GridX

Use of Whole Customer Population AMI Data to Design Better Rates

- Presentation to WLRA Spring 2021

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Challenges of Traditional Rate Design Approach

- Sampling-based (typically < few percentages)
- Increase in rate complexity
- Risk of mis-sampling
- Sampling errors

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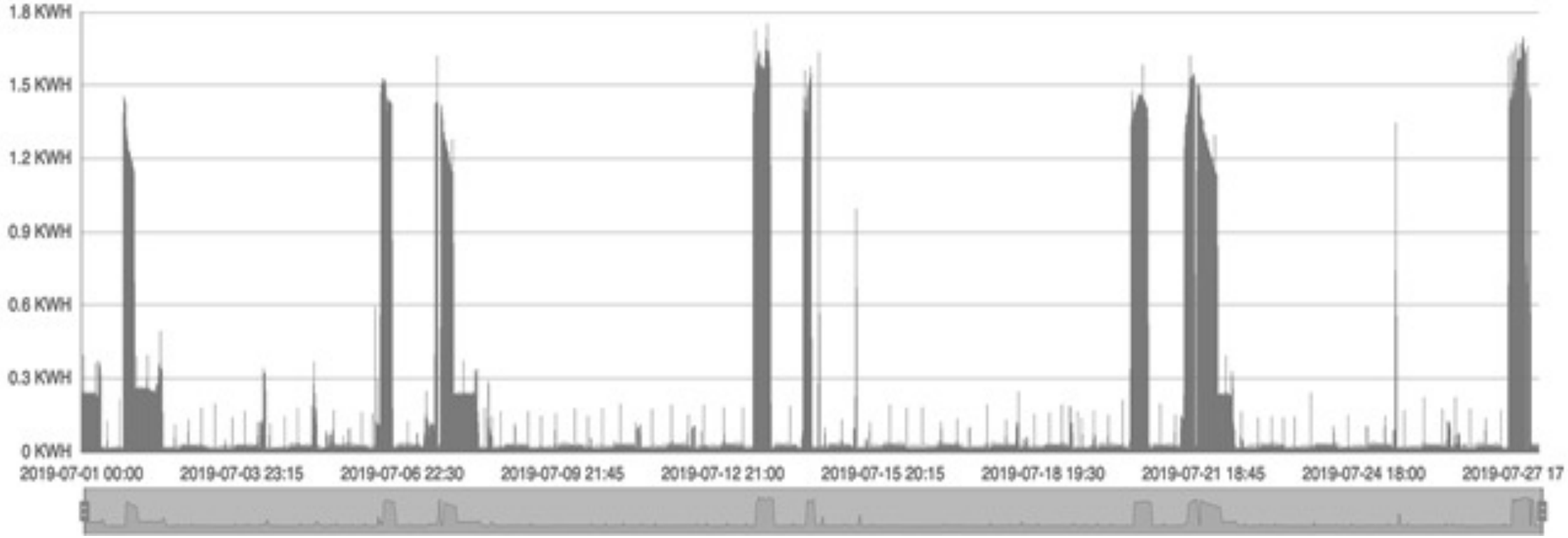
Empirical Evidences of Sampling Errors



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Whole Population Bill Impact Analyses

- Leveraging big data billing engine
- Configured with all production tier rates and new TOU rates
- Using the whole population of AMI data
- Calculating 12 months bills for each customer
- Calculation of bill impacts for all customers transition from one rate to another

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Rate Transition Matrix

	Tier Rate #1	Tier Rate #2	TOU Rate #1	TOU Rate #2
Tier Rate #1		X	X	X
Tier Rate #2	X		X	X
TOU Rate #1				X
TOU Rate #2			X	

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Transition from Tier Rate #1 to TOU Rate #1

