How do Small and Medium Businesses Understand and Respond to TOU Rates?

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ABSTRACT

Regulators and utilities are increasingly looking to advanced rates, such as time-of-use (TOU) rates that vary by time of day, to both improve grid reliability and curtail emissions. To effectively implement these rates, utilities need to (1) sell customers on the advantage of TOU so they enroll in these rates, and (2) help customers successfully manage these rates so that they and the grid benefit. TOU rates are already offered to many commercial and industrial customers and efforts are underway to roll out TOU to residential customers. TOU rate deployment to small and medium businesses (SMBs), however, is still in its early stages. Achieving effective TOU rate adoption in the SMB customer segment will be challenging, both due to the wide range of energy needs and uses across this customer group, and because utilities have historically struggled to engage and support them–SMBs are regarded among the hardest-to-reach. In this paper, we detail findings from interviews with 20 SMB decision-makers across the US about their awareness, understanding, and attitudes towards TOU rates. We find that while SMB awareness of TOU rates is low, these customers are highly interested in the potential of different rates to save money. Overall, our research indicates that personalized outreach to SMBs that emphasizes the savings potential of TOU to their business, how their business can achieve these savings, and including an energy / rates education component is highly persuasive for SMB customers.

Introduction

Small and medium businesses (SMBs) are responsible for approximately 20% of U.S. energy and yet they have historically received less than 5% of utility energy efficiency spending (SECC, 2018). They use about 2.5 times the amount of energy compared to large enterprises (IFC 2012), with potential savings from energy efficiency and behavioral measures as high as 30% (IEA 2015).

SMBs can be defined in a plethora of different ways.[1] Trombley (2014) outlines at least eight different SMB definitions, including those defined by number of staff numbers (usually <500 employees), or sales (<$100m per year). Utilities, however, may find monthly energy consumption (>150kW demand) or annual energy costs ($50k - $500k) to be more meaningful.

[1] Analysis into hard-to-reach (HTR) non-residential customers (Quantum Consulting 2001) showed that "renters and businesses with less than 10 employees…comprise over 60% of the [SMB] population in terms of annual energy consumption." Drehobl and Tanabe (2019) use criteria based on energy use or building size to define SMBs (see Table 4 in their paper for a list of definitions used by programs). Meyers and Guthrie (2006) suggest identifying SMB customers by analyzing the Customer Information System (CIS) of the utility or a partnering CBO. When available, they also recommend prioritizing these customers by geography, energy intensity, or business type.

SMBs are generally regarded as among the hardest-to-reach (HTR) energy users (van de Grift et al. 2014; York et al. 2015; Rotmann et al. 2020). This is, in part, due to their diversity: SMBs operate in every sector, in all property types, and vary from one-person operations with no business premises to manufacturers with hundreds of employees. Their energy use–including where, how, by whom or what, and how much they use–is also poorly understood (Hampton and Fawcett 2017). While the small business market is hugely diverse in terms of business and building types and energy usage, they have some common characteristics, including relatively low energy usage due to their small size and limitations around time, resources and expertise (Rotmann et al. 2020). Meyers and Guthrie (2006) also sub-segment SMBs into 'very-hard-to-reach' markets, which include strip malls, renters, and facilities with <10 employees (typically <20kW) with specific needs.

Several issues can impact SMBs' energy management decisions (Rotmann et al. 2020), including whether they rent or own their business assets; who the key decision-makers are and if they are dedicated energy managers; the flexibility of their energy-use types; their levels of risk-aversion; the stage of the business owner's career; and their underlying values and brands. One salient issue is the decision-making processes of small businesses "much more akin to those of residential customers than they are to commercial or industrial customers" (Van de Grift et al. 2014). To properly target and segment small business customers, Van de Grift et al. (2014) recommend assessing who the major decision-makers are, what decisions they influence and to what extent, and which evaluation criteria they use.

Small buildings and buildings with low energy use or demand are often overlooked by utility-led energy efficiency programs, as they may not be seen as passing the cost-effectiveness test compared with larger commercial and industrial customers (Meyers and Guthrie 2006). Single-site, single-facility enterprises are among the least cost-effective for utilities, as the administrative and marketing costs per unit of energy saved are higher (York et al. 2015).

In addition to these issues, SMBs were among hardest-hit market segments by the COVID-19 pandemic. In the U.S., over 30 million jobs in SMBs were in real danger[2] and many have not yet recovered. SMBs need more help than ever in reducing their utility bills.

In recent years, alternative time-varying rates have become more available to SMBs as utilities upgrade their meters and are able to offer these advanced rates. Alternative rates help address critical hurdles, such as intermittent supply and constrained demand, to bring clean power onto the grid. Advanced rates will only be effective at achieving these grid goals if SMBs adopt them and shift their energy consumption patterns accordingly. Previous research has shown that SMB energy decision-makers are more aware of their rate and alternative rate offerings than their residential peers (SECC 2018). Furthermore, when presented with both options, SMBs tend to favor time-varying rates over flat rates (SECC 2019).

