

From Overlooked to Empowered: Transforming SMB Energy Management with Weekly Insights

Rachael Sherman, Oracle Energy and Water

Anne Lenzen, Oracle Energy and Water

ABSTRACT

Small and medium-sized businesses (SMBs) often lack dedicated utility account support and internal staff capacity for energy management, leaving them underserved by traditional utility programs. This combination can reduce self-efficacy around energy management and limit awareness of available efficiency offerings. To address these challenges, a southwestern utility partnered with a leading technology provider to launch a weekly Business Energy Report (wBER) program. The program was designed to enhance digital engagement with SMBs, improve customer satisfaction, increase awareness of efficiency resources, and motivate energy-saving actions.

Piloted with approximately 30,000 SMB customers in sectors such as retail, food service/hospitality, and small-scale agriculture, the program uses advanced metering infrastructure (AMI) data to deliver accessible, personalized weekly reports. These reports present tailored energy insights, visual diagnostics, actionable recommendations, and industry-relevant tips. Early digital engagement and customer satisfaction results led to expansion to more than 92,000 SMBs, with continued growth planned. This initiative is among the first investor-owned utility deployments to provide AMI-enabled weekly SMB reporting at this scale.

Initial results include high report readership, higher treatment-group agreement that the utility helps businesses manage monthly energy use, reduced self-reported billing contacts, and increased motivation to reduce consumption. An early consumption analysis did not produce statistically significant energy savings during the pilot period, suggesting the need for longer tracking as SMB operational and capital decisions unfold. This paper outlines the program's implementation strategy, key results, lessons learned, and best practices for scalable SMB energy engagement.

Introduction

Self-efficacy theory provides a critical lens for understanding energy behavior: individuals' beliefs about their capability to act can shape motivation and persistence in adopting efficiency measures (Bandura 1977; Bandura 1997; Abrahamse and Steg 2009). For SMBs, where decision-makers face competing priorities and resource constraints, enhancing self-efficacy through accessible information and actionable recommendations may be particularly important.

Social comparison and normative feedback mechanisms have demonstrated effectiveness in residential energy programs. Schultz et al. (2007) found that providing households with information about neighbors' energy use led to conservation, particularly when combined with injunctive norms (approval or disapproval). Translating peer comparison to commercial customers is more complex because businesses vary widely in equipment, operating hours,

occupancy, and production or service patterns. Accordingly, the wBER design emphasized self-comparison and progress tracking over direct normative comparison.

Home Energy Reports: The Residential Evidence Base

Home Energy Reports have become one of the most widely deployed behavioral energy efficiency interventions, with programs serving tens of millions of households across North America. The ILLUME Advising (2022) meta-analysis of HER program evaluations found average annual savings of 88 kWh for electricity (1.16%) and 4.4 therms for natural gas (0.87%). These savings have proven persistent, with evidence that they increase with program maturity as customers develop sustained behavioral patterns.

Critical success factors for HERs include personalization and relevance, actionable recommendations, effective visual communication, and appropriate frequency and channel selection. Customer satisfaction with HERs is typically high, with 80-90% of participants reporting positive attitudes and minimal opt-out rates (Sussman and Chikumbo 2016). The contribution of HERs to overall utility customer satisfaction has been documented in multiple evaluations, with some programs correlating with double-digit increases in satisfaction scores.

Most HER programs operate on monthly or quarterly reporting cycles, balancing engagement value against program costs and concerns about customer fatigue. The residential literature provides limited guidance on optimal frequency for commercial customers, representing a key knowledge gap this research addresses.

Advanced Metering Infrastructure Enablement

AMI deployment has accelerated dramatically over the past decade, with the Department of Energy's Smart Grid Investment Grant program supporting widespread infrastructure development (U.S. Department of Energy 2016). By 2020, over 70% of U.S. electric customers had smart meters installed, providing granular consumption data at hourly or sub-hourly intervals (Cluett et al. 2020).

AMI data enables multiple use cases for energy efficiency programs including behavioral feedback, time-varying rate support, enhanced program targeting and marketing, and sophisticated customer insights through load disaggregation. Studies have demonstrated that real-time or near-real-time feedback enabled by AMI can produce 3-8% consumption reductions (Cluett et al. 2020). The application of AMI to behavioral programs for SMBs remains relatively unexplored in the literature compared to residential applications.