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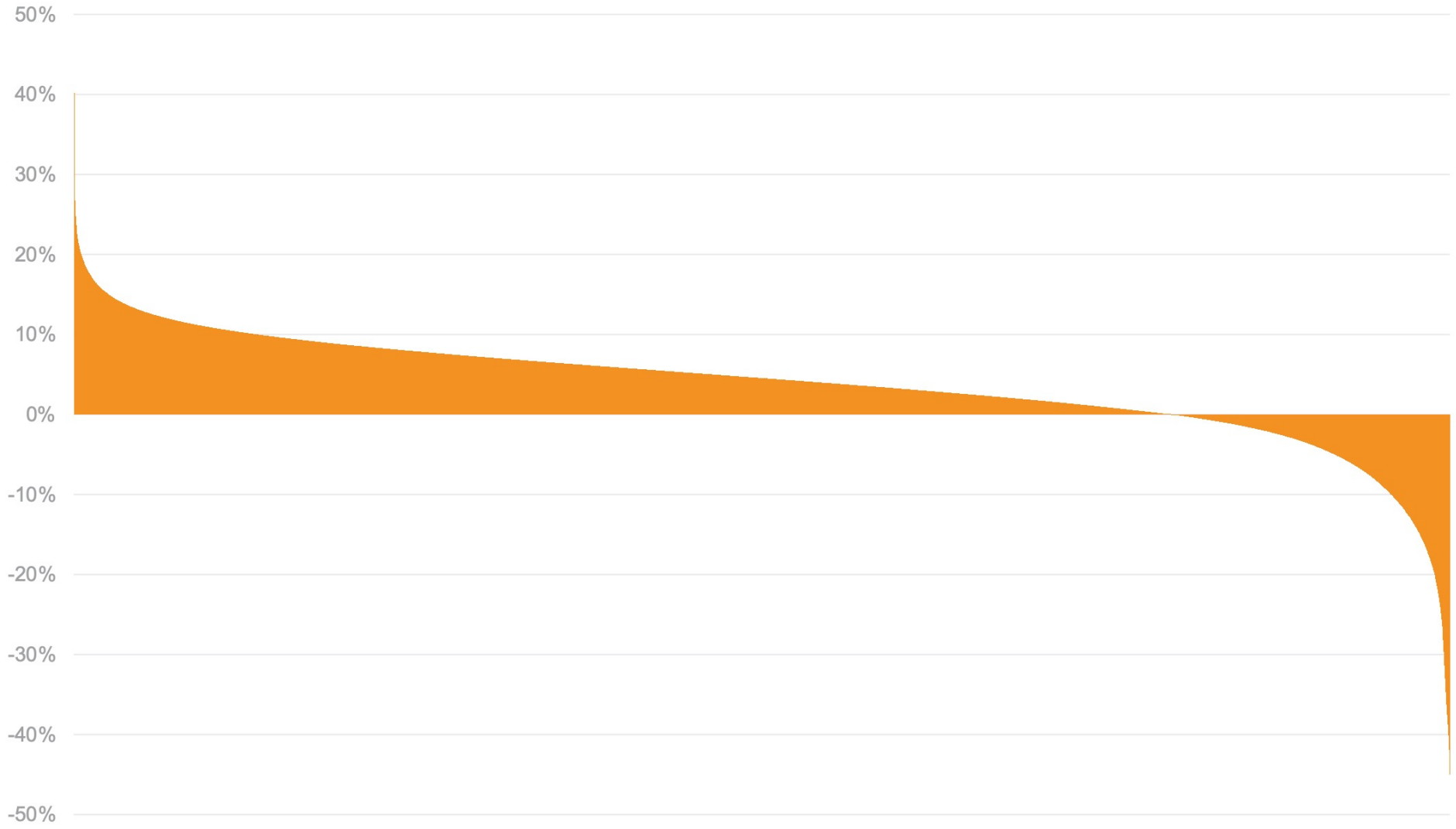
Transition from Tier Rate #1 to TOU Rate #1



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Transition from Tier Rate #1 to TOU Rate #2

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Transition from Tier Rate #1 to TOU Rate #2

