

# GRID AND CUSTOMER CONVERGENCE:

Leveraging Energy Intelligence to  
Achieve Business Transformation

MARCH 2023





There is a great deal of talk about transformation in the utility sector -- ranging from digitalization to beneficial electrification and clean energy adoption to smart grid innovation. Utilities are facing simultaneous transformational projects across their enterprises.

"We're focused on understanding our customer and how that customer can provide value and influence our grid planning decisions. That is all a new conversation," explains Liz Cook, Director of Advanced Grid Systems and Grid Modernization at Duquesne Light Company. "Over the last two years, our approach to grid planning has pivoted to think not only about who we serve as a county or a city, but really as individuals, and that dynamically is different. In the past, we did not need to know what the customer was doing. They might turn on their lights in the morning, go to work, come home, and go to bed, and it was all very predictable. That customer load was not dynamic. However, as we advance toward

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Director of Advanced Grid  
Systems and Grid Modernization



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embracing these technologies at the edge of the grid where our customers reside, we need household-level intelligence so that we can build the grid out to serve each customer in ways that we haven't had to before. Being able to do a bottom-up aggregation of data provides an invaluable new insight. So now we have to build a relationship with our customers and engage with them to understand who they are and how they use energy."

The new paradigm Cook describes is one in which traditionally siloed grid- and customer-focused teams are now working interdependently as utilities partner with energy consumers to better manage the grid. Both disciplines are now relying upon household appliance-level energy insights to provide enhanced customer experience and engagement, while simultaneously enabling agile, precision load management, aligning grid and customer operations in pursuit of shared goals.

Lora Anguay, SMUD's Chief Zero Carbon Officer, believes her role illustrates this convergence well. "The big energy supply components of our company reside within my area. The power generation, energy trading and contracts teams report to me. But then a key component of that, which is very new and not yet standard throughout the industry, is that customer programs now report to me as well as part of energy supply. And that is very unusual. But I think it's an acknowledgment that consumers have an important part to play."

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## BREAKING DOWN SILOS WITH TECHNOLOGY

Just as consumers and energy providers are entering a new era of grid collaboration, so too are the CX and grid teams within utility organizations. In both cases, meter-derived energy intelligence is the connective tissue.

Chris Campbell, Salt River Project’s Senior Director of Distribution & Technology Operations, described the evolution well.

“We’re seeing transformational change in all these different areas. And something that underpins all that change is technology. So to be successful, we need to be successful at that foundation — a big part of which is data,” Campbell explained. “I’ve always said that those utilities who leverage their data for operational insights will be the ones that will be really successful in these transformative efforts.”

As Campbell points out, transformational efforts are more successful when organizations embed data as a unifying strategic input business-wide. In the utility sector, behind-the-meter energy intelligence derived from load disaggregation and non-intrusive load monitoring has the capacity to augment the full range of existing grid and customer systems to maximize performance across the board.

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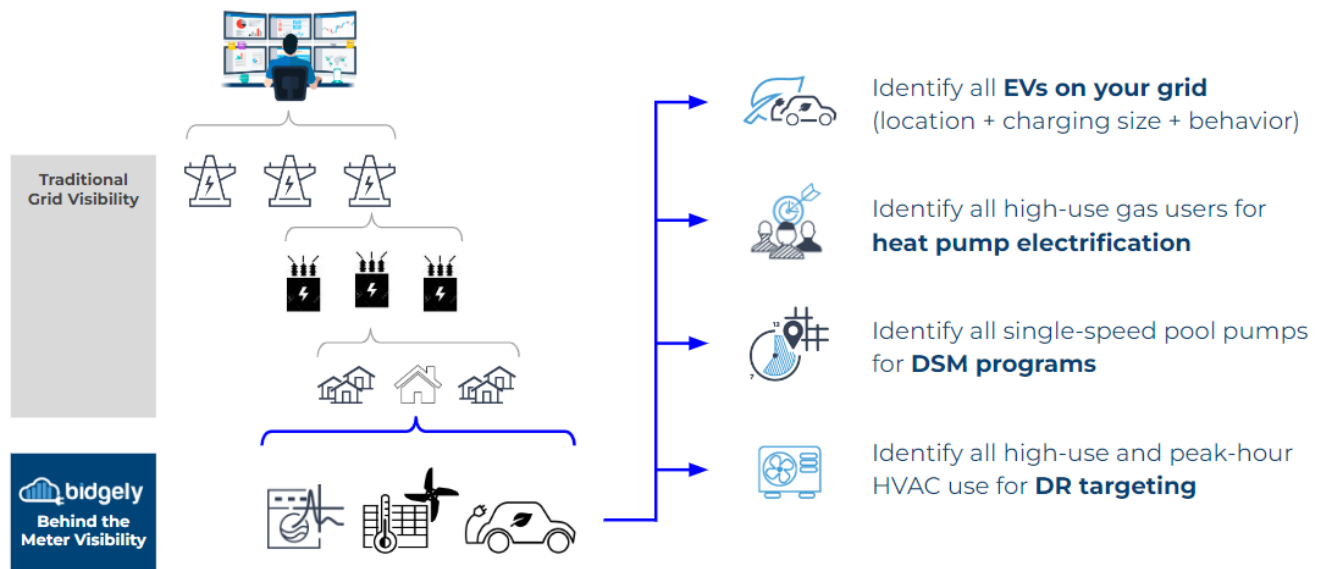
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In essence, consumer energy use data becomes a single source of truth that informs and enhances decision-making across the utility. By applying AI to smart meter data, energy providers can define the foundational building blocks of service territory energy use: the consumption of individual appliances within a home. These appliance-level insight building blocks can then be aggregated to provide actionable intelligence at both the customer-segment and grid-asset-levels -- such as in connection with a specific feeder or substation. This bottom-up approach to grid management enables a deeper understanding of usage and provides insights from which every utility team can benefit.