Small and Medium Business Energy Efficiency: The Research Gap

SMB market characteristics and challenges. The Smart Energy Consumer Collaborative (2024) has conducted extensive research on the SMB landscape, identifying five distinct customer personas ranging from "Established and Engaged" to "Decidedly Disengaged." Their research reveals that SMBs are "notoriously hard to engage," with significant barriers including time scarcity, limited technical expertise, capital constraints, and information gaps.

European research, where small and medium-sized enterprises (SMEs) are the more common term for SMBs, has contributed substantially to understanding SMB energy efficiency

barriers and drivers. Schleich et al. (2023) synthesized learnings from seven Horizon 2020 projects, identifying common challenges across countries including lack of awareness, limited access to financing, and organizational capacity constraints. Henriques and Catarino (2016) examined motivating factors, finding that cost savings alone are insufficient and that empowerment through information and capability-building is critical.

A comprehensive review by Cardoso Marques et al. (2024) analyzed 400+ documents on SMB energy efficiency policies from 21 countries, revealing predominance of voluntary approaches and highlighting the critical role of energy audits. However, implementation rates vary widely, and quantitative impact data remains limited.

Sector representation gap. A consistent finding across recent literature reviews is the underrepresentation of SMBs, particularly in retail, hospitality, and agriculture sectors. Research has focused heavily on manufacturing businesses, with service-sector businesses receiving limited attention (Dedoussis et al. 2023; Energy Saving Trust 2024). This gap is particularly significant given that these sectors represent substantial energy consumption and unique engagement challenges.

Existing SMB program approaches. Traditional SMB energy efficiency programs have relied primarily on audit-based approaches, direct install programs, and rebate/incentive offerings (York et al. 2010; York et al. 2013). Single-site SMBs are among the least cost-effective customer segments to serve, with high administrative and marketing costs per unit of energy saved (Rotmann et al. 2024). Traditional audit-based methods often fail to motivate customers beyond the initial assessment (Gillesse et al. 2013), and the sector remains characterized as 'hard-to-reach' due to limited capacity and time constraints (Rotmann et al. 2024). These scalability and sustained engagement challenges highlight the need for innovative digital approaches that can reach SMBs cost-effectively.

Emerging digital solutions show promise but remain largely in pilot stages. The SPEEDIER project in Europe demonstrated a "one-stop-shop" approach using outsourced energy managers to address resource and expertise barriers (Lyons et al. 2021). Rocky Mountain Power's Business Energy Reports program achieved a 45-point increase in J.D. Power satisfaction scores, demonstrating the potential of digital engagement strategies (Bidgely 2024).

Customer satisfaction and utility business outcomes. Recent J.D. Power research on business customer satisfaction reveals increasing expectations for proactive communication and digital tools. The 2024 Business Customer Satisfaction Study showed an overall 30-point increase reaching 784 out of 1,000, with notable improvements in price satisfaction driven by 49% of businesses reporting their utility helped lower bills or energy costs. Significantly, only 27% received proactive outreach, indicating substantial opportunity for engagement-based satisfaction improvements (J.D. Power 2024).

The relationship between digital engagement tools and satisfaction is well-established in the residential context (Oracle Utilities 2024) but less studied for commercial customers. Educational content, personalization, and convenient access to consumption information have all been correlated with higher satisfaction scores in residential programs, suggesting potential transferability to SMB contexts.

Research gaps and opportunities. The literature points to several critical gaps that the wBER program addresses:

Weekly frequency for commercial customers. The academic and practitioner literature on commercial behavioral energy programs is limited compared to residential programs. Documented residential Home Energy Reports typically operate on monthly or quarterly cycles (Sussman and Chikumbo 2016; ILLUME Advising 2022). Commercial Strategic Energy Management programs involve periodic facilitated sessions rather than continuous automated reporting (Kolwey 2013). To our knowledge, no prior large-scale commercial behavioral program has implemented weekly automated reporting, making the wBER program's frequency unprecedented in the published literature.