The SECC study, however, required specific rate features such as the inclusion of renewable electricity and a guarantee that customers wouldn't lose money on the new rate, in order to drive the high level of support for time-varying rates. These findings indicate that SMBs value the expectation of a positive financial return from adopting a new rate. Many advanced rate offerings do not include a financial guarantee, and many SMBs struggle to understand whether they have the proper demand flexibility to benefit from a TOU rate. These findings indicate how

[2] In Quarter 1 of 2022, about three in 10 small business owners (29%) reported having open roles they had been unable to fill for at least three months, and two thirds of small business owners have had problems with too many workers being unable to work after testing positive for COVID (Wronski 2022). See also Bartik et al. 2020.

important it is for utilities to help SMBs navigate alternative rates so they can understand and mitigate their financial risks in switching to advanced rates.

While financial risk may be the most immediate barrier for many SMBs when deciding to switch rates (Eom and Wolak 2020), alternative rates also offer financial opportunities. Both demand charges and TOU rates offer SMBs the opportunity to realize positive returns from investing in solar and battery storage systems that would allow them to reduce their demand on the grid during peak periods (Darghouth et al. 2017). In addition to distributed energy resource (DER) investment, it may also be important to support SMBs in adopting energy management systems and smart thermostats: SECC found that SMB managers were more interested in participating when these devices are included in a program. Guiding SMBs through the adoption of energy management and storage systems in tandem with their rate decision may encourage adoption of these devices and increase the likelihood of opting into an alternative rate.

To address the gap of alternative rates within SMBs, See Change Institute (SCI) collaborated with Uplight, a technology partner for energy providers and the clean energy ecosystem, to uncover how best to increase awareness and motivation to adopt alternative energy rates among SMB customers. This article outlines the methods, findings, and implications of a series of interviews with 20 SMB energy decision-makers that aimed to uncover customers' knowledge, attitudes, behaviors, and experiences with utility rate services and programs.

Methods

SCI conducted interviews with 20 SMB decision-makers spread across the United States, recruited through a combination of social media, paid email lists, and direct outreach, as well as snowball sampling. All businesses were defined as SMBs based on staff numbers and energy consumption (see Trombley 2014). The study focused on office, retail, food service, warehouse / storage / light industrial (strictly within kWh threshold), and services. All participants were primary energy decision-makers and serviced by a utility that offered alternative rates for SMBs.

Participants each completed a 30-45 minute virtual interview. Each confirmed that they manage their company's energy use, answered background questions about their business, building types, and energy accounts, and shared whether they have used software to help manage their business's energy use. They were then given an overview of demand and TOU rates to ensure that they understood the definition of an "alternative rate."

During the interview, researchers assessed participants' knowledge of rates; preferences for how they would like to receive information about managing their rates; attitudes towards changing their rates, including factors that may motivate or inhibit individuals from switching to an alternative rate; and a set of questions to assess their past rate behaviors and whether they would use a utility provided rate assistance tool given the chance.[3]

Analysis was based on grounded theory and utilized the constant comparison method, which sorts and organizes raw data into groups according to attributes, then organizing those groups in a structured way to formulate theory (Glaser 1965). Saturation via constant comparison showed that the number of interviews, though small, was valid. Interview transcripts were coded into themes, with key quotes extracted per theme to illustrate key insights, outlined in the following section.

[3] The full interview protocol is available upon request.

Results

Recruitment

SMBs are extremely hard-to-reach customers. As expected for interviews with SMB energy decision-makers, recruitment was the biggest challenge: SMBs are, after all, considered a "hard-to-reach" segment of energy users (Rotmann et al. 2020). Once target sub-sectors were selected, researchers identified businesses that fit the determined eligibility criteria. Our initial recruitment strategy was to reach out to SMB owners via bulk email lists provided by a third-party vendor, filtered to include businesses in sub-sectors of interest.

Four participants were recruited directly from these email lists (n=2,250) with two additional interviews via referrals. Response rate was very low (< 1% of those contacted responded to our invitiation), and the time between initial outreach and interview tended to be relatively long due to challenges with responsiveness and scheduling. Given the current ubiquity of phishing emails and scammers, it is perhaps not surprising that recruitment via purchased lists was such a challenge, even considering the high cash incentive offered ($200).

We then expanded our recruitment methods to include posting on researchers' social media (n=3), direct outreach to businesses within researchers' networks (n=7), and engaging a cold-calling firm (n=4). Through this combination of efforts, we were able to reach our target sample size of 20 SMBs for our interviews.

In all, we reached out to 2,500 qualified leads to recruit 20 SMB decision-makers who were successfully interviewed. Of those, at least half were references through direct personal and business connections, which demonstrates the importance and effectiveness of those relationships when attempting to recruit hard-to-reach energy customers.

Sources of recruitment challenges. Difficulties with recruitment stemmed from several factors:

1. *Limited Capacity.* SMB owners have limited time and/or energy to provide for research. They may not have the time to read and digest an email from someone they don't recognize. Some interviews were canceled due to unexpected problems at the interviewee's business, and owners shared that they have higher priorities than thinking about or discussing their energy rates.
2. *Mistrust.* In this day and age, most people are skeptical of strangers who call or email asking to speak with them. Cold-calling and bulk email lists may be assumed to be a scam, spam, or an unwanted sales pitch. Even after interviewees expressed gratitude for the information they received during interviews–which may have led them to changing their rates plans–they still expressed incredulity in wondering what the interviewers' true objective was (especially once they were reminded at the end of the interview that they would receive the cash incentive). "What's the catch?" was a commonly-asked question.
3. *Eligibility.* A major barrier for gathering participants and useful information was identifying (1) an eligible SMB with an energy provider that offered alternative rates, (2) the correct person to speak with in that business (the key energy decision-maker), and (3) running through a separate screening process with the project sponsor.