## Bidgely's Behind-The-Meter Intelligence Powering Distributed Energy Resources (DER) Programs



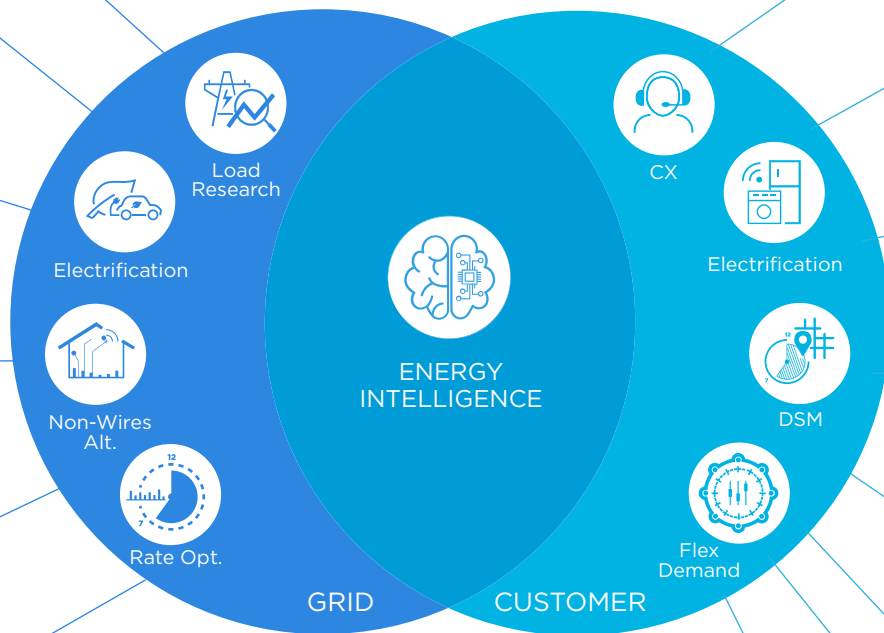
When meter data is employed cohesively across energy organizations, the benefits are far-reaching. While one team can use the tool to deliver greater grid stability and reliability, another can optimize marketing programs and improve demand response, while a third would be able to boost customer satisfaction.



## Value Delivery Across Operations

### GRID SOLUTIONS

- Load Research:** automated and inclusive of your full population
- EV Charging Analytics:** detection and charging patterns for every EV in your territory
- Segmentation & Targeting:** 360° view of your customer to drive marketing for programs, products and services
- Real-Time Measurement & Verification:** for improved performance and agile program management
- Rate Design:** using your full population to analyze, optimize, and develop rates
- Distribution Grid Planning:** bottom-up analysis for each of your grid assets from transformers to substations
- Forecasting:** bottom-up forecasting by customer segment or by grid asset