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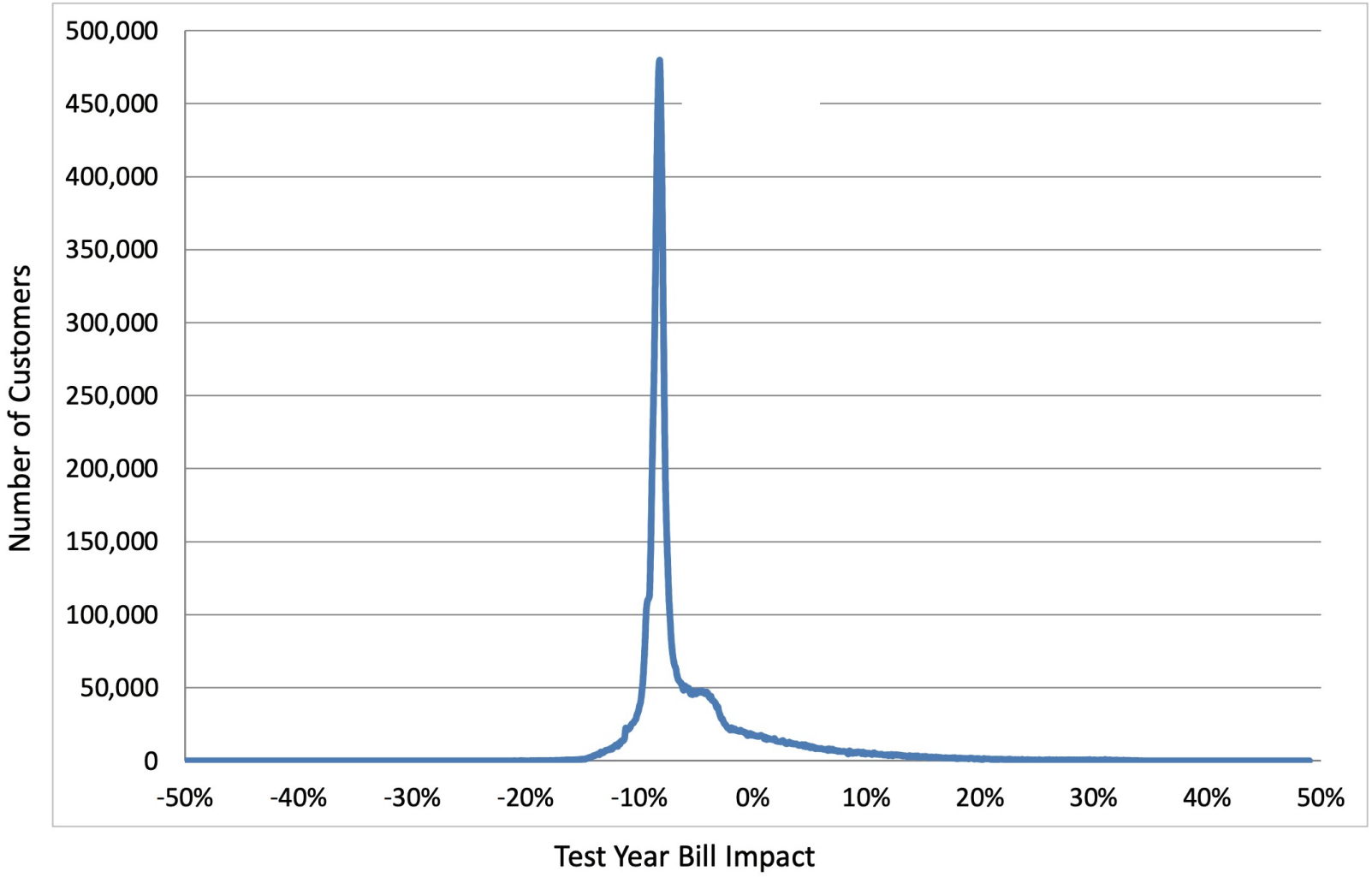
Distribution of Whole Population Bill Impacts