Almost all participants expressed that, during their interviews, they had learned something new about their utility rates and offers and they planned to contact their utility or further investigate ways to save energy and/or costs.

Geographic spread and firmographics. Despite the recruitment difficulties described above, the study achieved both geographic (Figure 1) and firmographic (Table 1) spread, as well as a remarkable consistency in insights and patterns.

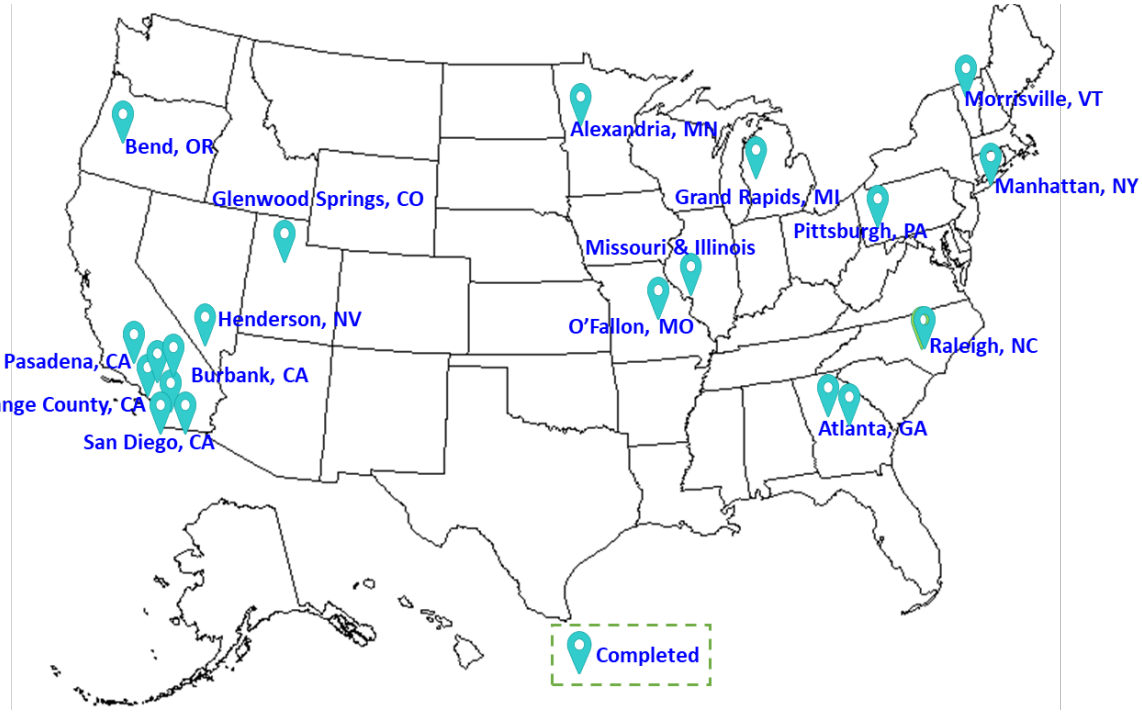

Figure 1. Map of participant locations across the United States.

Sample Commonalities. When reviewing trends across the sample, researchers identified the following commonalities between businesses, despite their geographic and firmographic spread:

- *Small or medium business.* Three quarters of the interviewees self-defined as small businesses, with five thinking they either were medium-sized or at the verge of it. Of those who knew their energy use, at least two were medium-sized (over $50,000 per year in energy costs). These two also had the highest staff numbers (~150 employees).
- *Key decision-maker.* Out of 20 businesses, 19 decision-makers were either owners, co-owners or founders, only one was a manager. None had a dedicated energy manager.
- *Meters and accounts.* Out of 32 metered accounts, only one third used smart meters.
- *Building types and tenure.* Out of 26 buildings, 12 were warehouses, five were offices, four were stores, three were bars, and there was one studio and one bakery. Only 10 of the buildings were owned, a similar rate of commercial renters as across the U.S. (61.5% vs ~60% from the literature, see Rotmann et al, 2020).
- *Standard vs alternative rates.* The vast majority of interviewed SMBs (85%) were on standard or fixed commercial rates. Four (20%) were on on/off or mid-peak rates; one paid for renewable energy credits; and one was on budget billing. None had demand charges, nor did any know what that alternative rate meant. About half understood time-of-use rates, although more from their residential billing than their business rates.

Table 1. Firmographics of interviewed SMBs (n=20).