### CX SOLUTIONS

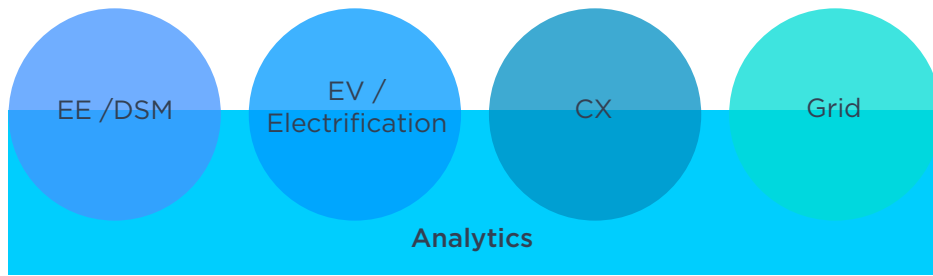
- Better Billing:** give customers control with detailed usage insights & proactive alerts
- Next-Gen HERs:** smarter treatment, personalized messaging, & digital-first channels for more cost effective savings
- BDRs / CPP:** hyper-personalized event approach to boost C-Stat & participation
- Bill Analyzer:** identify detailed drivers of change in customer bills, via web self-service or call center
- TOU Rate Adoption:** enroll best-fit customers and maximize benefits of TOU pricing for them
- Lead-Gen & recruitment:** alerts for DSM is duplicated
- EV Journey:** Behavioral and managed load-shift. Time -of-use rate adoption & peak charging alerts
- Customer Service Reps:** 360° customer view for better support & upsell

Meter data also breaks down silos. Teams in traditionally separate and distinct operational areas interpret the utility's mission and priorities through slightly different lenses, and may not consider how their activities overlap and impact those of another functional area. Data helps identify those overlaps.

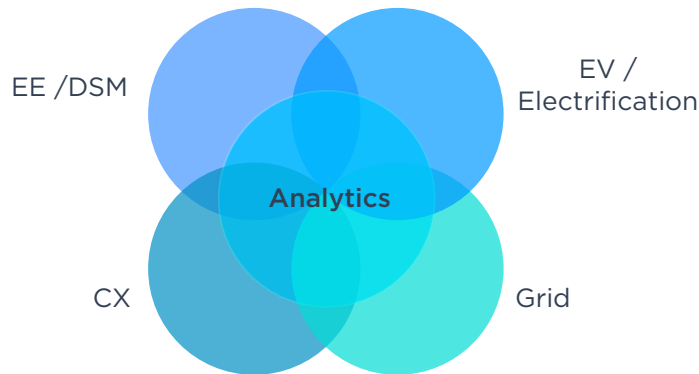
Teams that have traditionally had different objectives and not collaborated closely are becoming cross-functional with shared objectives and outcomes. As such, they must learn how to work together effectively.

Tighter engagement and collaboration across teams, and an ability to work in a more agile way will lead to better, faster outcomes. Meter data enables the essential evolution from siloed-to-synergistic, which is fundamental to grid and customer convergence.

FROM THIS



TO THIS



Leaders should be thinking about how they structure their teams, and also establishing data practices to foster effective collaboration, including:

**CONSIDER HOW YOU STRUCTURE YOUR CX, GRID AND ANALYTICS TEAMS:** Is there an opportunity to capture common oversight across these teams, that acknowledges that consumers have an important part to play in energy supply?

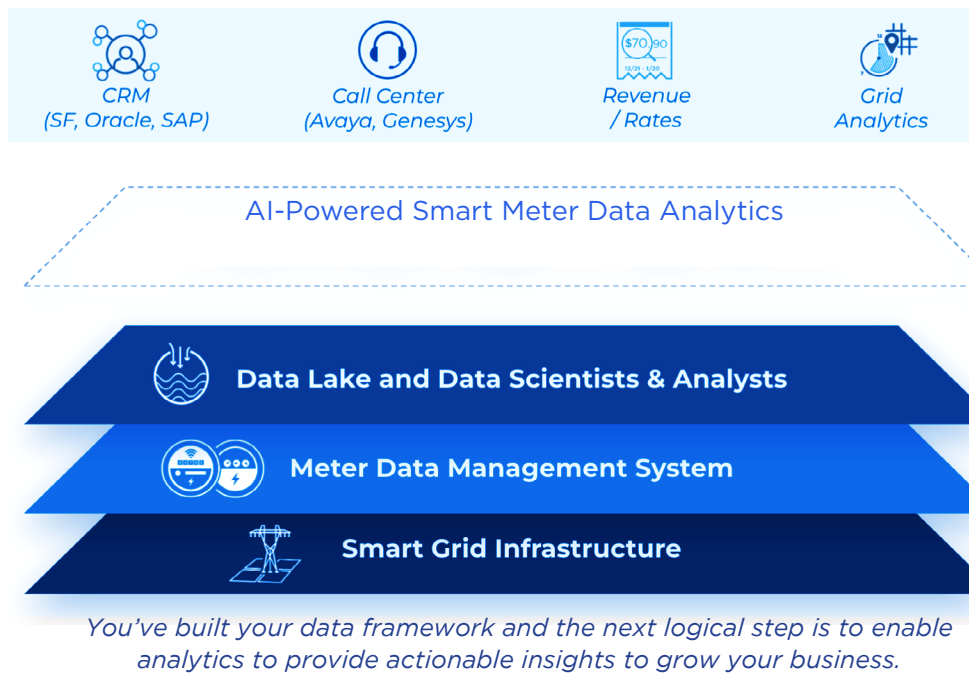
**ESTABLISH A CROSS-FUNCTIONAL DATA TEAM:** Establishing an inter-departmental team to identify the big picture data needs, benefits and costs is essential to break through the silos of traditional utility organizational structure and create more holistic data use cases that better satisfy organization-wide needs. Representatives of the technology, rate planning, demand side management, call center and grid planning teams bring diverse perspectives to the data conversation. Each has their own long list of use cases that can be enhanced by meter data.

