



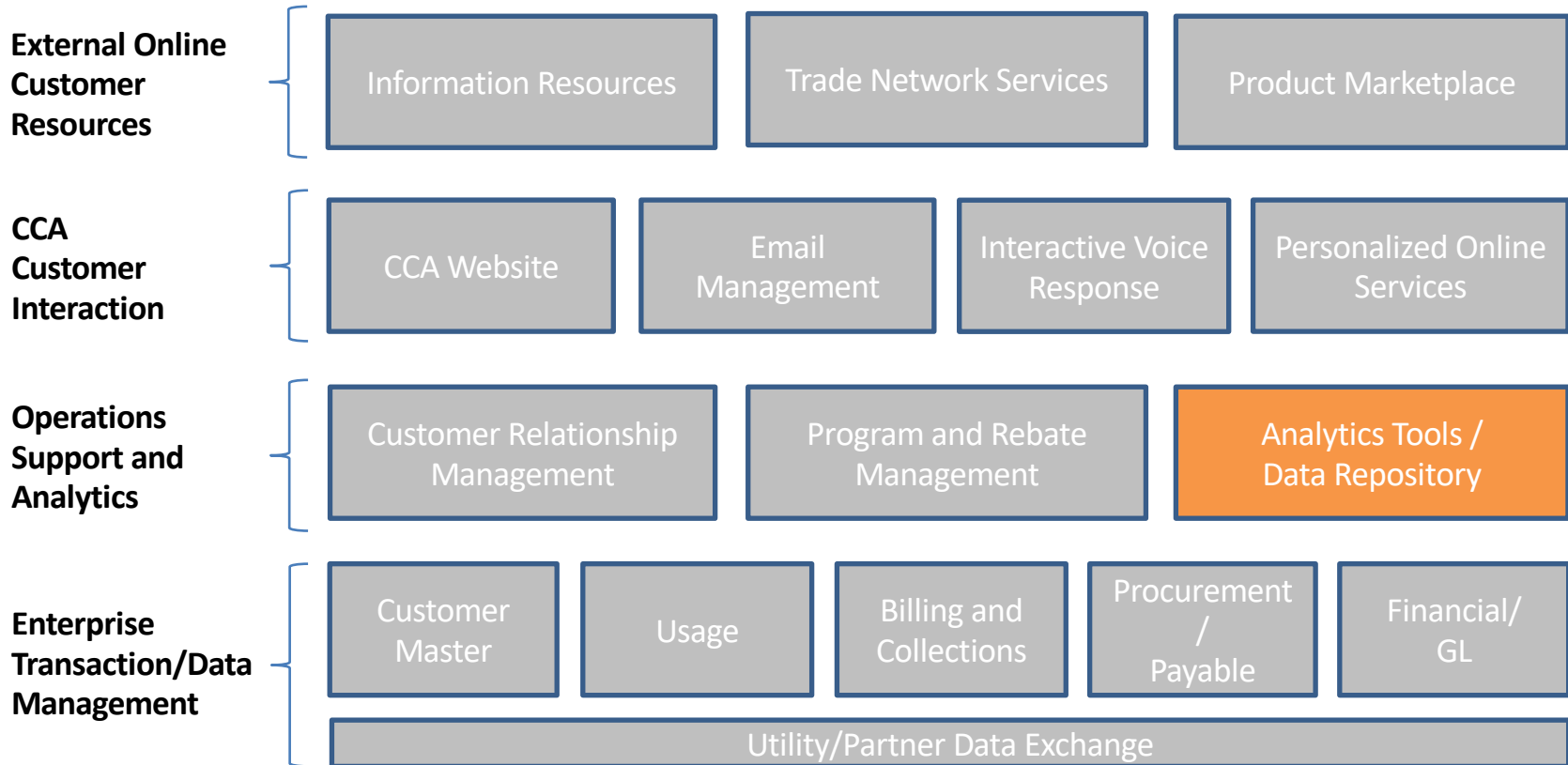
EBCE Data Analytics Platform

Ta j Ait-Laoussine

February 13, 2019



The EBCE Platform in Context



EBCE Platform 101...

Classic Analytics

- Slice & Dice
- Past, Present, Future
- Reporting & Compliance
- Shadow Reporting

Load Analysis

- Profiling & Settlement
- Weather Normalization
- Short Term Forecast
- Long Term Forecast

Rate Design

- Cost of Service Analysis
- Rate Modeling what-if
- Rate Optimization
- Optimal Load Shift / Build

Products & Services

- Customer Segmentation
- Product Design
- Program Operation
- Customer Data Access

Foundational Principle

Synthesize all customer, usage and transaction data into one common environment in order to have full visibility into system conditions at any point in time and at any aggregation level.

Customer Status & Characteristics

(e.g. PG&E 4013 Files)

Usage Data

(e.g. PG&E Share My Data)

Transaction Data

(e.g. billing transactions)

Enriching Data

(e.g. Weather, Prices, Tax Assessor, etc.)

How Is It Built... And Why?

*We built the EBCE Analytics Platform using open cloud technologies.
Why?*

- **Performance**

- Industrial-strength performance
- Access to cloud-only capabilities

- **Cost**

- Minimal Overhead Required
- Low Cost of Entry & Operation

- **Accessibility & Expandability...**

- Access to Cutting-Edge Technologies
- Open API and Integration Options
- Highly Scalable (up and out)

EBCE Data Assets:

86+ Billion Rows / 3.3+ Terabytes of Data / 100+ Tables

Hourly Aggregation of 500K+ Meters over 1 year:

< 10 seconds

Same as above + 5 dimensions:

<= 1 minute

Current Monthly Fees:

< \$2K / month

Dedicated EBCE Staff:

1.5 FTE

What Does it Do?