Sector-specific personalization at scale. Most SMB energy efficiency programs segment customers based on simple consumption thresholds (kWh or kW demand) rather than industry characteristics (York et al. 2010; Dedoussis et al. 2023). Recent segmentation frameworks focus on behavioral personas rather than sector-specific needs (Smart Energy Consumer Collaborative 2024). Research explicitly identifies retail, hospitality, and agriculture as underrepresented sectors in SMB energy efficiency programs (Energy Saving Trust 2024). While sector-specific approaches for manufacturing SMBs have begun to emerge (Alarcón et al. 2024), the value and scalability of industry-tailored content for non-manufacturing sectors, particularly retail, hospitality, and agriculture, remains undemonstrated in the academic and practitioner literature.

Large-scale utility implementation. Most documented SMB energy efficiency programs are pilot-scale or targeted interventions rather than utility-wide deployments (York et al. 2010; Sussman and Chikumbo 2016). While residential behavioral programs have achieved scale exceeding 100,000 customers (BPA 2011), commercial behavioral programs documented in the literature remain limited in scope (Cluett et al. 2020). The wBER program's deployment to over 90,000 SMB customers represents an unprecedented scale for commercial behavioral reporting.

Multi-outcome measurement. Studies typically focus on single outcomes such as energy savings, satisfaction, or participation. Integrated measurement across multiple benefit streams is rare but essential for comprehensive program evaluation.

Digital-only engagement models. Successful SMB programs in the literature often include in-person advisory components. The viability of pure digital delivery at scale remains uncertain. These gaps provide clear opportunities for novel research contributions through rigorous evaluation of the wBER program implementation and outcomes.

Program Description

Program overview. A southwestern utility partnered with a leading technology provider to design and pilot a weekly Business Energy Report (wBER) program targeting small and medium-sized business (SMB) customers. The program leveraged advanced metering infrastructure (AMI) interval data to deliver personalized, sector-specific energy insights via weekly email reports. The primary objectives of the program were to increase digital

engagement, improve customer satisfaction, drive awareness of and participation in utility energy efficiency programs, and motivate measurable reductions in energy consumption.

Intervention design and report content. Treatment group customers received a weekly email-delivered Business Energy Report throughout the pilot period. Each report was personalized using the customer's AMI interval data and structured around several core content modules:

Tailored energy insights and visual diagnostics. Each report presented the customer's recent energy consumption patterns using accessible visualizations, enabling business owners to identify periods of high usage, anomalies, and trends without requiring technical expertise.

Self-comparison and progress tracking. Drawing on established behavioral science principles, reports incorporated longitudinal self-comparison, presenting customers with their own historical energy use from the previous week compared to the week prior, and breaking down the days of the week that the customer used the most energy. This approach leverages self-referential feedback to build awareness of consumption patterns and motivate incremental improvement, without introducing the potential reactance effects associated with purely normative social comparison messaging that are typical in residential monthly home energy reports.

Industry-relevant programs. Sector-specific program promotion content was incorporated to ensure contextual relevance for retail, food service/hospitality, and agricultural customers respectively, recognizing that energy management challenges, equipment types, and operational schedules vary meaningfully across these segments.

Methodology

Study design. Program effectiveness was evaluated using a randomized controlled trial (RCT) with a standard two-arm A/B design, as well as a once-a-year online survey tracking customer sentiment, engagement, and perceptions. Eligible SMB customers were randomly assigned on a 50/50 basis to either a treatment group receiving the weekly Business Energy Report or a control group that did not receive the weekly Business Energy Report. Randomization was conducted at the account level. The use of a concurrent control group allows for the isolation of program effects from confounding factors such as macroeconomic conditions, seasonal variation, and broader utility communication campaigns, strengthening causal inference relative to pre/post or quasi-experimental designs. The pilot measurement period spanned twelve to twenty-four months, providing sufficient duration to observe both short-term behavioral responses (e.g., digital engagement, program enrollment) and medium-term energy consumption trends.