#	Type	Utility	Rate	Locations	Meters	kWh usage	# Staff
1	Electrical services	Alexandra L&P	Fixed std	3 (2 WH)	3 (AM)	18c / kWh	5-7
2	Baking	Georgia Power & SW Gas	Fixed std	1 WH (r)	1 (AM)	Didn't know	1
3	Food processing	Michigan Consumers	Comm + REC	Factory with WH + O (r)	2 (SM)	30,000 / m @ 9c / kWh	55
4	Food processing	Morrisville Water & Light + VT Electrical	EEC on/off peak solar	Factory with 2 WH + O (160K sqft)	5 (SM)	50,000 / m Generate 15,000 / m solar PV	<150
5	Food service	NV Energy	Fixed std	1 bar (r) in mall	1 (AM)	Didn't know	7
6	Talent Agent	Ameren	Comm budget	1 O (r)	1 (AM)	Didn't know	1
7	Beauty	Burbank Water & Power	Mid peak & off peak	1 store (r)	1 (SM)	Didn't know	3
8	Beauty	LADWP	Comm	1 store (r)	1 (SM)	200kWh pm	1
9	Office / Retail	Duquesne Light	Comm	1 WH (r)	1(AM)	Didn't know	14
10	Food service	CONED	Comm	1 Bakery (r)	1(AM)	Didn't know	10 - 15
11	Office	SCE	Comm	1 O (r)	1(SM)	Didn't know	5
12	Dance Studio	Pasadena Water & Power	Comm	1 studio (r)	(AM)	Didn't know	?
13	Food service	Pacific Power	Comm	1 bar in old building (r)	(AM)	Didn't know	?
14	Food Service	Duke Energy	Comm	1 rest/bar bottom- old building (r)	1 (AM)	Didn't know	<15
15	Retail / WH	Jackson Lawrenceville Gas	Comm	1 WH (r)	2 (gas & electric)	Didn't know	7
16	Retail / WH	SDGE	Comm	1 WH (r)	1 (AM)	Didn't know	8
17	Dry Cleaners	LA Water & Power	Comm	Commercial building (r)	1 (AM)	Didn't know	8
18	Designer	SDGE	Mid & off peak	O (r)	1 (SM)	Didn't know	1
19	Hair salon	Excel & City of Glenwood Springs	C Comm Service	2 stores (o)	2 (AM)	1600-3000 kWh pm	20
20	Laundry	Ameren MO & IL	Off & on peak	2 giant WH (o)	4 (SM)	111,000 kWh in Jan	155

WH = warehouse, Comm = commercial rate, REC = Renewable Energy Credits, O = office, r = rented, AM = analogue meter, SM = smart meter, m = month, pa = per annum

- *Main energy contributors.* Unsurprisingly, HVAC was cited as a main energy user by almost all respondents (85%), followed by lighting (50%), equipment / appliances (40%), refrigeration / cooking (30%) and computer equipment (25%). Only the two largest companies had manufacturing equipment.
- *Visits to their utility's website.* When asked whether they visited their utility's website, 12 interviewees said yes, and eight said no.
- *Know how to change rates.* Quite shockingly, 14 interviewees (70%) said they had no idea how to switch rates.
- *Motivation.* 70% also said they *would* be interested in switching rates, especially if it lowered their costs. While we don't know if this is due to receiving "new" information or an authentic interest in switching rates, the finding is nonetheless promising.
- *Efficacy.* Only four interviewees thought it would be easy to switch rates, with five who weren't sure and nine who thought it would be hard or impossible.
- *Time.* A total of 14 interviewees said they thought switching rates would be worth their time, with four saying it definitely would not be, and two who weren't sure.
- *Value.* They were less sure about cost savings, with only ten saying yes, six maybe, and three saying it would definitely not be worth the savings.
- *Trust.* A total of 12 interviewees expressed trust in their utility (or at least their bills), with four who weren't sure and another four who definitely didn't trust their providers.
- *Preferred form of communication with utility.* The majority of participants (55%) preferred email, followed by having a key account manager (30%), other (25% paper, app or newspaper ad). Only 15% preferred phone, and 10% said via text, the bill, or website.
- *Has changed rates in the past.* Only four interviewees said they had previously changed rates; three weren't sure and 13 said they had never changed their business rates.
- *Interested in online tools.* A total of 17 interviewees said they would be (very) interested in tools, some with the caveat that the tools must be easy to understand or save them money. Only three weren't sure if they would like to see tools. None said they definitely weren't interested (especially after these interviews).

Key Themes

Energy literacy. Interviews revealed that SMB owners are often confused about rates and that they believe that their SMB lacks the flexibility to use alternative rates. Businesses don't know what they don't know; even SMB owners who claim to know a fair bit about rates struggled to explain what exactly their (alternative) rates meant. Some were very energy literate, and yet, when researchers reviewed their bills with them, they often found a rate that the owner didn't know they were on (e.g. off-peak / mid-peak rates). Many interviewees were more informed about alternative rates from their residential energy use, sometimes confusing the two during their interviews. Exemplary quotes that reflect this low literacy include:

- *"So I know they do have alternative rates. About the end of what I know is that there's like, a supplier charge and there's a demand charge on my bill that's electric, and then on the gas side of it, there's a base charge that's always in there… I'm smart enough to know that during peak periods they may charge more in an effort to do that. But to that point, I don't understand how I could ever control that, given what my business does."*

