

A TMG Research Report

BRINGING STABILITY TO THE SHIFTING COMPLEX BILLING LANDSCAPE

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BRINGING STABILITY TO THE SHIFTING COMPLEX BILLING LANDSCAPE

EXAMINATION OF THE SHORTCOMINGS OF THE CIS IN HANDLING THE COMPLEX BILLING NEEDS OF AN EVOLVING GRID.

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INTRODUCTION

The energy landscape is changing. The utility business model is changing. Utility customers are changing. Is the critical link between the utility and its customers – the bill and the rates through which utilities realize their revenues – keeping pace in this rapidly shifting environment? Looking at each of these segments of the energy-to-customer value chain will help answer this question.

With a focus on shifting away from carbon-based energy sources, the energy landscape is marked with some key developments that are driving today's energy transition. Recent examples include the 2022 U.S. Inflation Reduction Act (IRA), which includes **over \$360 billion in energy funding**, much of it for renewable energy, energy storage, and electric vehicle (EV) incentives and investments; and the 2021 Infrastructure Investment and Jobs Act which allocated **\$65 billion to improving the grid and \$7 billion for EV charging infrastructure**. Drivers like improving economics and increased awareness around environmental concerns coupled with these incentives are creating growth in new energy technologies that are changing how utilities operate.

The result is a utility operating model that is rapidly becoming less centralized and more distributed. In turn, this is creating sweeping changes in how utilities serve their customers. This is most significant in the rapid growth of renewable energy sources, particularly when they are distributed energy resources (DERs) that the utility does not own or directly control. For example, Bloomberg estimates that over **50% of cars sold in 2030 will be electric**. Similarly, the US Energy Information Administration reports that **residential solar power installations rose by 34% from 2.9 gigawatts in 2020 to 3.9 gigawatts in 2021**. This rate of growth will continue or even accelerate with the combination of regulatory and legislative drivers (like California's Title 24 which will require all single-family homes to be electric-ready starting in January 2023), improving costs, and IRA and additional state and local government incentives. These new dynamics create some interesting challenges for utilities operationally and in how utilities engage with their customers.

As customers become savvier in an increasingly digital, on-demand world, their energy options will continue to grow. This is good for customers and addressing climate and environmental concerns. It is potentially a good thing for utilities, too. But they must transition from relying solely on their current legacy customer information systems (CIS) and billing systems and processes to being able to leverage third-party complex billing solutions to provide a diverse and growing list of services and bill for them accurately. Herein lies the challenge.



To look at this challenge strategically, consider the following insight from a report published by TMG Research earlier this year. A Director of Innovation at a Fortune 500 electric investor-owned utility (IOU) describes his utility's strategic path to improved customer engagement: *"We are trying to create a new value cycle between the customer and the utility. Utilities are trying to improve customer satisfaction to start. Then they will ask about starting a path to customer loyalty. This can create new products and revenue streams, but first we need to learn more about our customers to introduce new products and services that can lead to improved margins."*





BEYOND CIS: UTILITY LEADERS ARE ON-BOARD

The example and quote on the previous page highlight the crux of what utilities are facing today and into the DER-rich future. The opportunities that utilities have in front of them (“new value cycle...improve customer satisfaction...new products and revenue streams...”) are matched with a new set of challenges (“learn more about our customers...introduce new products and services...improved margins”).

As an example of how utilities are evolving to meet these new challenges, consider how the industry has reinvented its metering technology and practices. The two figures below explain how this is a two-step process.

Figure 1. Utility leaders rate how well *“Our AMI system has improved our customer engagement/ experience.”* (Source: TMG Research.)

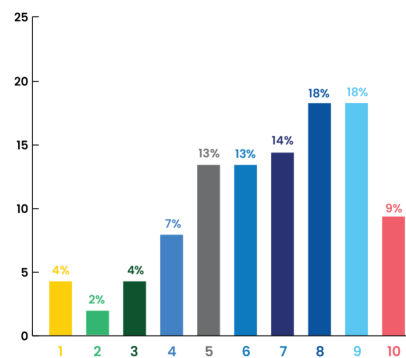
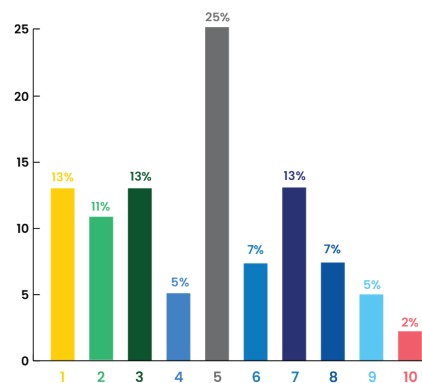
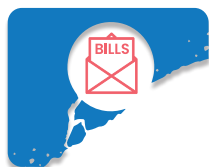


Figure 2. Utilities rate how well *“We are fully leveraging the data sets (e.g., interval data) that are generated from our AMI system for analytics and other applications.”* (Source: TMG Research.)