Sample selection and eligibility criteria. The pilot population was drawn from the utility's SMB customer base using a combination of criteria-based screening and random sampling. To be eligible for inclusion, accounts were required to meet two conditions: (1) installation of an AMI-compatible smart meter enabling interval-level energy data collection, and (2) a valid email address on file with the utility. These criteria ensured that the program could deliver its core

value proposition: data-driven, personalized reporting, while also enabling digital delivery at scale.

Eligible customers were drawn from three primary business sectors: retail, food service and hospitality, and small-scale agriculture for the first year. In the second year, the eligible customer population was expanded to all eligible SMB customers in the utility's service territory. These sectors were selected based on their significant representation in the utility's SMB portfolio and their relevance to energy management opportunities addressable through behavioral interventions. Approximately 37,000 SMB accounts met the broad eligibility criteria for the initial launch; approximately 30,000 were included in the initial RCT analytic sample, split evenly between treatment ($n =$ approximately 15,000) and control ($n =$ approximately 15,000) groups.

Outcome measures. The evaluation assessed the following outcome domains across the pilot period:

1. **Digital Engagement.** Email delivery and engagement metrics were captured through the program's email delivery platform and annual customer surveys. Primary engagement indicators included delivery, open/readership, and click-through metrics on embedded report links, as available.
2. **Customer Satisfaction and Utility Perception.** Customer satisfaction and utility perception were measured using a yearly survey. Survey responses were collected from both treatment and control group customers during the pilot period, enabling direct comparison between groups and assessment of the program's contribution to overall utility satisfaction.
3. **Energy Efficiency Program Awareness and Participation.** Energy efficiency program effects were measured through survey-based indicators of awareness and perceived availability of utility-administered energy efficiency programs. Confirmed uptake would require linking verified enrollment or participation records to the RCT sample.
4. **Energy Consumption Impacts.** AMI-based electricity consumption was examined for treatment and control accounts over the pilot period to test whether wBER exposure produced measurable kWh reductions. Because expected effect sizes for behavioral information interventions in SMB settings may be modest, the analysis was interpreted alongside engagement and survey-based outcomes.
5. **Energy Management Motivation and Self-Efficacy.** Survey measures captured whether weekly reports motivated customers to reduce energy consumption and whether customers perceived the utility as helping them manage monthly energy use.
6. **Utility Operational Outcomes.** Self-reported billing-related contacts were tracked to assess whether improved energy-use transparency reduced billing confusion and reactive customer service contacts.

Limitations. Several limitations should be noted in interpreting the results of this evaluation. First, the twelve-to-twenty-four-month measurement window, while sufficient to capture initial behavioral responses, may not fully capture longer-term persistence of energy savings or program participation effects. Second, the first year solely targeted three sectors, but the second

year was sent to all SMBs regardless of sector. Therefore, the ability to personalize based on business type outside of the established restaurant, retail, and agriculture segments was limited. Third, as reports were delivered solely via email, findings may not generalize to SMB segments with lower email engagement rates or those preferring alternative communication channels. Fourth, verified program participation and consumption impacts may require longer observation windows and linkage to additional utility tracking systems.

Results

The pilot evaluation of the weekly Business Energy Report (wBER) program yielded positive results across digital engagement, customer satisfaction and utility perception, energy management motivation, program awareness, and operational outcomes. Results are drawn from the randomized controlled trial (RCT) comparing treatment and control group responses to a yearly survey for SMB customers over the pilot measurement period. Total survey invitations were sent to about 21,000 customers in 2024, with 496 completions from the treatment population and 217 from the control population, and to about 37,000 customers in 2025, with 257 completions from the treatment population and 140 completions from the control population. The 2025 survey was fielded April 22 through May 5, 2025. Unless otherwise noted, statistically significant survey results are reported where marked in the 2025 survey analysis deck at the 90% confidence level.