- *"I think the question for me is can I just have a conversation with the utility and say, 'Hey, we pay for all these other locations at this rate, and is it really about proximity or what is the reason why we're getting charged more at some of our locations?'"*
- *"No idea how those rates work. I looked at usage based on TOU to find out if it was more expensive during the day when customers come through or at night when we are making merch. But there's a lack of urgency, even though I can change when I am producing."*
- *"Well, I'm comfortable with it being a 'dumb meter' because I did some research and don't like how the smart meters give off microwaves."*

Several SMB owners, even though they said they would love to have alternative rate offerings, believed that they wouldn't have the flexibility to switch. Some SMB energy needs are seasonal, must occur at certain times of day, need specialist equipment, or require heating or cooling 24/7. These owners need to see in their own data and forecasts that it would be possible and worth their time and effort to switch. This is aside from the large number of interviewees who were still on analogue meters (also called "dumb meters" by customers), or who had monopoly utility providers. Exemplary quotes that demonstrate this belief include:

- *"I was told that if we wanted to put solar on that we would have to do a grid study, and that would cost somewhere between $5,000 to $7,000 to even see if we could do a solar project. So that was a pretty good disincentive to do something right away."*
- *"Laundry is the main energy use I can think of where we could save with different rates… What creates hesitancy on my part is if the hassle to my staff is worth the savings. I'd do the research to figure it out but if it's negligible or if off-peak times are when the salon is closed, it wouldn't be worth it."*
- *"I don't believe that I have that kind of option for my business. I think some of those things are options for home consumers, but I am 90% sure I don't have that option for my business."*

Behaviors, motivation and efficacy. Interviews also aimed to uncover patterns in behaviors, motivations, and efficacy to switch rates. Motivators for energy-related decision making, other than cost savings, included resilience and reliability. The majority of interviewees who were asked about this (11 out of 16) mentioned that the environment was very important in their energy-using behaviors. Some thought it was useful for their B-Corp brand to pay more for renewable energy certificates or to have solar panels installed. Exemplary quotes that demonstrate such motivators include:

- *"Cost is important, but my bill isn't that high right now. So if there is more sustainability-related stuff that I could look at, that probably would be more important. If my bill were more like $1,000 - at that rate, then that would be cost saving, but as it is right now, being more green and helping the environment would be more of a goal for me."*
- *"When electricity goes out that's a problem. All systems need it. We don't use battery backup. The business shuts down when it's gone. It is run 70% based on credit cards, and needs to do transactions online. Staff comfort is not a big deal - they complain when it's too hot or cold and they control the thermostats."*
- *"Our power has to be incredibly reliable. One of our facilities services hospitals. We need to be on top tier for getting restored in a power outage. Personally, I would like to be as green as I can be, but it has to make sense financially. We wanted to convert trucks to natural gas but then the price went up. Our new equipment…will drop water usage by 40%. That level of efficiency absolutely justifies paying for the equipment."*

Several interviewees were aware of residential TOU rates and had changed their behaviors accordingly. Quite a few had Nest thermostats at home but not in the office–even though they believed it helped them save energy. Interviewees perceived barriers for using energy-saving methods at work that they easily used at home. When asked about changing behaviors based on time-of-use, participants responded:

- *"We have old Honeywell thermostats which employees crank up and forget to turn off. If we used Nest, we could control that. We have them at home. I have a theory why we ignore our business use when we keep a close eye on our home use, and it is that maintenance of HVAC is done on the roof and serves the whole building. So, I think the landlord takes care of it but my staff actually control it inside with their behavior. Now I will look at Nests after this call. I realize that I can control their behavior."*
- *"I tried to do that at home when I'm not using energy. I've seen commercials on TV where they asked you not to use so much energy during certain periods of time. So I'll try to follow that as much as I can. But at work, I just have to do what I have to do."*
- *"We have a washer and dryer in each salon, they are running throughout the day. If rates were different at different times of day, we could schedule to do laundry differently. We could probably pinpoint consumption based on different tasks."*
- *"We had an awful cold snap a couple of years ago and went over the allotted amount of pre-purchased gas. It was a $32,000 bill for those two days of high demand! But we have not a ton of options when to operate, we start at night and finish in the afternoon. Not much ability to change based on off peak hours, especially seeing we are servicing hospitals and they need clean linen 24/7."*

Participants were asked what steps they should take if they want to switch rates. The majority said they would pick up the phone and try to contact their utility provider, although some preferred coming prepared with their own research first. Direct quotes in response to this question include:

- *"I would try to find the information myself before I called in. If I couldn't find it on the website, then I would call. Just because I like to be self-sufficient. And I like to be able to try to figure things out on my own before I have to reach out to somebody."*
- *"Once you know how to do it, it's probably not awful. But I guess it's not something utilities will put out there, readily."*

Most interviewees thought switching rates would probably be worth their time, based on the energy savings they might receive. Even so, very few had ever proactively switched their rates. A major barrier was participants' perceptions that switching would be a challenging task, as well as their beliefs that they were "stuck" with whatever their monopoly provider offers.