EBCE Hourly

EBCE History

Jun 1, 2018 - Jan 3, 2018

EBCE Load

EBCE Billing Exceptions Report v.2

Time Controls: Billing

Other: VIP F

EBCE Jurisdiction Report

Jurisdiction ▼

Breakdown by Jurisdiction		Enrolled Count	Enrolled kWh	Opted-Out Count	Opted-Out kWh	To Be Enrolled Count	To Be Enrolled kWh
1.	OAKLAND INC	173,845	1,660,843,274	2,677	23,555,632	5,866	49,192,532
2.	FREMONT INC	79,157	1,158,915,668	1,591	12,476,664	4,368	43,748,796
3.	HAYWARD INC	53,240	724,004,624	1,048	4,979,365	2,351	26,547,431
4.	BERKELEY INC	51,722	434,101,365	485	2,414,677	2,584	18,825,752
5.	UNINC ALAMEDA ...	50,607	472,103,235	1,652	7,390,467	2,860	20,725,400
6.	SAN LEANDRO INC	33,849	424,560,232	961	14,972,178	886	14,825,121
7.	LIVERMORE INC	30,107	421,687,934	2,290	14,532,637	3,760	36,956,032
8.	DUBLIN INC	23,263	251,046,110	548	7,494,199	2,505	15,691,405
9.	UNION CITY INC	22,184	265,054,351	494	3,445,476	1,026	16,437,514
10.	EMERYVILLE INC	7,806	138,347,515	116	1,646,214	39	7,610,529
11.	ALBANY INC	6,941	48,884,318	113	327,780	338	1,023,265
12.	PIEDMONT INC	3,463	27,825,109	124	689,777	437	2,218,196
Grand total		536,184	6,027,373,735	12,099	94,196,259	27,020	253,801,973

\$174,537,158

\$9,148,388

0

0

Each service agreement bill is considered a transaction. Completed transactions are transactions that went through the complete billing process and for which the bill was posted on time.

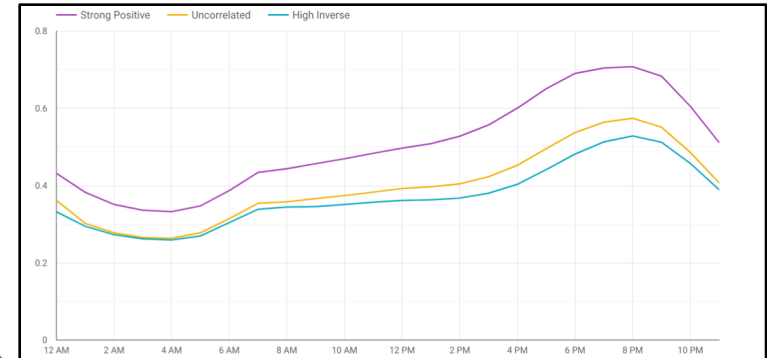
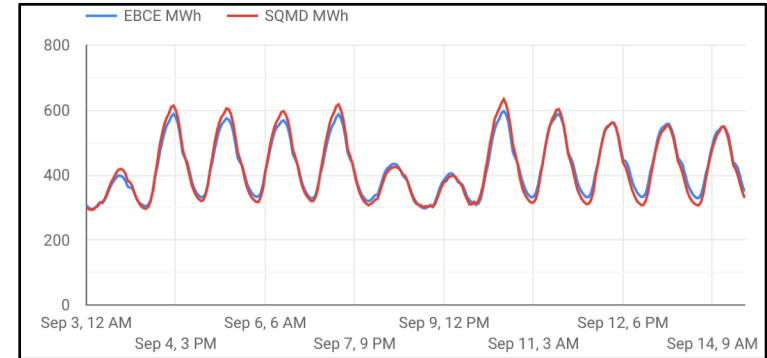
Some exception transactions can still have EBCE charges calculated and posted, but either the bill has not yet been issued to the customer, or the charges were posted on a later bill cycle.

PG&E has provided guidance that in the case of a missing bill, we should be waiting 15 days before requesting an investigation.

The transactions above are transactions that are beyond the 15 day period. It is not clear with the data available whether the exception is due to missing data from PG&E.

Already Paying Dividends...

- **Load and Revenue Forecasting and Settlement**
 - Daily output of last 90 days and next 10 day forecast delivered to SC
 - Shadow validation of settlement data submitted to the ISO
 - Visibility into future loads and revenues, and scenario analysis (PCIA impact)
- **Customer Service and Program Design**
 - Customer Segmentation
 - Evaluation of the impact of upcoming TOU changes
 - Implementation of pilot Demand Response Program
 - Customer usage and billing reports and access to meter data



Why Develop This? Why Does it Matter?

Unfettered access to data is a necessary and fundamental precursor to innovation.

- **Understand** how customer behavior is driving energy usage and the impact this has on EBCE, the county of Alameda, and California.
- **Develop** the right product for the right customer at the right place and at the right time.
- **Create** an environment where customers, local government and third-party service providers have access and visibility into the energy landscape.

Next Steps...

- Load is **just one side** of the equation... It's our fundamental stepping stone, but the platform can and will extend to the incorporation of DERs.
- The analytics platform is **just one component** of the full solution. Interaction and integration with other systems, solutions, and providers is on the roadmap.
- Collaboration and joint activities with **other CCAs** are also on the horizon. Initial 'socialization' of the platform is currently taking place.