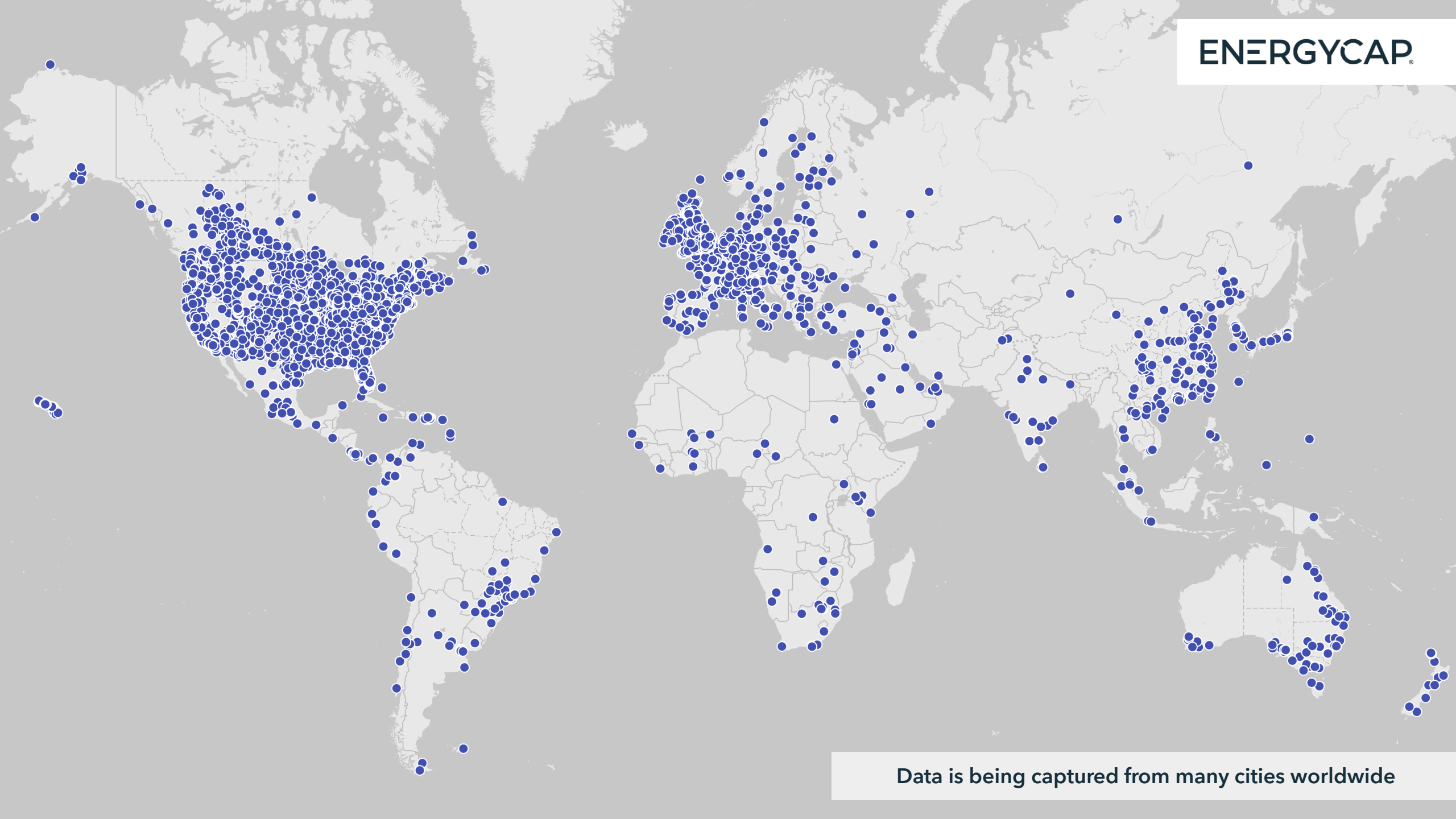
CATALYST

How EnergyCAP does data capture

John Heinz
VP, Strategic Accounts // EnergyCAP

Agenda

- What data is valuable to track
- Single source of truth of data
- Myth vs Reality
- Data capture services
- 7 lessons in data processing