Participants were asked whether doing their own research on better rate offerings would be worth their time. Responses to this question included:

- *"Yes, definitely. Definitely. It's just one of those things that you want to do but it seems like a daunting task, you know, so you keep putting it off and putting it off. And then one day, hopefully eventually I'll get to it."*
- *"Only if it were a significant impact. If it's a matter of pennies a month - don't bother me. It will take me longer to read through whatever they want and digest it. And my time is worth something too. So if I have to read a 3-page email that tells me if I do this, I'm going to save 10 cents a month, I'm not interested. Okay? I'm not talking 10 cents per kilowatt. Oh, if it's 10 cents per kilowatt? I'd agree."*

Participants were also asked whether the cost savings would justify the effort to switch rates. Responses included:

- *"Potentially. I think it would need to be enumerated. I mean, if it's single digit percentages, probably not. For some people that may well be worth it but for a small business like mine, it's probably not worth the effort. But if you're sitting there talking about hundreds and thousands of dollars, sure."*
- *"I don't think it's easy to switch. Because it feels like a project where a lot of data analysis and the time of use stuff would be kind of on me to figure out. They're considering things like, we can have machines running at the peak use period and we're not going to not run them just because it's peak use rates. Yeah, I look I'd be a little bit skeptical on whether doing all that work would really result in savings."*

Common barriers to switching. One of the most frequently-shared reasons for not switching was that business needs would not allow for alternative rate offerings. Participants expressed that work needs to be done when it needs to be done–that they are not able to wait until certain times of day to partake in particular activities. Risk aversion, return on time invested, hassle for staff, and the perceived cost of shifting rates were significant barriers to willingness to switch, as were only having "dumb" meters or a utility monopoly that was quite inflexible in their offerings. Exemplary quotes regarding these barriers include:

- *"I can't stop what I'm doing. It's not like I can say, 'I'm not gonna wash your hair and I'm not gonna do the laundry.' Because if it needs to be done, it needs to be done. A/C needs to be on, because when the people are working in the salon it gets really hot."*
- *"Is it a just return on my time? If I lowered our bill by 10%, that's like, 300 bucks a month. That's meaningful. It's not as meaningful as my time, so it's a little bit down the list in terms of priority. It'd be great to do but not if it takes too much time."*
- *"This is something I'd spend an hour on. If I don't get anywhere in an hour I would probably not come back to it for a long time. I couldn't understand how I could really do something and save. Yeah, this couldn't be like a multi-day or -hour project. I'd have to see something the same day that would be compelling and simple enough."*

Rate offerings and tools. The majority of interviewees expressed interest in rate tools, particularly those that could use their own data to show them models or forecasts of savings, or how behavioral changes could work with, for example, time of use tariffs. Many described information they would like to see, but assumed that they were either not available to their utility, that they would have to create them themselves, or that they would be expensive to access. Several suggested calculators that could show the cost savings based on different rates or energy-using behaviors; others made it clear that without further education or explanations, they wouldn't know what to do with the tools. Exemplary quotes regarding rate tools include:

- *"I'm always looking to work with companies that have apps and can make it easier for me to access things on the go. So if I had the option of…an app that allowed me access to all of my information and that kind of thing, that would probably be my inclination versus somebody where I'm having to call in or log into a website to figure things out."*
- *"I'd love a tool to help me use less power. If there were something that said, 'hey, from 2-4pm, chill out'… I would absolutely change…how I was using certain equipment."*

- *"I'd like to know what goes into making the changes and what specific things they need to ask for–what is the right terminology to negotiate better with the utility. Anything that helps leverage to get a better understanding.…We belong to a cost group of other independent laundries in the country, and they recommended a third party negotiator who negotiated the rebates."*
- *"Declare a simple thing on your bill, like 'you could be saving X.' That would be a pretty darn nice way to tell me that there's an opportunity there…It really is about dollars and cents like, 'hey, you can save 3% on your bill,' doesn't sound very good, versus 'hey, you spent $3,000 last year and you can save 100 bucks if you change.' The $100 might get my attention. With the 3% I'm like 'you know what, everything right now is going up 10%.'"*
- *"I'm usually in a hurry. I don't really feel like I know how to use the tool efficiently or effectively. They're given me these tools, like, I can pick a day. Okay. I picked yesterday, and I'm looking at our energy usage in 15 minute chunks. Okay. I mean, that's probably pretty handy to do, but I don't know what that means. Or there was something like, oh, I can see that at 5am was probably the lowest point for the day. And we only use 1.36 kilowatt hours during that 15 minute window. I mean, but what does that mean? I don't know. So they've given us these things, but I don't know how to use them."*

Information requirements. Researchers asked participants how they typically seek out information and how they would like to be contacted. About half said they go onto their utility's website; most did so to look at comparative charts and see if there was any unusual usage, or higher bills. Very few said that they used the website to find tools, better offers, or rates, although some said the website would be the first place they would go to do some research. When asked whether they go on their utility's website, responses included:

- *"I glance through the trends because I'm not too familiar with my bill, so I look at past trends and see if I am using too much this month. I'll look to see how much my bill is and when I can pay it online, I do that. And I'll look to see if there's any special programs that I'm not aware of, because the utility company… [often has] different programs that they're running, and I look to see if I would qualify for any and if I can apply online."*
- *"Sometimes, to check on the status of my bill, make sure the payment has gone through. But that's pretty much it. Otherwise, I just assume it's working. Or I'll check in if the power isn't on. Find out if there's an outage or if there's an update on the outage."*
- *"Yes, for one of my stores. I do it when I look at home usage, but don't usually pay attention to the business side… Our salons are not local, it's kinda out of sight out of mind. We have really good managers who run the day to day operations."*
- *"I mean, I would know to go to the website.... I know it's not that hard, but I have not done it for the business. And when I went and looked at it, it seemed way easier for residential than it did for business! In residential it was like, 'there's all these different rates you can choose.' And so even if you screwed up, it seemed like you could fix it pretty easily, whereas business just seemed a little more cumbersome."*

Despite the fact that most interviewees expressed a desire for more information about switching rates or saving energy, those same individuals were quite hard to contact. Even the <1% recruited for this study expressed strong feelings about common modes of contact and receiving information, which were largely rooted in suspicion of spammers and fraudulent calls or emails. When asked how they would like to be contacted, responses included:

- *"I probably wouldn't pick up the phone. I get a lot of phone calls that say we're calling from your utility provider to tell you about a rebate or something like that and I just don't trust it. So I don't take the time to listen to that."*
- *"I don't know if you've heard of the water and power frauds they've been doing? No. I wouldn't trust it. When they call me, maybe I can call back to them. There is a lot of fraud going on. So it's been going on, that fraud situation has stolen a lot of money from elders… they're saying 'this is water and power and we're going to shut off your lights and power if you don't pay us the bill.'... And older people give their account information and they lose a lot of money. So now, in letters, they always say we will never call. So do not give any information if someone calls and says they're from the utility."*
- *"Emails would work too, but it's just where there's so much foreign junk mail that yeah, it's a little bit difficult for I think the average person to go through it and actually pay attention to it. And, there were some weird things like emails about your Apple or Amazon account? And if you click on it, they're able to access your whole account."*
- *"Getting a targeted email to businesses like mine, saying, 'Hey, did you know that we can offer you this kind of rate in the winter and this kind of rate in the summer?' but as far as I know my utility company doesn't do anything like that, because they don't have to."*
- *"By text, email isn't timely enough, but we would need to manage it so we don't get a million texts… A phone call wouldn't work, because of spam calls. I'd like program changes by email, incident reports by text. No Key Account Manager is necessary, we are too small for it to be necessary."*
- *"I wouldn't know if a phone call or emails is a scam or something like that. So I guess I would almost like it to be in the newspaper. Like an ad in the newspaper. Because that's something I sort of trust. It's embedded. And, you know, it's sort of democratic who can read it. It's not pushed on you. Yeah, that's interesting. And maybe like a local paper."*

Participants were also asked if they have, or if they would like, a Key Account Manager (KAM).[4] Their responses included:

- *"I don't have [a KAM] but it definitely sounds like something that's really useful. It's always nice to know when there is a human and you can build a relationship with them."*
- *"A key account manager? Yes. That would be better. It's like having a banker."*
- *"It would make all the difference in the world to have someone who could explain it."*

Attitudes towards utilities. Interviews explored SMB decision-makers' attitudes toward utilities, including levels of trust, perceptions of proactivity, and quality of care.

SMBs generally trust their utilities, especially around the billing and amounts that are charged, but they did not express many feelings of warmth or loyalty–especially compared with some of the residential customer focus groups conducted by this study's research team in 2021 (Meehan, Dreller, and Cornish 2021). Many shared that they felt trapped by monopoly providers, with little choice but to accept what was offered. Not one participant said they received much, or any, help or relief during the COVID-19 pandemic. Their general attitudes were that utilities were there to make money, not help them. When asked if they trust the information they receive from their utility, responses included:

[4] Key Account Managers (KAMs) have a unique role within the utility industry, working to develop and nurture relationships with business customers.

- *"Do I trust my utility? They're charging me a premium for being a business which I think is… I mean, the rate is accurate, but if I were living in that space, instead of working [there], I might be paying a different amount regardless of how much energy I use."*
- *"To be honest with you, I've always put my trust in the company. We put our trust in the company and we pay the bill every month."*
- *"I think if on a bill it said 'your rate is now lower,' it could be that I would go 'Okay. I think I trust that,' but then it's like 'Okay, what's the catch?'"*
- *"I feel like the energy companies have all the power in it. I know for us, we had an energy spike in December when it was our winter. And it was based on a lot of people using heaters, but the energy bill was five times as much as normal! So yeah, there's someone actually suing our utility right now because of it."*
- *"I don't totally trust them, no. Because it's a big business. They don't care about the environment and that's my top concern."*
- *"I don't know if I do trust them. In my line of work in my business, trust is the thing that I don't really have the luxury of. And that includes the government…. I don't think restaurateurs as a whole have a lot of trust."*
- *"I just assumed rates are the rates, and haven't looked at it from a competitive standpoint because there are not many options. I hope the public utility commission is keeping rates in line. I am not thinking about it like other services. It's a necessary evil. We need energy, so we have to pay the bill. Even though the internet is also a utility, I do shop for that. I don't know why I don't shop for energy, and don't think of them in the same terms. Maybe because there are competing options for the internet, but energy is a monopoly."*