Table 1. Summary of pilot-period outcome results

Outcome	Metric	Result / paper update
Digital engagement	Active readership	The 2025 survey deck reports 66% overall active readership. Among customers who recalled receiving the report, 31.0% read it thoroughly, 40.2% read some content, 25.9% glanced at pictures or graphs, and 2.9% did not look at it.
Delivery preference	Preferred cadence and channel	2025 detail: 52.7% preferred the current weekly cadence, 30.8% preferred monthly, 8.3% bimonthly, 2.4% not at all, and 5.9% did not know. Email remained dominant: 79.5% preferred email, followed by mail at 13.1% and text at 3.2%.
Motivation	Motivated or taking follow-on action	37.3% of recipients who read reports said the report motivated them to reduce usage. Among report readers, 29.0% discussed business energy consumption with others, 17.2% shared the report, 11.2% sought additional information online, and 14.8% reported changing how the business uses energy. A broader treatment-control action measure was flat (65.8% treatment vs. 66.4% control).
Customer perception	Treatment-control mean score differences	The 2025 treatment group had higher mean agreement scores across several energy-management perception metrics. The largest, marked significant at the 90% confidence level, was an 11% higher mean score that the utility helps the business manage monthly energy use (2.63 treatment vs. 2.38 control).
Billing contacts	Self-reported billing-related contact	In 2025, recipients were less likely than controls to report any utility contact in the prior three months (27.9% vs. 35.8%). Billing issue/question contacts were 11.0% among recipients vs. 17.9% among controls, marked significant at the 90% confidence level.

Outcome	Metric	Result / paper update
Program awareness	Awareness and self-reported participation	Treatment respondents had a 6% higher mean score than control respondents on agreement that the utility provides a variety of energy efficiency programs (2.79 vs. 2.63). Self-reported EE program participation was directionally higher among recipients (14.4% vs. 11.4%), but verified enrollment was not linked.
Energy savings	AMI-based consumption analysis	The pilot-period analysis did not identify statistically significant electricity savings.
Communication approval	Frequency of utility communications	Recipients were more likely than controls to say the frequency of energy-use communications was about right (57.2% vs. 50.0%), less likely to say too few (14.8% vs. 19.3%), and less likely to say they did not know (17.1% vs. 22.9%); 10.9% of recipients vs. 7.9% of controls said too many.
Future content opportunities	Alerts and information needs	Among report readers, 49.0% expressed interest in proactive bill forecast alerts. Across recipients, rate information was the most requested topic (65.0%), followed by online account tools (27.6%), backup power solutions (24.5%), and energy efficiency financing (19.8%).

Digital Engagement

The wBER program achieved strong digital engagement among SMB customers, a population historically difficult to reach through traditional utility communications. In annual survey responses, 68% of customers receiving the weekly Business Energy Report in 2024 reported actively reading the communications, and the 2025 survey deck reports 66% overall active readership. The 2025 metric combines report recall with stated readership: 67.7% of treatment respondents recalled receiving the reports, and among those who recalled them, 31.0% read the report thoroughly, 40.2% read some content, 25.9% glanced at the pictures or graphs, and 2.9% did not look at the report. Because the 2025 program population expanded beyond the initial sectors, these results are best interpreted as continued strong engagement across program waves rather than proof of sustained engagement among a single fixed cohort. This level of readership suggests the personalized content design was effective in maintaining relevance over repeated weekly touchpoints, a key challenge for any longitudinal behavioral intervention.

Customer preferences for delivery format and cadence were also validated through survey responses. In 2025, 52.7% of report readers preferred the current weekly cadence, followed by monthly delivery at 30.8%, bimonthly delivery at 8.3%, don't know at 5.9%, and not at all at 2.4%. Email remained the dominant preferred channel, selected by 79.5% of respondents, followed by mail at 13.1% and text at 3.2%; all other channels were below 2%. These results indicate that most responding customers accepted the weekly email approach while also showing a meaningful secondary preference for monthly delivery.

Energy Efficiency Program Awareness and Participation

Survey results provide evidence that wBER exposure increased awareness of available efficiency offerings and may have directionally increased self-reported participation. In the 2025 treatment-control comparison, treatment respondents had a 6% higher mean agreement score than control respondents on the statement that the utility provides a variety of energy efficiency programs for their business (2.79 vs. 2.63). On a direct survey question about energy efficiency program participation in the past year, 14.4% of treatment respondents reported participating

compared with 11.4% of control respondents. Because this measure is self-reported and was not linked to verified enrollment records, it should be interpreted as directional evidence of a participation pathway rather than confirmed program uptake.