ENERGYCAP
Data is being captured from many cities worldwide

Energy and Sustainability data is key to driving savings

10K+

Energy and sustainability users

$20B+

Worth of vendor bills tracked annually

$500M+

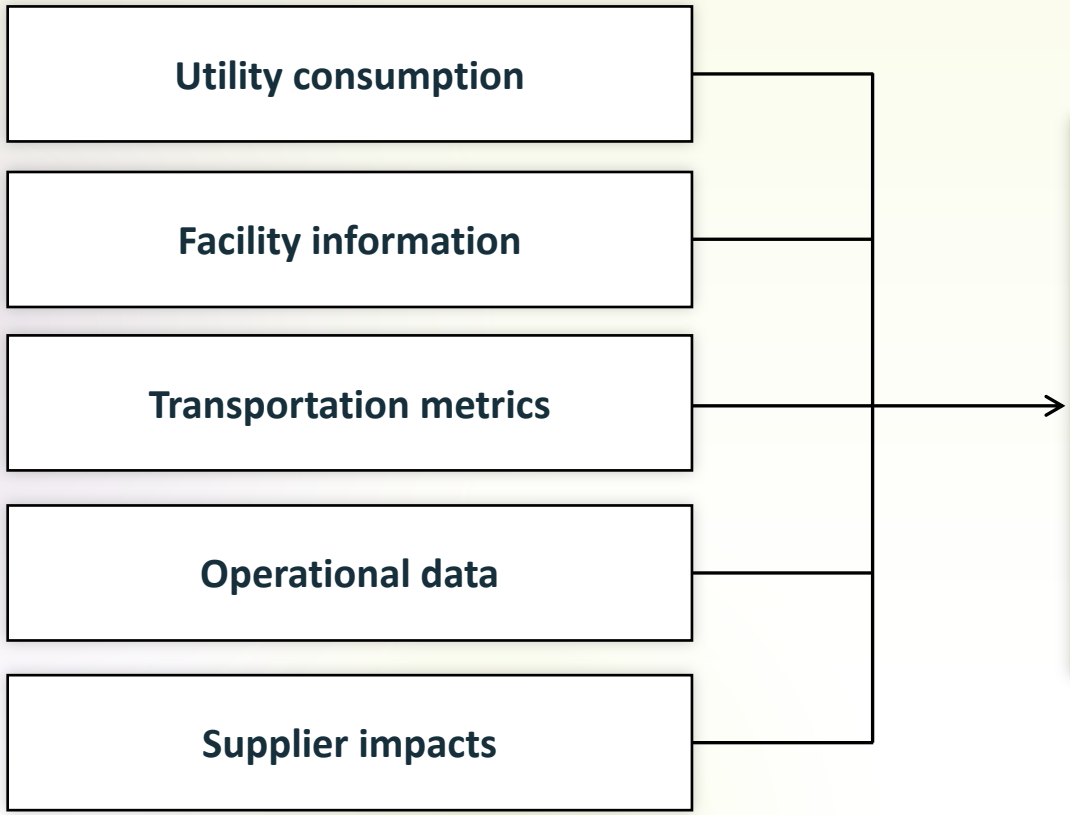
Verified annual energy savings

Client energy and sustainability data

→ ENERGYCAP →

Manage consumption, reduce carbon, and drive savings

Measure what matters // The single source of truth



Energy and Sustainability ERP

Single source of truth to track and report all energy and sustainability data across your organization

Energy and sustainability information

- Utility vendor and account data
- Vendor utility bills
- BAS/EMS smart meter data
- On-site generation
- Sustainability data

ENERGYCAP®

Informative and actionable data

Energy Management

- Weather normalization
- EUI-energy utilization index
- Public dashboards and maps
- Benchmarking
- Performance vs targets
- M&V cost avoidance
- ENERGY STAR interface
- Project tracking
- Custom fields

Utility Bill Accounting

- Automated bill entry & import
- Bill audits and flags
- Internal use & cost allocations
- AP or GL export
- Budgets
- Accruals
- Advanced workflows and approvals
- Vacant cost recovery
- Bill splits and formulas

