratepayer dollars. With limited funding, programs may focus on the largest pockets of opportunity, which may result in an inequitable approach that serves, say, 70% of customers and leaves 30% behind. As technology enables us to set up and administer programs more cost-effectively—such as with smart thermostat demand response—technology can help provide a more tailored experience to customers from different backgrounds.

Anne: ***Much of process evaluation looks at what we do and how we do it, as it relates to programs and program participation. What do you see as evaluation's primary role in these areas, as we see our industry innovating and evolving?***

Lisa: What problem does this offering solve for customers? This is a question we'll focus on more in the future. A light bulb is easy for customers to understand, but more complex and behavior-based measures are harder for customers to understand and harder for us to explain. Moving forward, evaluators should engage earlier in the process. We can use pilot evaluations as a strategic consulting moment to help clients before an offering goes to market. Figuring out what problem we are solving for customers can help clients think through everything customers will experience down the line.

Anne: ***What do you see as the role of evaluation in standing up new opportunities for the market?***

Pace: Evaluation plays a large role in supporting emerging tech. Traditionally, we evaluate programs to see if they're achieving their intended consequence – savings, participation, cost-effectiveness. An exciting, important shift is that our clients are asking us evaluators more questions about unintended consequences. Are we distributing the benefits of energy efficiency, are we building any barriers to access to these programs, are we changing stocking practices in a way that decreases customers' options?

Evaluators play a significant role in supporting pilots and R&D led by energy efficiency programs. Traditionally, we test whether an emerging tech will perform in the field per its specs and determine what financial incentives will lower customer upfront costs to support market adoption. That's the traditional lens, but we can help overcome different barriers beyond upfront costs. For some technologies, the main barrier is customer or contractor awareness or training. Stocking practices are another potential barrier, as are health and safety concerns.

For pilots, we're considering a range of new approaches, including delivery mechanisms and marketing tactics.

We're not seeing new light bulbs that will transform the energy efficiency space, so we'll have a portfolio of new approaches to increase energy efficiency and move the market. We can't wait for a new widget to come along that's going to save the whole portfolio, because it doesn't seem like anything like that is coming, at least not yet.

Anne: ***What tried-and-true evaluation tools should we keep investing in or keep utilizing?***

Lisa: We need to continue using an equity lens. A New York Times article recently came out about the fact that dollar stores still primarily sell incandescent bulbs.[3] Access to energy efficient light bulbs is not equal. With the near ubiquity of LED bulbs, the lighting market has transformed, but folks have been left behind. The problem of incandescent bulbs still being in dollar stores will go away in the next couple years because the backstop will be in place.[4] But I wonder whether all customers can afford more expensive LED bulbs. Are there ways we can more equitably bring everyone along in these transitions?

Pace: We can continue to improve our methods over time – especially around measuring carbon impacts, customer financial impacts, and benefits of reliability. But we're not without the tools right now. Evaluation limitations are less about the tools at our disposal and more about the often-narrow program goalposts defining our work. ■

Lisa Obear *has spent more than a decade exploring the relationships between people, utilities, and energy efficiency. Her background in sociology has given her an eye for designing robust quantitative research and insightful qualitative research, and her years designing and implementing evaluations for utilities across the country has given her real-life context and experience. She is a creative methodologist, comfortable designing research plans best suited to the task at hand using traditional or exploratory and leading-edge methods. At ILLUME, Lisa leads process, impact, and market evaluations for numerous utilities, across residential and commercial customer sectors.*

Pace Goodman *has more than a decade of experience in the energy utility space using data science, engineering, and applied mathematics to facilitate and strengthen demand-side management programs. He has experience leading complex impact evaluations of emerging technologies, such as thermostat optimization and other Internet of Things (IoT) services. Pace has led projects to mitigate load constrained times using energy efficiency, developed dashboards to help energy efficiency programs reach new participants, and built advanced measurement and verification analytics for an innovative energy efficiency service provider. Pace also provides service for industry groups, such as by participating in the Regional Technical Forum as a voting member, offering peer review for conference papers, and serving as an expert evaluator and reviewer for certain protocols within the Uniform Methods Project.*

1. “About MISO.” MISO Energy website. MISO (Midcontinent Independent System Operator) is an independent, not-for-profit, member-based organization responsible for operating the power grid across 15 U.S. states and the Canadian province of Manitoba, 2022. https://www.misoenergy.org/about/.

2. “About PJM.” PJM website. PJM is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 U.S. states and the District of Columbia, 2022. https://www.pjm.com/about-pjm.

3. Tabuchi, Hiroko. “Old-Fashioned, Inefficient Light Bulbs Live on at the Nation’s Dollar Stores.” The New York Times, 2022. https://www.nytimes.com/2022/01/23/climate/led-light-bulbs-dollar-store.html.

4. Department of Energy, “Energy Conservation Program: Backstop Requirement for General Service Lamps.” 2021. https://www.energy.gov/sites/default/files/2021-12/gsl-backstop-nopr.pdf.