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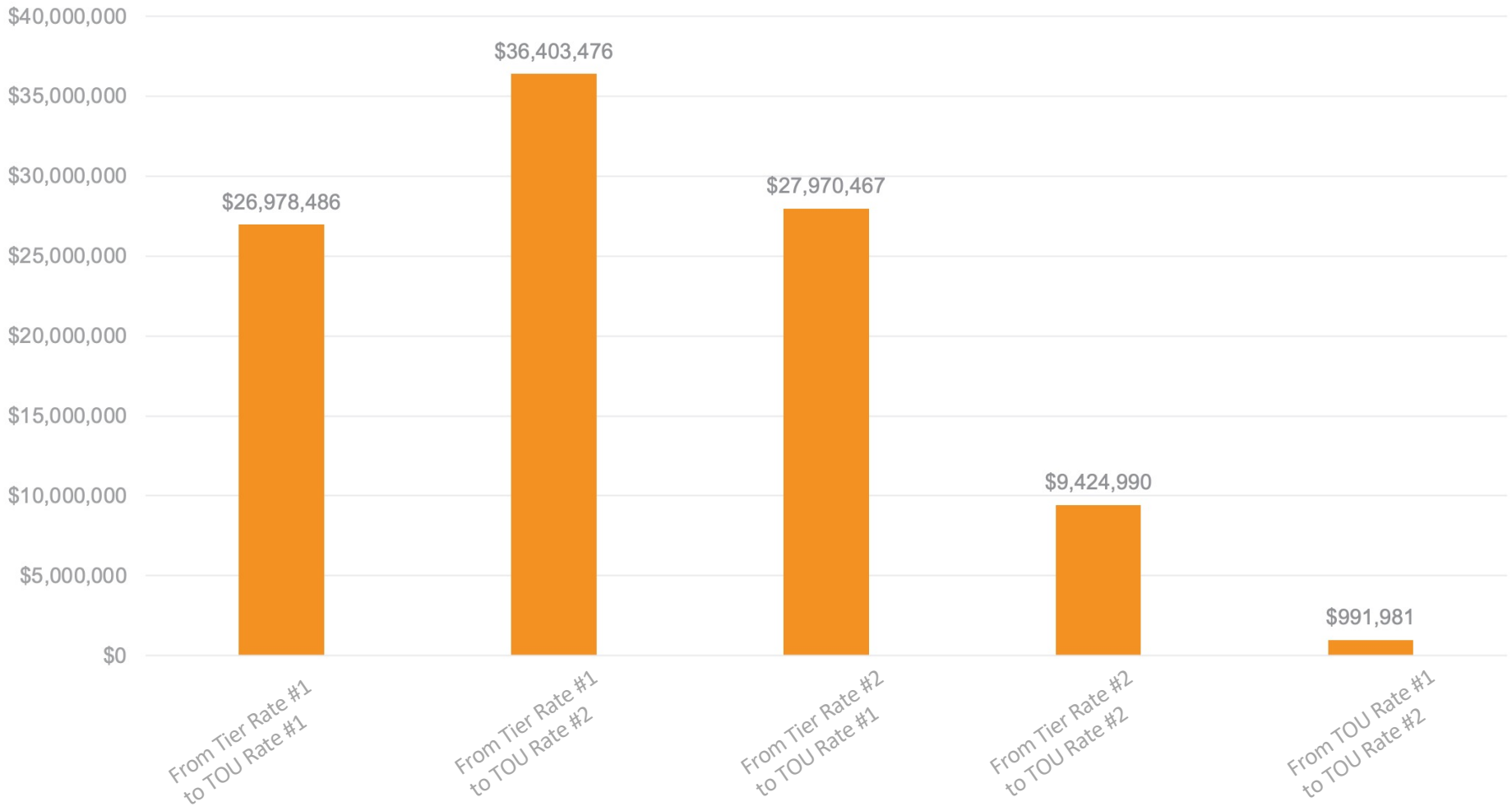
Revenue Impact Analyses



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Big Data Billing Engine

- Developed natively using big data technology
- Calculation of bills directly from intervals without the need for billing determinants
- Support for tariffs, contracts, riders and taxes of any complexity
- Support for production and hypothetical bill calculations
- Calibrated against CIS to ensure the accuracy of rate models