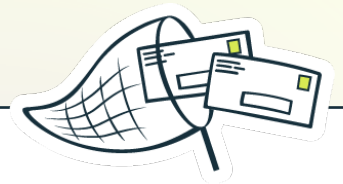
Building Operations

- Manage on-site generation and distribution
- Smart meter interval data
- Indoor air quality monitoring
- Heatmaps
- Alarms and alerts
- Machine learning Sentinel trends
- Schedule and operations optimization
- Power usage effectiveness (PUE)

Sustainability

- Streamlined carbon management
- Automatic GHG conversions
- Library of international factors
- Custom factor flexibility
- Scope 1, 2, and 3 reporting
- Track RECs and offsets
- Industry leading compliance

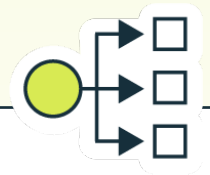
Data journey to give you value



Capture

Gain timely access to accurate and reliable energy and sustainability information.

- Utility bill entry and import
- Capture, map, and import via Bill CAPture℠ or UIDI
- API integrations
- Data formats: paper, PDF, XLS, CSV, TXT, XML, EDI, and more
- Connect to meters, BAS, SCADA, other systems



Allocate

Recoup energy use and costs from tenants, spaces, or departments.

- Rebill costs using sub-meter data, formulas, and split calculations
- Target and track usage, cost, and carbon from measurable or calculated points.
- Get as granular as you need

Analyze

Identify outliers in your data and focus on the areas of operation with highest impact.

- Utility bill auditing
- Energy benchmarking
- Measurement and verification
- Energy use intensity (EUI)
- Integrated charts and graphs
- Powerviews
- Heatmap

Report

Distribute meaningful information to your team members and stakeholders in a streamlined and automated way.

- Library of standard reports
- Configurable reports and dashboards
- Automated ENERGY STAR submission
- Business intelligence integration
- Bill accruals and forecasting

Myth vs Reality

Myth vs. reality: Data acquisition is NOT easy

Utility bills have gotten easier to handle

Utilities have APIs

Utility companies provide easy access to electronic files

Smart meters provide easy means of communication and data access

Green Button is a ‘game changer’