Note that while utility leaders have made huge leaps forward with their metering technology and practices (the first step), there is a gap between making that leap and realizing the full benefits of these massive smart meter investments (the second step). To note, the list of use cases that leverage smart meter data today dwarfs those in the original smart meter value propositions just a few short years ago, and those new use cases typically require new capabilities often provided only by third parties.

The types of shifts we have seen in technology, process, and culture in metering spaces are evolutionary, not necessarily revolutionary. Similarly, as the billing needs of utilities are also evolving, there is a necessity to realize the potential that comes at the intersection of new offerings and changes in customer behavior, while also ensuring that lost revenue opportunities are eliminated or minimized. These changes in how the utility needs to engage with its customers are where complex billing solutions can be the difference between success and failure for a utility's customer engagement and revenue assurance operations.



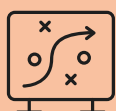
COMPLEX BILLING SOLUTIONS: CROSSING THE CHASM FROM AMBIGUITY TO CONFIDENCE

Utility billing is at a crossroads. While there are advances in core CIS capabilities, today's market realities demand a more powerful and agile solution to handle the complex billing needs that are cascading across the utility industry. EVs, rooftop solar, energy storage, and microgrids all continue to grow. Also, new regulatory or legislative directives aim to change the load curve's shape and, through new rate designs, the customer's behavior. The utility bill needs to reflect this unfamiliar environment and accommodate new rates and rate plans in a way that is accurate and timely for customers across the residential, commercial, and industrial segments.



Regarding the challenge of getting customers engaged in innovative programs related to the deeper dives in energy transition, one industry veteran stated that, "the utility industry, as a whole, has done a good job of getting early adopters on board with different rate programs, but now the need is to get the next 60% to 70% of load (and customers) engaged. This is especially the case for residential customers that have not historically been deeply engaged with their utility. As long as the lights stay on and their bills aren't too outrageous, they are OK with their utility. Now, however, the entire game is changing. This is where a third-party complex billing solution provider can partner with the utility to be successful with changing customer needs in this new operating paradigm."

HERE ARE SOME CAPABILITIES THAT A THIRD-PARTY COMPLEX BILLING SOLUTION OFFERS:



MEETING THE CHALLENGES FOR CUSTOMERS AND THOSE THAT SERVE CUSTOMERS.

In today's utility climate, customers need to be continually engaged and educated on new programs and rates to help drive adoption. A complex billing solution that can ingest massive amounts of smart meter and customer data to generate new rates and programs in a timely manner will help keep customers informed and engaged, resulting in better customer program traction.



UTILITY STAFF BEING ABLE TO USE THE INFORMATION GENERATED FROM THE COMPLEX BILLING SYSTEM TO BETTER SERVE CUSTOMERS.

This means equipping the CSRs (Customer Service Representatives, for residential customers) and KAMs (Key Account Managers, for commercial and industrial customers) with timely, accurate responses to customer questions, ideally generating analyses with a few mouse clicks in real-time. For example, a customer might ask "What is demand response and what does it mean for me?" Being able to model this and provide real-time answers can be a game-changer for the CSR or KAM, as well as for the customers.



EXTENDING THE LIFE OF THE UTILITY'S CIS INVESTMENT.

CIS solutions have not been built for the complexities in today's utility market; increasingly complex rates and tariffs are examples of this. A second benefit is that leading complex billing solutions are cloud-based, creating a TCO (Total Cost of Ownership) benefit from the initial system acquisition through long-term operation and maintenance of the system.



Figure 3. Comparison of capabilities among different complex billing approaches.