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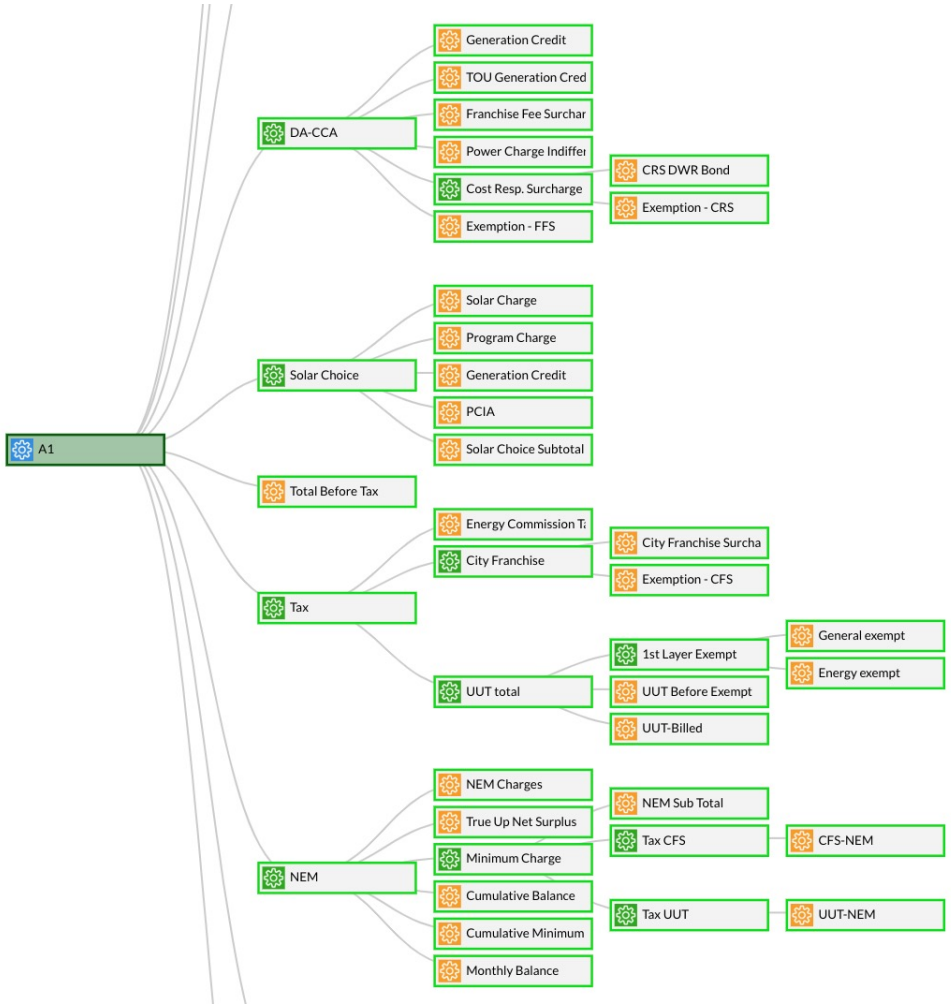
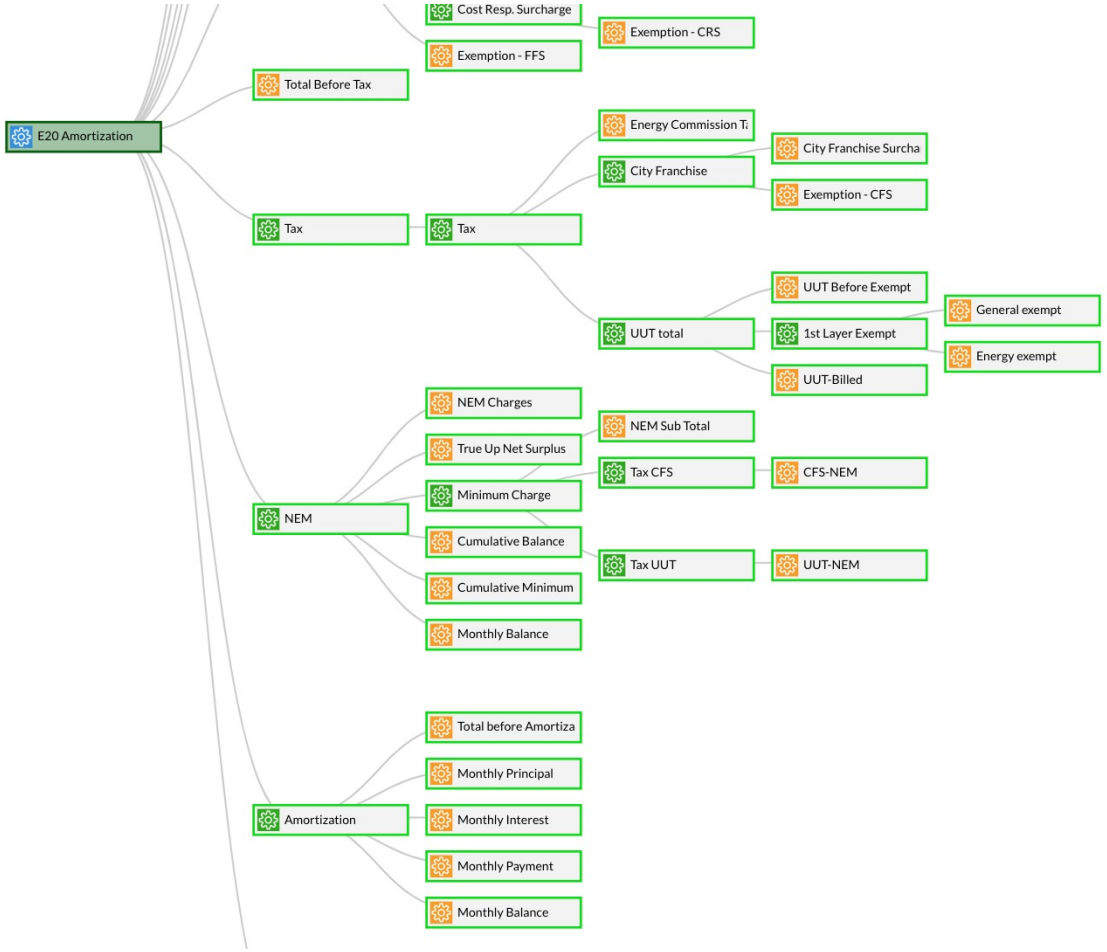
GUI-based Tariff Modeling Tool to Implement Complex Rates Quickly