Green Button
Download my data

Difficult to identify sources

Availability of desired formats

Timeliness of delivery

Automated vs manual acquisition

Complexities of data exchanges, formats, and communication protocols

Restrictions of processes

Cumbersome and redundant workflow processes

Distracts you from energy management and sustainability activities

Some options are meant to help

Summary Bills

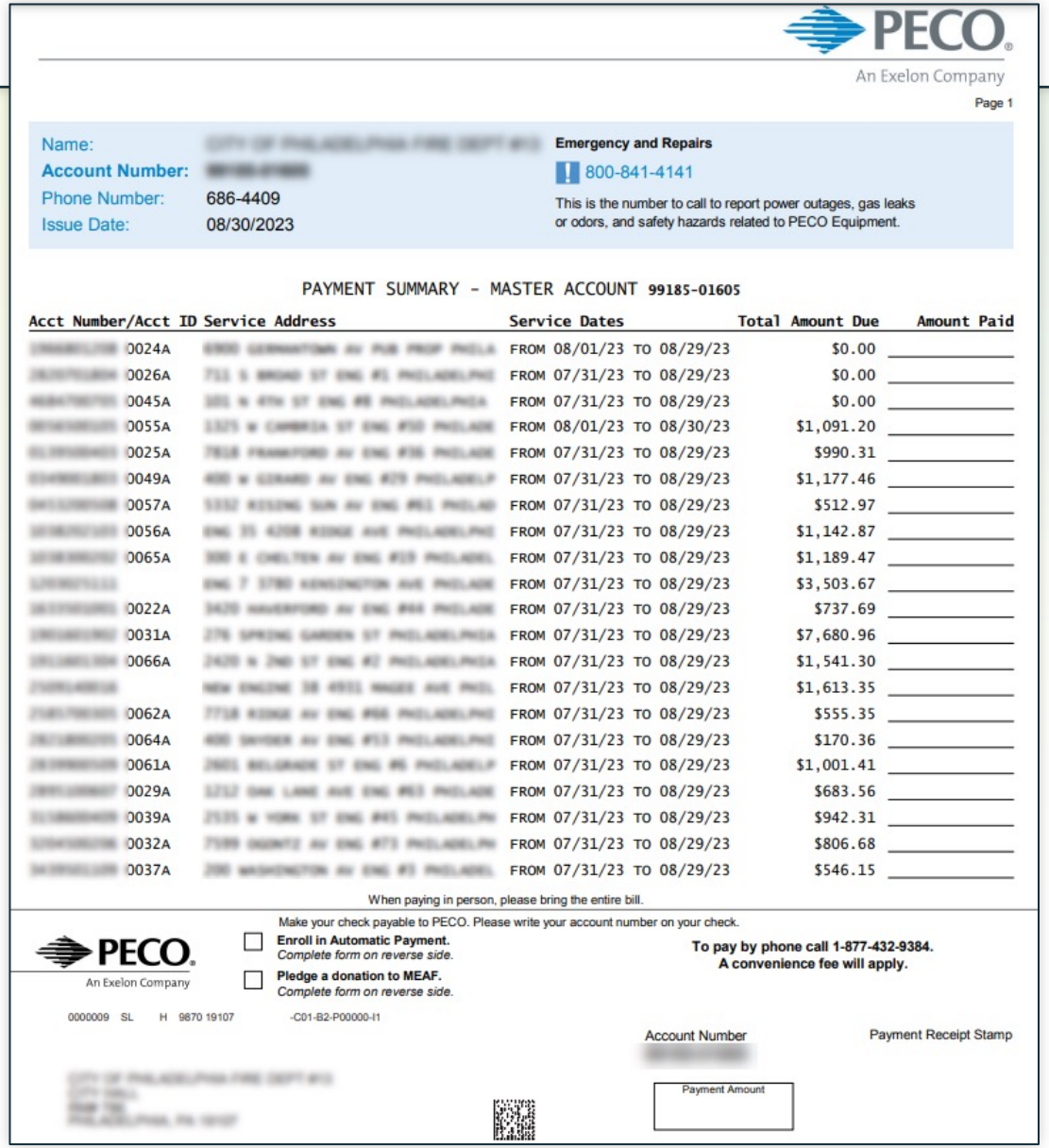
Many accounts tied to a master

Easy and quicker to pay, but…

Consolidated charges, Supply vs Distribution

Bill charges, Account vs Meter

Rebills and corrections



PECO
An Exelon Company

Page 1

Name: [redacted]
Account Number: [redacted]
Phone Number: 686-4409
Issue Date: 08/30/2023

Emergency and Repairs
800-841-4141
This is the number to call to report power outages, gas leaks or odors, and safety hazards related to PECO Equipment.

PAYMENT SUMMARY - MASTER ACCOUNT 99185-01605

Acct Number/Acct ID	Service Address	Service Dates	Total Amount Due	Amount Paid
[redacted] 0024A	[redacted]	FROM 08/01/23 TO 08/29/23	$0.00	
[redacted] 0026A	[redacted]	FROM 07/31/23 TO 08/29/23	$0.00	
[redacted] 0045A	[redacted]	FROM 07/31/23 TO 08/29/23	$0.00	
[redacted] 0055A	[redacted]	FROM 08/01/23 TO 08/30/23	$1,091.20	
[redacted] 0025A	[redacted]	FROM 07/31/23 TO 08/29/23	$990.31	
[redacted] 0049A	[redacted]	FROM 07/31/23 TO 08/29/23	$1,177.46	
[redacted] 0057A	[redacted]	FROM 07/31/23 TO 08/29/23	$512.97	
[redacted] 0056A	[redacted]	FROM 07/31/23 TO 08/29/23	$1,142.87	
[redacted] 0065A	[redacted]	FROM 07/31/23 TO 08/29/23	$1,189.47	
[redacted]	[redacted]	FROM 07/31/23 TO 08/29/23	$3,503.67	
[redacted] 0022A	[redacted]	FROM 07/31/23 TO 08/29/23	$737.69	
[redacted] 0031A	[redacted]	FROM 07/31/23 TO 08/29/23	$7,680.96	
[redacted] 0066A	[redacted]	FROM 07/31/23 TO 08/29/23	$1,541.30	
[redacted]	[redacted]	FROM 07/31/23 TO 08/29/23	$1,613.35	
[redacted] 0062A	[redacted]	FROM 07/31/23 TO 08/29/23	$555.35	
[redacted] 0064A	[redacted]	FROM 07/31/23 TO 08/29/23	$170.36	
[redacted] 0061A	[redacted]	FROM 07/31/23 TO 08/29/23	$1,001.41	
[redacted] 0029A	[redacted]	FROM 07/31/23 TO 08/29/23	$683.56	
[redacted] 0039A	[redacted]	FROM 07/31/23 TO 08/29/23	$942.31	
[redacted] 0032A	[redacted]	FROM 07/31/23 TO 08/29/23	$806.68	
[redacted] 0037A	[redacted]	FROM 07/31/23 TO 08/29/23	$546.15	