Despite customers generally trusting the information received from utilities, participants expressed that utilities are not nearly proactive enough in advising their customers on what's best for them. There is a clear appetite for more targeted solutions and tools, particularly around forecasting and modeling expected charges and disaggregated equipment use. Support with troubleshooting (e.g. where there may be an equipment failure or leak leading to higher power use) in real time is also needed. Exemplary quotes regarding the proactivity of utilities included:

- *"With my other utilities like phone and internet, somebody came to me with a better solution, a better price, a better offering… My electric bill, I now pay $1,000 a month for what I used to pay $200 a month for! I don't want that so much."*
- *"It was something I had to figure out myself. When I first moved in, they offered me a special locking rate and stuff like that. But they don't really do anything else. I've gotten a call once. It's kind of one of those things like once they get you in they don't really follow up - not really with promotions and stuff that's really beneficial. Like, we might get zoo tickets or something like that, but nothing was necessarily related to the business."*
- *"People just kind of assume there's not much you can do to change. The best way of doing it would be proactively being contacted for ways that we can optimize our electricity usage and bill, which I feel like my utility does a decent job of like on the residential side. But I mean, I haven't really heard from [my KAM] in a long time.*
- *"It would certainly be better for them to produce reports that would show things that we use our own data to say, you know, 'here's your time of usage,' like going into this program would save you money. That's the kind of stuff as a business owner that's great when someone can tell me what this is without me having to do all the analysis myself."*

Finally, some customers really felt they weren't treated as well as either residential or large commercial or industrial customers. They compared themselves to other, larger businesses or to what they were offered at home. There was a general feeling of resignation around this perception. Exemplary quotes that reflect feelings of being overlooked and underserved included:

- *"I don't think they're going to do anything because I did talk to them when COVID started. They just said 'This is our rate. There's nothing we can do.' I mean, I remember for like, residentials they were giving like $50 off for three months. Which is really nothing but it is something, but small businesses got no help."*
- *"It'd be great for small businesses to have better rates and better everything, because if you look at it, bigger companies got the larger PPP, they weren't shut down with COVID. Their utilities are cheaper too, so there's a lot of stuff that is not fair. But I mean, I'm just one little cockroach that can't change the world."*

Defining SMBs. As discussed in the beginning of this paper, there are quite a few different ways to define an SMB with varying the cut-off points. Government definitions often center around staff numbers, whereas utilities are usually more interested in square footage and power consumption. Sometimes, annual profit or turnover is used.

Interviewees were asked to self-report where they fall on the SMB scale, and a range of answers emerged. Most defaulted to staff numbers as their primary metric, with many expressing surprise that 500 employees is considered the cut-off to be considered a large business in the U.S. At least one participant was aware that rates differ for large businesses:

- *"If I were to grow, then I might be able to change my rates. But since we're a very small business we aren't there, and I know that small businesses have less than 500 employees, so I don't I don't see us going over 500 employees anytime."*

SMBs need more help. Almost every single participant expressed that their interview had made them more aware; more curious; or helped them better understand their rates or that they may have alternatives if they spoke to their utility. No participant said that they had already known everything shared in the interview; demand charges in particular were wholly unknown. The level of confusion even among those who believed they were highly literate in energy demonstrates how important proactive energy education is in this sector. Analysis also revealed differing attitudes around trust in utilities (higher in "red" states) vs pro-environment (higher in "blue" states), which is consistent with general psychographic research of political differences (e.g. ecoAmerica, 2014).

Summary and Recommendations

Small-medium businesses represent an important and often underserved customer segment for energy utilities. Rates present a great opportunity to better engage and support this cutomer segment if attention is paid to their unique needs and challenges. While SMB awareness of TOU rates is currently low, they are interested in the potential of alternative rates to save money. Based on these results, we've identified the following five key recommendations.

Provide SMBs with better access to their own data. Respondents were very interested in rate calculators and "what-if analyses" using their own energy data to help them understand the impacts of various rates on their bills. Some made it clear that without such information, they felt unable or unwilling to take action.

Personalize engagement to the SMB when possible. Fraud and spam are overwhelming customers. Investing in key account managers, at least for medium-sized businesses or those with high consumption (e.g. light industrial or manufacturing) could be both worthwhile and appreciated. For those without a key account manager, try to identify the best rate offering for each account and let them know that rate recommendations are customized to them.

Offer support throughout the rates journey. Treating rate education as a journey with progressive understanding of not only what the best rate is, but how to best operate on their rate. Once a customer is on a new rate, make it easy for them to understand peak and non-peak times, and consider how to provide enabling technology to help. Provide feedback on savings or alarms when unusual usage patterns occur. Check in to see how they're doing at least once a year.

Use trusted messengers and partners to communicate. Personal connections are key in uptake. Utilities could consider partnering with business associations and other networks as ways to reach out to SMBs.

Promote programs that enhance savings. Promoting other programs and services that will help accelerate SMB savings from alternative rates, on a consistent basis so that SMBs not only learn about which programs are most relevant to them, but also to trust communications from their utility and discern it from spam.

Overall, our research suggests that personalized outreach to SMBs that emphasizes the savings potential of TOU to their business, how their business can achieve these savings, and including an energy / rates education component could all be effective for SMB customers.

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