Motivation to Reduce Energy Consumption

Beyond passive engagement, the wBER program demonstrated measurable impact on customer motivation to act on energy use. Approximately 45% of report recipients in 2024 and 37.3% of report readers in 2025 reported that the weekly communications had motivated them to reduce their business's energy consumption. Among 2025 report readers, 29.0% discussed their business's energy consumption with others, 17.2% shared the report with employees, 11.2% went online to get additional information about saving energy, and 14.8% reported changing the way their business uses energy. At the same time, a broader treatment-control question on whether the business had taken steps to reduce energy use in the past six months found no observed difference between recipients and controls (65.8% vs. 66.4%), so these results are best framed as evidence of motivation and follow-on engagement rather than confirmed incremental action. Customers cited the biggest obstacles to reducing business energy use as upfront costs for efficiency retrofits, operational schedules that limited shutdowns or load shifting, and control limitations in leased spaces.

These findings are consistent with the existing SMB literature, where limited internal capacity and low energy management self-efficacy are well-documented barriers to efficiency uptake. SMBs face critical constraints including limited time, knowledge, financial resources, and specialized technical personnel (Dedoussis et al. 2023; Henriques and Catarino 2016; Lyons et al. 2021). These capacity limitations, combined with competing operational priorities and organizational structures that deprioritize energy management (Schleich et al. 2023), help explain why motivation and self-efficacy are important intermediate outcomes even before measurable consumption impacts emerge (York et al. 2010).

Energy Consumption Impacts

An AMI-based consumption analysis was conducted to test whether wBER exposure produced measurable electricity savings during the pilot period. The analysis did not identify statistically significant reductions in energy consumption. This null finding should be interpreted alongside the positive engagement and motivation results: for SMBs, the pathway from information exposure to measurable kWh reduction may depend on equipment replacement cycles, lease arrangements, operating schedules, and capital planning horizons that extend beyond the initial measurement window.

Customer Satisfaction and Utility Perception

The 2025 RCT survey comparison showed directionally favorable customer satisfaction and utility perception metrics among treatment group customers relative to the control group. Treatment respondents had higher mean agreement scores on the utility understanding business needs (+4%), wanting to help the business save money (+6%), helping the business manage monthly energy use (+11%), providing useful suggestions on how the business can reduce usage

(+7%), and providing a variety of energy efficiency programs (+6%). The largest difference, the 11% higher mean score that the utility helps businesses manage monthly energy use, was marked statistically significant at the 90% confidence level in the survey deck.

Energy Management Self-Efficacy. The largest treatment-control difference was the 11% higher mean agreement score that the utility "helps my business manage its monthly energy usage" (2.63 treatment vs. 2.38 control). For SMB customers who have historically reported feeling underserved relative to large commercial and industrial accounts, this shift in perceived utility partnership represents a meaningful outcome.

Reduction in Billing-Related Customer Contacts. The program produced a statistically significant reduction in self-reported billing-related inbound contacts. In the 2025 survey, 27.9% of treatment respondents reported contacting the utility for any reason in the prior three months, compared with 35.8% of control respondents. For billing issues or questions specifically, 11.0% of treatment respondents reported contact compared with 17.9% of control respondents, a difference marked statistically significant at the 90% confidence level. This finding suggests that increased energy use transparency through weekly reporting reduced billing confusion and surprise, lowering a key driver of reactive customer contacts and associated utility operational costs. This outcome has direct implications for utility cost-to-serve calculations and reinforces the business case for SMB digital engagement investment.

Communication Approval. Treatment group customers also rated the frequency of energy-use communications more favorably than control customers. In 2025, 57.2% of treatment respondents said the frequency of energy usage communications was about right, compared with 50.0% of control respondents; 14.8% of treatment respondents said communications were too few, compared with 19.3% of controls; 10.9% said too many, compared with 7.9% of controls; and 17.1% did not know, compared with 22.9% of controls. It was originally hypothesized that more frequent communications would lead to information fatigue. However, despite receiving additional weekly email communication, SMB customers in the treatment group responded more favorably to the utility's communication frequency than the control group. This suggests that relevant, personalized content can shift customer perception of communication volume from a pain point to a valued service.