When paying in person, please bring the entire bill.

PECO
An Exelon Company

Make your check payable to PECO. Please write your account number on your check.
☐ **Enroll in Automatic Payment.** *Complete form on reverse side.*
☐ **Pledge a donation to MEAF.** *Complete form on reverse side.*

To pay by phone call 1-877-432-9384.
A convenience fee will apply.

0000009 SL H 9870 19107 -C01-B2-P00000-I1

Account Number [redacted]

Payment Receipt Stamp

[redacted]

Payment Amount

Some options are meant to help

Vendor Websites

Access to PDF and flat files

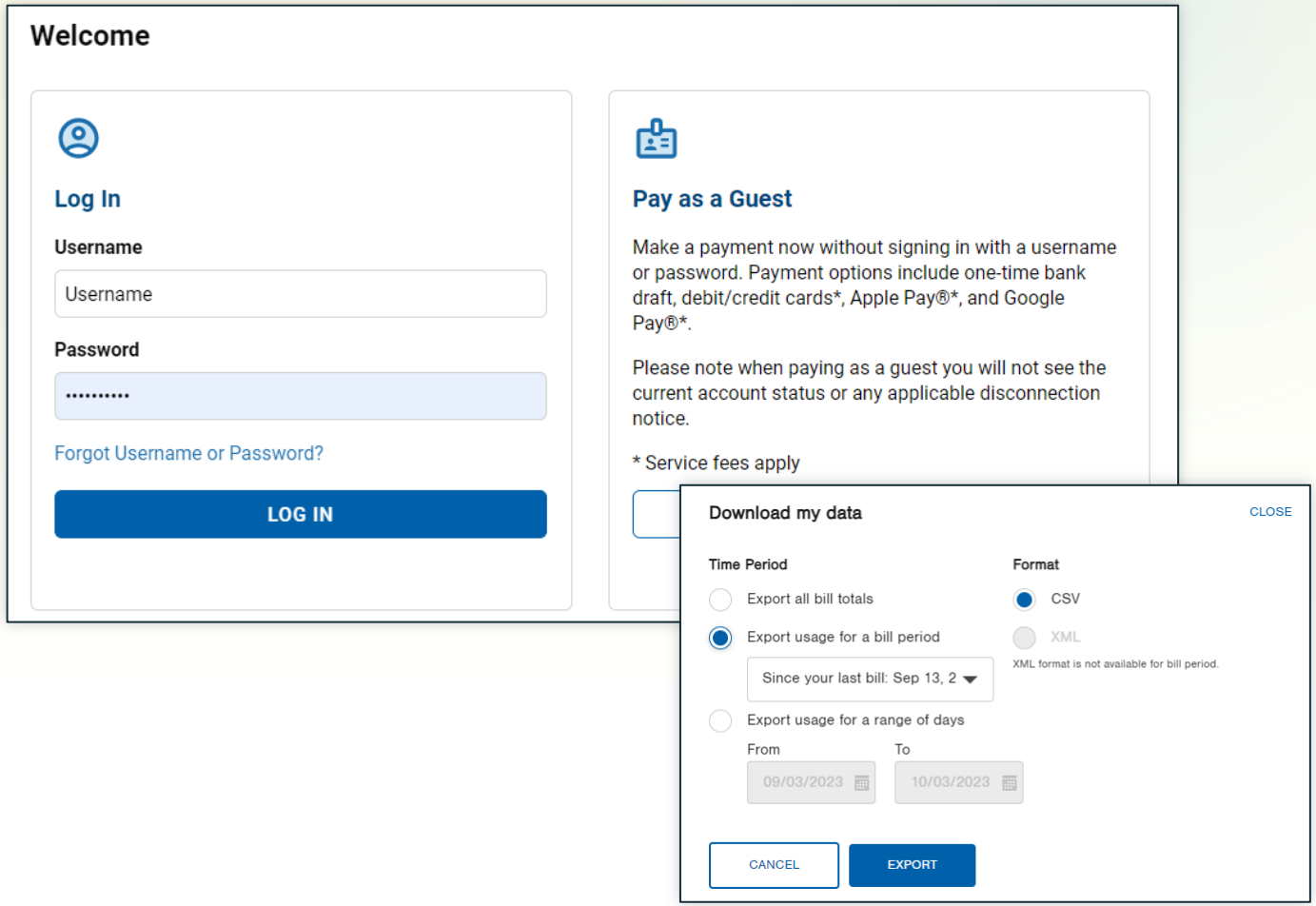
Login to utility websites and download data