**CREATE A PROCESS FOR IDENTIFYING AND SURFACING ENERGY USE PATTERNS:** If meter data is to serve as a single source of truth from which all teams can benefit, it is important to have processes in place to share findings about energy use patterns that have relevance to multiple departments.

For example, the grid planning team observes that a pocket of EV adoption is emerging, that data is not only important to their infrastructure planning, but also to the demand side management team as they design new behavioral or active managed charging programs. Official insight sharing protocols help ensure data discoveries benefit all groups.

**DON'T LET YOUR DATA DROWN IN YOUR DATA LAKE:** You can realize greater ROI from your existing tech stack by augmenting existing utility technology platforms with behind-the-meter energy intelligence.

CRMs provide a compelling example. Call center agents have very little knowledge about what's happening in a consumer's home, so each call involves a discovery process. Injecting appliance-level insights about a customer's usage into the call center system equips agents to quickly understand why the consumer might be calling before they pick up the call. This energy intelligence leads to faster call resolution, reduced hold times, and more personalized customer experiences.



## OPTIMIZING GRID + CUSTOMER CONVERGENCE FOR MAXIMUM BENEFIT

Once energy consumers are engaged in grid management and cross-functional teams are aligned in achieving shared goals, the next step is to maximize each energy consumer's contribution to grid optimization as part of an ongoing and continuously refined strategy.

Utilities can leverage meter data to define each household's unique fingerprint of shiftable, sheddable and stackable potential. Each customer profile includes what appliances are in use, their consumption and/or demand, and whether the grid is best served by curtailing usage, shifting time of use or more granular stacking of consumption during off-peak periods.

The ability to track household energy use on an ongoing and iterative basis also makes it possible to identify emerging and growing trends before they impact grid operations to enable more accurate and strategic planning, and defer or avoid new infrastructure upgrades.

For teams focused on customer engagement and participation, real-time household consumption

data enables hyper-personalized communications to encourage the essential behavioral changes needed to support grid balancing and reliability, including how customers should be best targeted and incentivized to take these actions.

Engaging consumers in the sorts of numbers that will be required to ensure grid resiliency without direct load control requires targeting precise customer groups with specific requests relevant actions. Meter data empowers utilities to educate each customer about their energy use on a per-appliance and day-and-time-of-use basis so that they understand exactly how they can make a meaningful contribution to reducing grid load, and become more inclined to do so.

Realizing these synergies continues the process of breaking down silos and aligning customer and grid teams as they leverage the same high fidelity behind-the-meter intelligence to better achieve their shared goals, and do so on a faster timeline.

## How Much Value is Sitting Untapped in Your Data?



### Grid Planning

Utilize true system visibility and actual consumption for system planning

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### Segmentation

Targeting the right customers for demand response and energy efficiency programs

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### EV Analytics

Identify and managing EVs and charging stations as adoption accelerates

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### Rate Design

Increase accuracy of rate design and reduce your rate case cycle time

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### Load Research

Leverage your full population for load research driving increased accuracy & efficiency

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### EM&V

Accurately measuring the effectiveness of programs in real time

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## REIMAGINING HOW UTILITIES OPERATE AND DELIVER CUSTOMER VALUE

Transforming the energy landscape is no easy task. But achieving grid + customer business transformation is essential if utilities are to adapt more quickly to the accelerating pace and scale of disruptions (both challenges and opportunities); better satisfy new and evolving customer needs; and successfully drive future growth and innovation.

It's time for operations that have traditionally been siloed, cautious and slow-moving to make way for new cultures in which operational areas are collaborative, continually rethinking the status quo and data-driven.

Bottom-up grid intelligence is the key to empowering energy providers to plot their transformation roadmap, accelerate their progress and rapidly adjust the trajectory as they prioritize investments and drive towards efficiency, sustainability and growth.

Bidgely's Analytics Workbench was developed to enable utilities to use their data in a fully self-serve and holistic manner — not only for a single use case, but in a flexible manner across utility operations. Analytics Workbench provides a single source of truth across DSM, marketing, M&V, planning, load research and grid operations. Learn more at <https://www.bidgely.com/solutions/enterprise-analytics-workbench/>.