Discussion

Addressing the SMB Engagement Gap

Small and medium-sized businesses occupy a paradoxical position in the utility customer landscape. They collectively represent a substantial share of commercial electricity consumption and efficiency potential, yet they have historically been among the hardest customer segments for utilities to engage meaningfully. Unlike large commercial and industrial (C&I) customers, SMBs typically lack dedicated energy managers, in-house technical expertise, or the organizational capacity to evaluate and act on efficiency opportunities without significant external support (York et al. 2010; Rotmann et al. 2024). At the same time, many SMB accounts fall below the usage or demand thresholds that justify bespoke account management, leaving them in an underserved middle ground.

The wBER program directly addresses this gap by automating the delivery of personalized, AMI-enabled energy insights at scale, effectively extending a form of tailored

energy management support to a population that would otherwise not receive it. The results of this pilot are meaningful precisely because they demonstrate that this support can be delivered cost-effectively, without human account manager intervention, and with measurable impact on customer perception, behavior, and operational outcomes.

Behavioral Science Mechanisms and Their Observed Effects

The behavioral design of the wBER program drew on a well-established mechanism: self-comparison feedback. The results provide empirical support for the effectiveness of this mechanism in the SMB context. The translation of social comparison approaches to the SMB context is non-trivial. Business energy use is driven by a more heterogeneous mix of factors such as equipment type, operating hours, occupancy patterns, and sector-specific processes, making meaningful peer benchmarking significantly more complex than in the residential segment. The wBER program's choice to anchor self-comparison in longitudinal personal usage history rather than peer normative comparison is therefore both a pragmatic and theoretically defensible design decision. The finding that 37.3% of report readers reported motivation to change behavior in 2025, and that the deck reported 66% overall active readership in that same survey wave, suggests that self-referential feedback can support engagement and motivation without requiring the complex peer segmentation infrastructure that normative comparison demands.

Interpreting the Energy Savings Finding

The absence of statistically significant energy savings in the pilot period warrants careful interpretation. It would be incorrect to read this as evidence that the program failed to influence energy behavior. First, the behavioral pathway from report exposure to measurable kWh reduction is longer and more diffuse for businesses than for households. Residential energy savings from behavioral programs typically manifest quickly through changes in thermostat settings, lighting use, and appliance scheduling. Business energy savings, by contrast, often depend on capital equipment decisions, lease terms, and operational restructuring that unfold over longer time horizons (Anderson and Newell 2004). The 37.3% of report readers who reported motivation to make changes may be early in an adoption process whose energy impacts will only become visible over subsequent measurement periods.

Second, the pilot's sample, while large in absolute terms, may have been underpowered to detect the modest per-account savings expected from a behavioral information intervention targeting SMBs. Effect sizes in this category of program are typically small (0.5–2% of baseline consumption), requiring large samples and long measurement windows for reliable detection. The expansion to 92,000 customers provides a substantially larger analytical base that should support more definitive savings estimation in future evaluations.

Third, it is worth noting that energy savings were not the program's primary design objective. The wBER was architected principally as a digital engagement and customer experience intervention, with energy savings treated as a secondary, downstream outcome. Evaluating it primarily on a metric it was not optimized for risks undervaluing its demonstrated impact on satisfaction, billing contact reduction, and efficiency program awareness.

The Business Case Beyond Energy Savings

Perhaps the most practically significant findings from this pilot are those that affect utility operational costs and regulatory positioning, outcomes that extend well beyond the traditional energy savings frame. In the 2025 survey, treatment respondents were less likely than controls to report any utility contact in the prior three months (27.9% vs. 35.8%), and billing-related contacts were lower among treatment respondents than controls (11.0% vs. 17.9%). Billing inquiries are among the most resource-intensive customer service interactions for utilities, typically requiring live agent handling and often indicating underlying dissatisfaction that, if unresolved, elevates churn risk and regulatory complaint rates. If a reduction of this magnitude is sustained across the expanded SMB population, it would imply meaningful avoided cost-to-serve that should be factored into the program's full benefit-cost analysis alongside energy savings.