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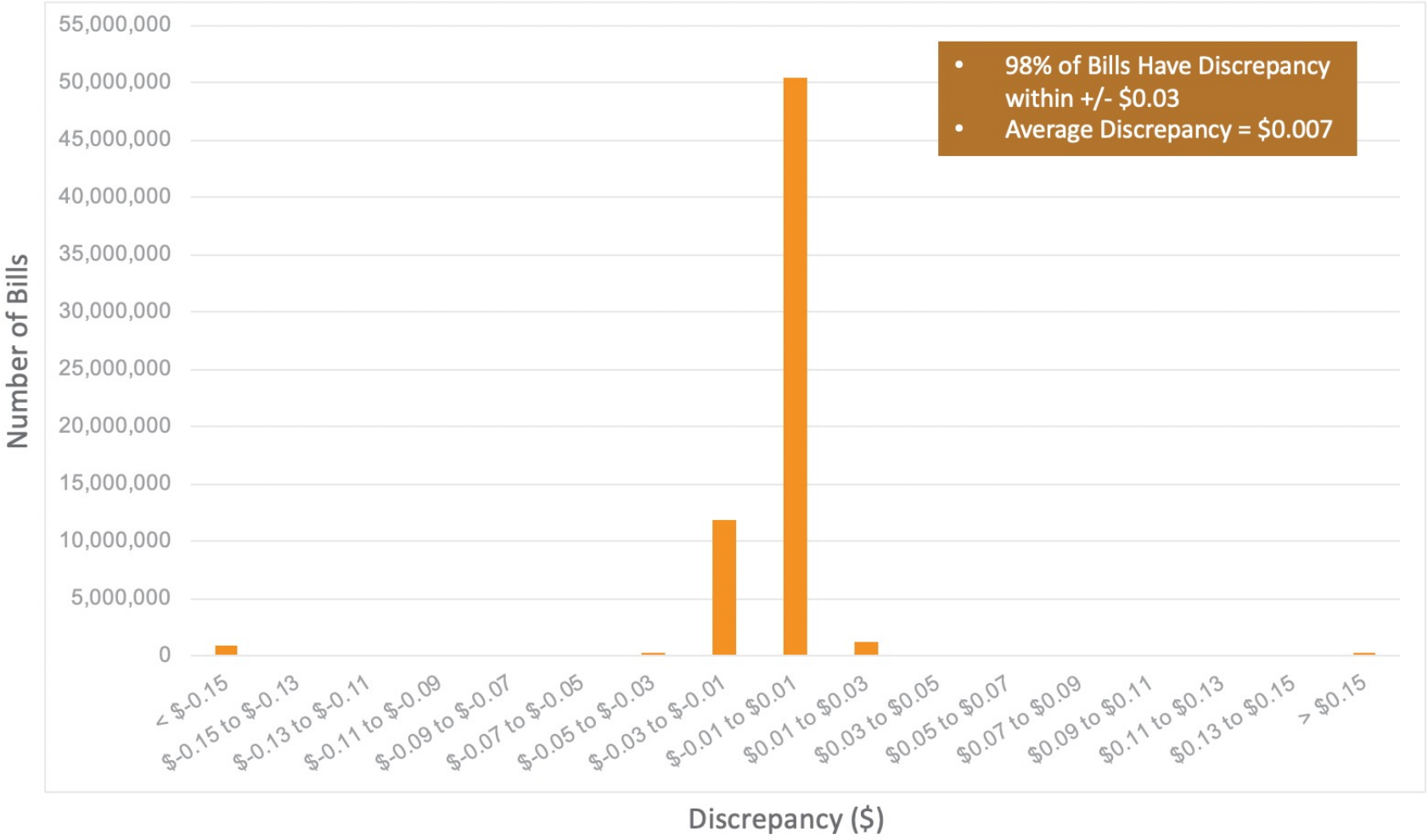
Calibration against CIS to Ensure Rate Accuracies