Accounts are not consolidated, unique login per account

Bill data is generally summarized and doesn't provide all line items

Some post interval data, some don't, some charge fees for it

Minimal analysis tools



Some options are meant to help

EDI 810

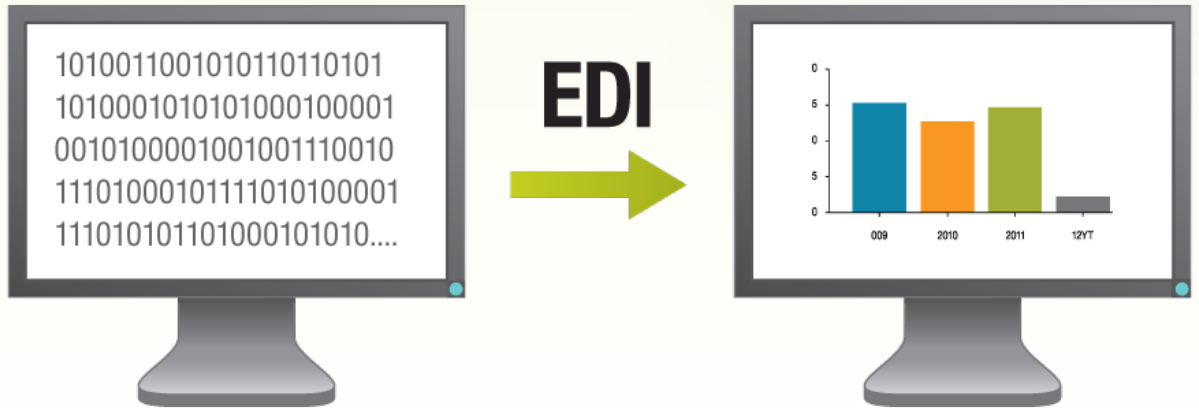
Launched in the mid-90's as a US Dept of Commerce initiative

With deregulation in late 90's utility priorities changed, and billing became more complex