Similarly, the 11% higher mean agreement score that the utility helps businesses manage monthly energy use has direct implications for utility performance on J.D. Power Commercial Customer Satisfaction benchmarks, which are increasingly scrutinized by state regulators and public utility commissions as indicators of service quality. In a regulatory environment where utilities face growing pressure to demonstrate value to non-residential customers, programs that measurably shift SMB perception of utility partnership represent a defensible component of a broader customer experience strategy.

Scalability and Replication Considerations

The expansion of the wBER program from 30,000 to 92,000 SMB customers, with continued growth planned, provides an early signal of scalability. However, several considerations warrant attention as the program scales. The eligibility criteria requiring AMI meter installation and a valid email address on file will systematically exclude SMBs in areas with incomplete AMI deployment and those with lower digital engagement profiles. Utilities seeking to replicate this model should assess the coverage implications of these constraints within their own service territories.

Sector segmentation will also become increasingly important at scale. The pilot spanned retail, food service/hospitality, and small-scale agriculture, three sectors with meaningfully different energy profiles, equipment mixes, and operator decision-making contexts. Because utility sector tags are often imperfect, utilities seeking to replicate this model should validate and refine sector information as programs scale. The 2025 survey also suggests meaningful sector variation, though the subgroup samples are small: motivation to reduce usage was highest among retail respondents (65%) and food service respondents (54%), compared with general SMB respondents (34%) and agriculture respondents (23%); preference for weekly delivery was also lower among agriculture respondents (27%) than retail, general, and food service respondents. As the program expands, investment in more granular sector-specific content and benchmarking logic is likely to yield diminishing returns if not accompanied by corresponding improvements in usage-pattern-based personalization at the individual account level.

Finally, the finding that customers preferred the current weekly email cadence should not be treated as permanent. Customer communication preferences are dynamic, and the 2025 survey identified specific opportunities for future content and channel evolution: 49.0% of report

readers expressed interest in proactive bill forecast alerts, and rate information was the most requested energy management topic (65.0%), followed by online account tools (27.6%), backup power solutions (24.5%), and energy efficiency financing (19.8%). As SMB operators increasingly manage their businesses through mobile platforms and integrated software tools, utilities should anticipate the need to extend wBER-style insights to additional channels, including mobile applications, portal dashboards, and potentially API-based integrations with business management software.

Conclusion

This paper presents findings from the first AMI-enabled weekly energy reporting program for SMB customers deployed at scale by an investor-owned utility in the United States. The wBER program demonstrates that personalized, behaviorally-informed energy communications, delivered via a weekly email, can meaningfully improve digital engagement, customer satisfaction, energy management self-efficacy, and utility operational outcomes among a customer segment that has long been underserved by traditional utility engagement models.

The pilot's RCT design provides causal confidence in key findings: a statistically significant 11% higher mean score on SMB customers' perception that the utility helps them manage monthly energy use, a reduction in billing-related customer contacts, and active readership rates of 66% or higher across the two survey years, well above typical utility commercial communication benchmarks. While energy savings in the pilot period did not reach statistical significance, the engagement and survey findings, combined with the longer decision horizons characteristic of SMB efficiency adoption, support continued measurement across the expanded deployment.

Taken together, these results make a compelling case that the SMB engagement gap is not an intractable feature of this customer segment, but rather a product of a mismatch between SMBs' need for accessible, relevant, actionable energy information and the blunt, generalized communications utilities have historically provided. By meeting SMB customers where they are, with information calibrated to their sector, their usage patterns, and their capacity to act, utilities can unlock engagement, satisfaction, and efficiency outcomes that benefit customers, utilities, and the broader energy system alike.

Future research should examine the persistence of behavioral and satisfaction effects over longer time horizons, the incremental impact of expanded sector segmentation and personalization depth, and the potential for multi-channel delivery to extend program reach to SMB populations currently excluded by email-based eligibility requirements. As AMI deployment continues to expand across U.S. utility service territories, the wBER model offers a scalable, evidence-based template for transforming interval data into meaningful customer value at the scale the SMB market demands.

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