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Massively Scalable Bill Calculation Capability

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GridX Overview

- Leading provider of cloud-based Business Operation Support technology for utilities and retail energy suppliers
- Founded by former developers of Oracle telecom billing system
- Industry's first Big Data Billing and Billing Quality Analytics Technology
- Named Top 10 Smart Grid Solutions by Energy CIO Insights Magazine
- Awarded "Supplier of the Year" by Arizona Public Service
- Toolbox of Choice for utilities introducing new rates and undergoing rate transitions
- Backed by Energy Impact Partners, strategic investment fund by 20 leading utilities

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GridX Worldwide

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Sample Utility and Retail Energy Supplier Customers

PG&E	Monterey Bay Community Power	Southern California Edison, An Edison International® Company	PSEG
SMUD™	aps	Consumers Energy, Count on Us	AVANGRID

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Business Operation Support (BOS) Cloud for Digital Utilities

Revenue Management

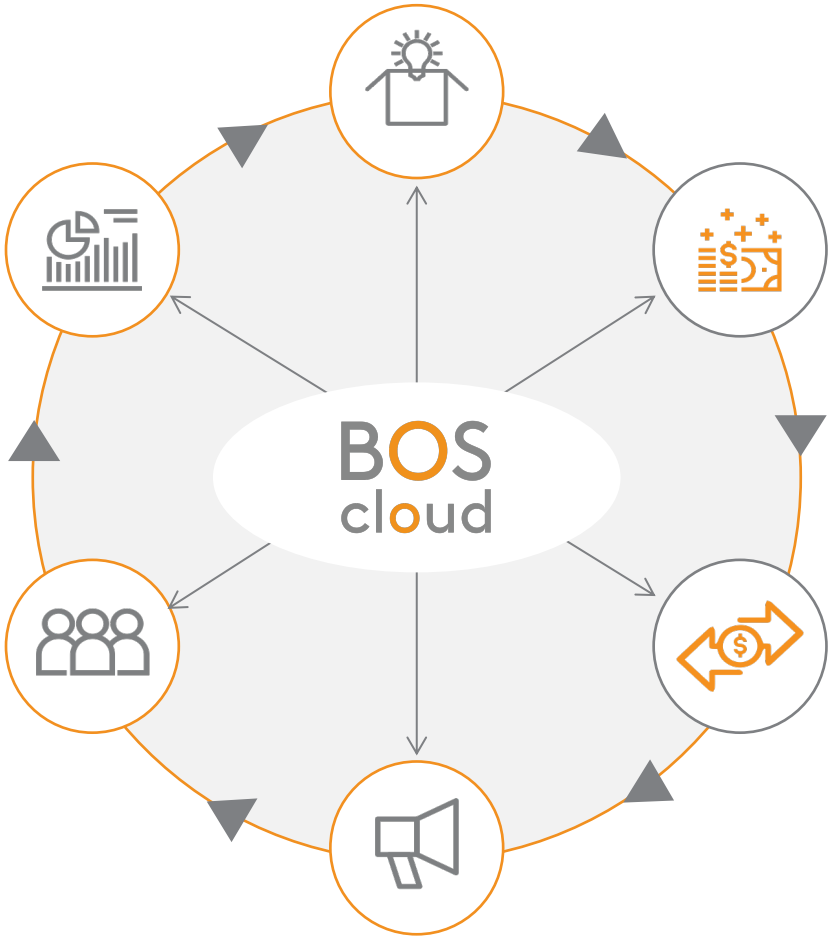
- Revenue Tracking & Analyses
- Performance Tracking
- Unbilled Revenue

Customer Services

- 360^0 View of the Customer
- Comprehensive Call Center Supports
- Key Account Management Tool

Customer Engagement

- Multi-Channel Engagement
- Rate Marketing Campaign
- Best Rate Monitoring
- Bill-to-Date, Bill Alerts



New Product Design

- Tariff Modeling & Design
- Whole Population Bill Impact Study
- Revenue Impact Simulation

Retail Billing and Meter-to-Cash

- Tariff Management
- Interval Billing
- Complex Billing
- Multi-Party Settlement
- Payment
- Credit & Collection

Wholesale Settlement

- Shadow settlement
- Settlement Quality Meter Data

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