Cost and technical challenges to implement EDI

EDI is different in parts of the world

Partially bypassed by OCR, web scraping, flat files (Green Button), and PDFs



Utility bills haven’t become simpler or easier to understand

Legacy billing systems

Laws mandate new fees and surcharges

Customer choice options complicate bill design and presentation

Additional complexities with net metering and renewables

No standardization bill line-item naming conventions

Utility bills still have many cost recovery opportunities

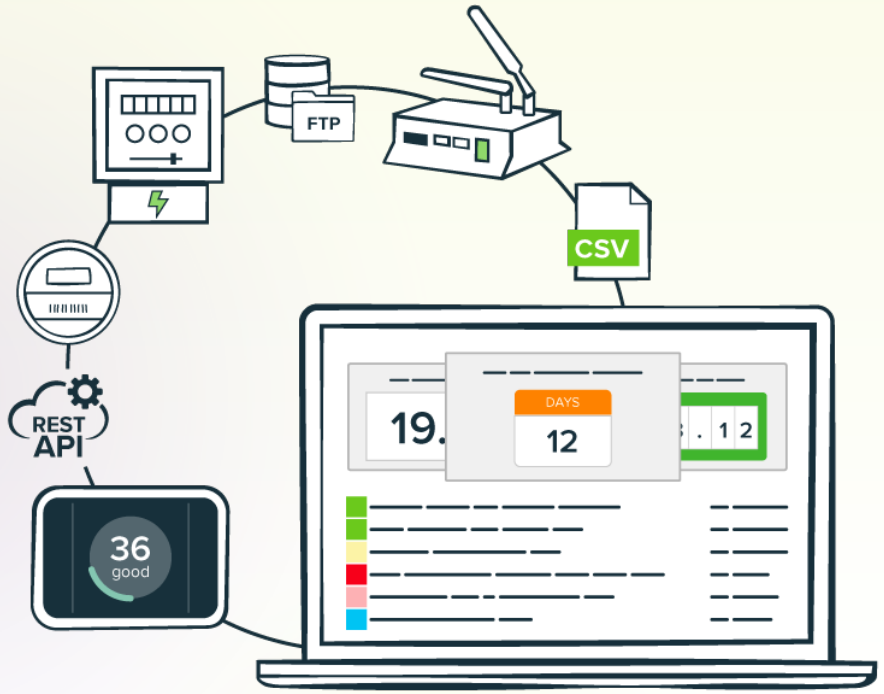
Rate schedule optimization - Many electric accounts can save money on cheaper rates. Why are many accounts on a more expensive rate? New rates are available that didn't exist when the account was established. Building loads have changed; the building now qualifies for better rates.

Account ownership – The building changed ownership, but the utility account wasn't updated to the new owner.

Meter multiplier – The wrong multiplier or unit of measure is being used by the utility's billing computer.

Taxes and fees – An exempt account is charged for taxes and fees.