	Complex Billing Engine	Customer Information System (CIS)	Spreadsheets
General	Cloud-based, add-on billing engine enabling the implementation of complex rates	Monolithic meter-to-cash billing system	Manual Excel spreadsheets customized to create bill calculations or billing determinants
Complex Billing	Built on a highly flexible and agile rules engine to enable support for all levels of complexity .	Likely to require customization for very complex rates, programs, and business models.	Flexible, but difficult to maintain and/or update.
Time to Deploy	Six-to-nine-month implementation	Multiple years to replace an existing CIS	Requires many hours of manual work with limited to no integrations.
Scalability	Leveraging big data technology to use interval meter data directly from meter data management system (MDMS) for maximum scalability .	Limited, with the need for MDMS to pre-aggregate interval meter data into billing determinants based on tariff definitions.	Manual process limits scalability to availability of human resources.
Cost	SaaS business model requires utility to only pay for what is needed with a limited subscription period. Total cost of ownership is lower due to limited IT footprint as SaaS model requires vendor to be responsible for software maintenance and no hardware requirements.	Average CIS replacement costs for utilities*: 80,000 customers: Approx. \$10 million 281,000 customers: Approx. \$30 million 1,000,000 customers: \$70 million *-Source: 2022 TMG State of CIS Report	Manual processes require expensive human resources for operations and maintenance.
Auditability	Must be SOC1, SOC2 audited, SOX compliant. Versioning and logging of all models and activity, respectively.	Highly mature and compliant.	Very difficult to audit. Inefficient manual controls to review and approve invoices.
Support beyond meter-to-cash	Integrated billing analytics engine enables business users to leverage production rate & tariff models for important business processes , including rate design, rate marketing, rate education & engagement, CSR & Key Account management tools .	Limited to meter-to-cash.	Limited to output of spreadsheet calculations.

The underlying theme here is that if utility leaders do not get ahead of their complex billing challenges with a comprehensive and executable strategy, a short-term solution will kick in that doesn't fully address the issues. Often these short-term "band-aids" become long-term, cumbersome, expensive "solutions" as utility leaders are often reluctant to engage in costly and time-consuming CIS upgrades or replacements.

This "de facto" decision to stick with large, complex manual processes and continued reliance on spreadsheets, while also dealing with the continuously changing rate structures or PUC regulation is a recipe for constantly having to repeat this costly and resource-consuming cycle without really fixing the core issue; namely, the need to have a complex billing engine that is flexible, scalable, and designed for the type of continuous development that today's shifting environment (new customer programs, rate structure changes, etc.) that are becoming the norm for utility customer organizations.

Given the myriad challenges and required capabilities in today's evolving utility operating environment, what do the benefits of implementing a complex billing solution look like where the rubber meets the road, or where the system meets customers? One example is found at a large IOU in the eastern U.S., where a complex billing solution has been, in their words, "bolted on" to their legacy CIS.

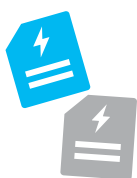
Driven by a mix of changing business needs that fall outside of the capabilities of their legacy CIS, utility leadership decided to acquire a complex billing solution that would provide the flexibility and capabilities needed to meet a new and growing set of billing requirements. To understand the challenges that need to be met, consider:



The introduction of **Time-Of-Use (TOU) rates**, enabled by their smart meters that provide 15-minute interval data. This is being introduced as an option to customers today, but will become an “opt out” option in 2024. The utility’s current CIS is not capable of managing interval data, let alone being able to present bills based on this granular, voluminous data.



As **EVs continue to grow** in their service territory, the utility wants to offer incentives in their rate plans for overnight charging to help manage aggregate load. This is another capability that is not available via their CIS.



Rate comparison for customers is another new feature that the utility is offering that requires the capabilities found only in a robust, scalable complex billing solution. This enables customers to compare what they are paying for service in their current billing structure with what it would be in the TOU structure, and, if they are so inclined, providing the ability to make a jump on the TOU rates through a self-service capability or a phone call with the utility’s customer service staff.

The examples at this large utility illustrate why having a **sustainable** complex billing solution as part of the utility’s overall customer engagement, service, and billing strategy is critical in the shifting landscape of today’s utility industry.



DRIVING VALUE FROM DAY ONE

As utilities continue to evolve and move deeper into the energy transition, change is becoming the norm across the entire utility industry. Every change in the generation fuel mix, DER, demand response, and EV growth, or the regulatory climate creates ripples across the utility enterprise that ultimately hit and impact the customer relationship. Managing these changes promptly with accurate information for both the utility and its customers creates a win-win. This will ensure sustainable revenue streams and stronger customer relationships for the utility and enable the utility's customers to meet their energy and financial goals.

**Learn more about how you can enhance your
CIS to bill complex rates.**

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