Connecting to ‘smart’ hardware and systems is not simple



Connectivity to hardware and systems

Changing landscape of communication protocols

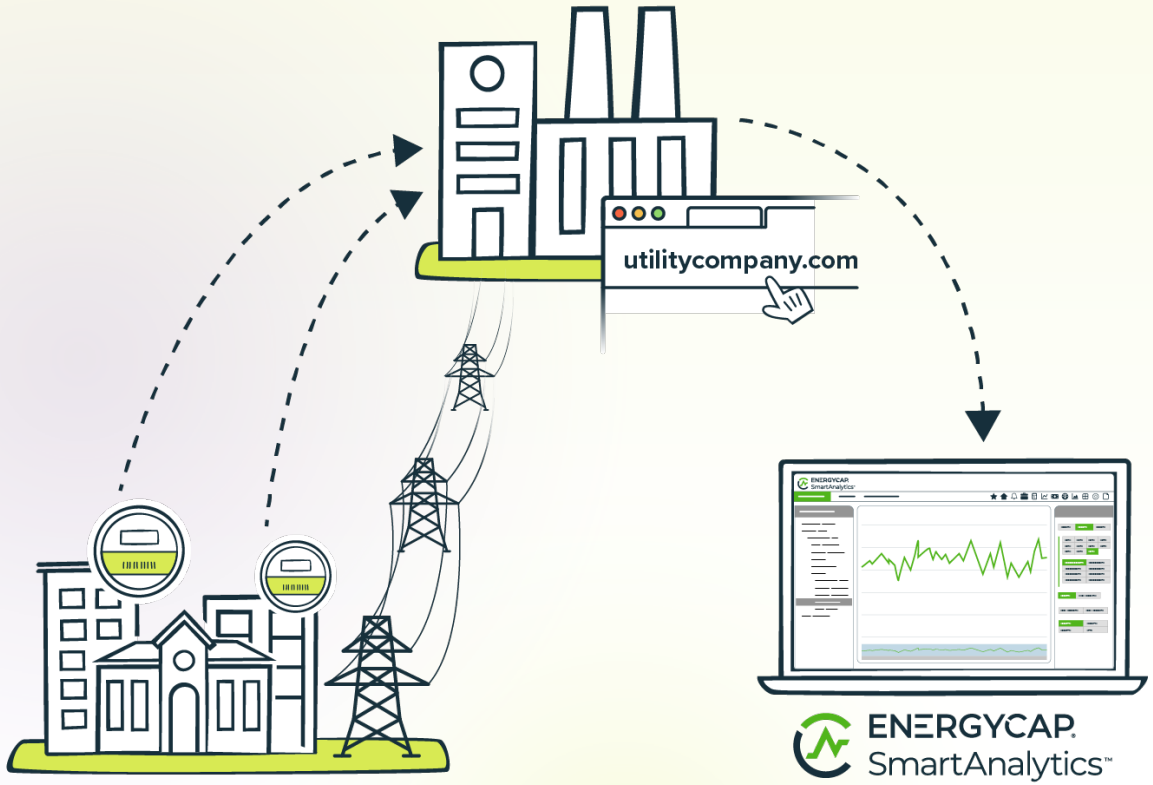
Restrictions in connectivity and access

Programming and technical skills are typically required

Installation can be a barrier

Enter:
Data Capture Services

Utility interval data integration “UIDI”



Get interval data from utility smart meters

Uses login credentials

Nightly download of prior day’s data

Tends to be 15 minute or hourly

~**150** current vendors supported worldwide, more can be added

Requirements: installed vendor smart meter, access to files on vendor website, MFA is turned off

Removes complications of hardware installation and connectivity

Partnerships with hardware vendors

EnergyCAP is hardware agnostic

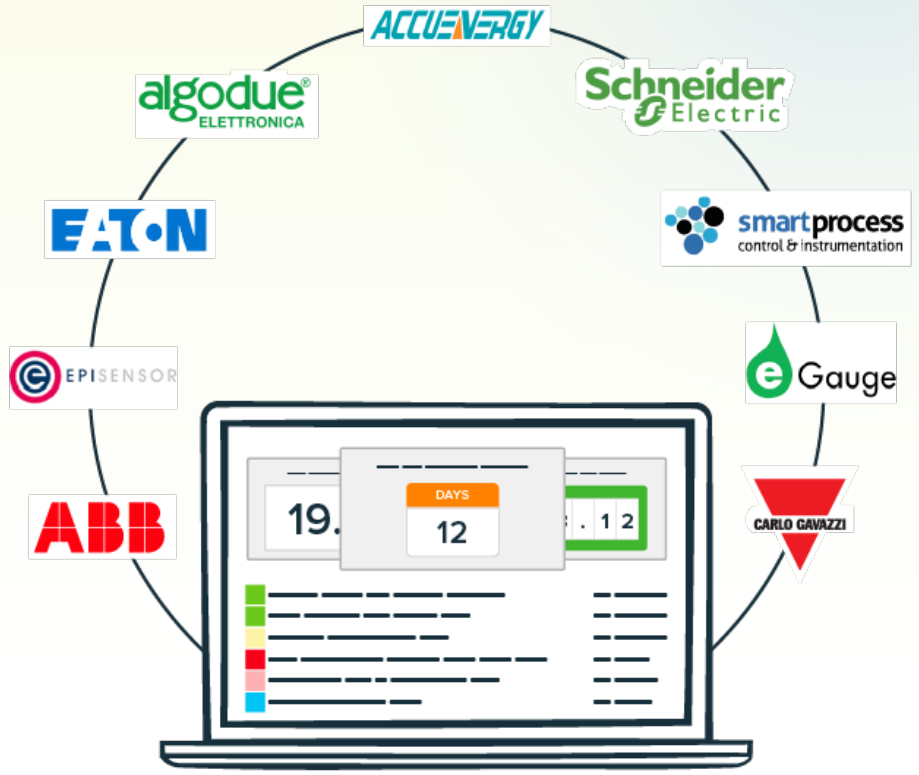
Remove the guesswork of formatting and connectivity

Many options available to meet your monitoring needs

“Plug and Play” ready

Options for meters, sensors, and gateways for communication

Options for communication protocols (BACnet, Modbus, etc.)



Partner spotlight // Accuenergy

Power Meters

Current Transformers

Communications-Gateways

Panels

http://www.Accuenergy.com

Partner spotlight // Episensor

Gateways

Demand Response Controllers

Electricity Monitor

Wireless Signal Sensor

Wireless Temperature Sensor

http://www.Episensor.com

Systems integrations

Methods

Built by EnergyCAP, clients, or third-parties

- File exchanges
- APIs
- Automation

Integrations

Business-critical integration services

- Accounting systems (AP, GL)
- Interval data from private/public metering systems
- Property and asset management
- Building management systems

EUM and ESA API Platform

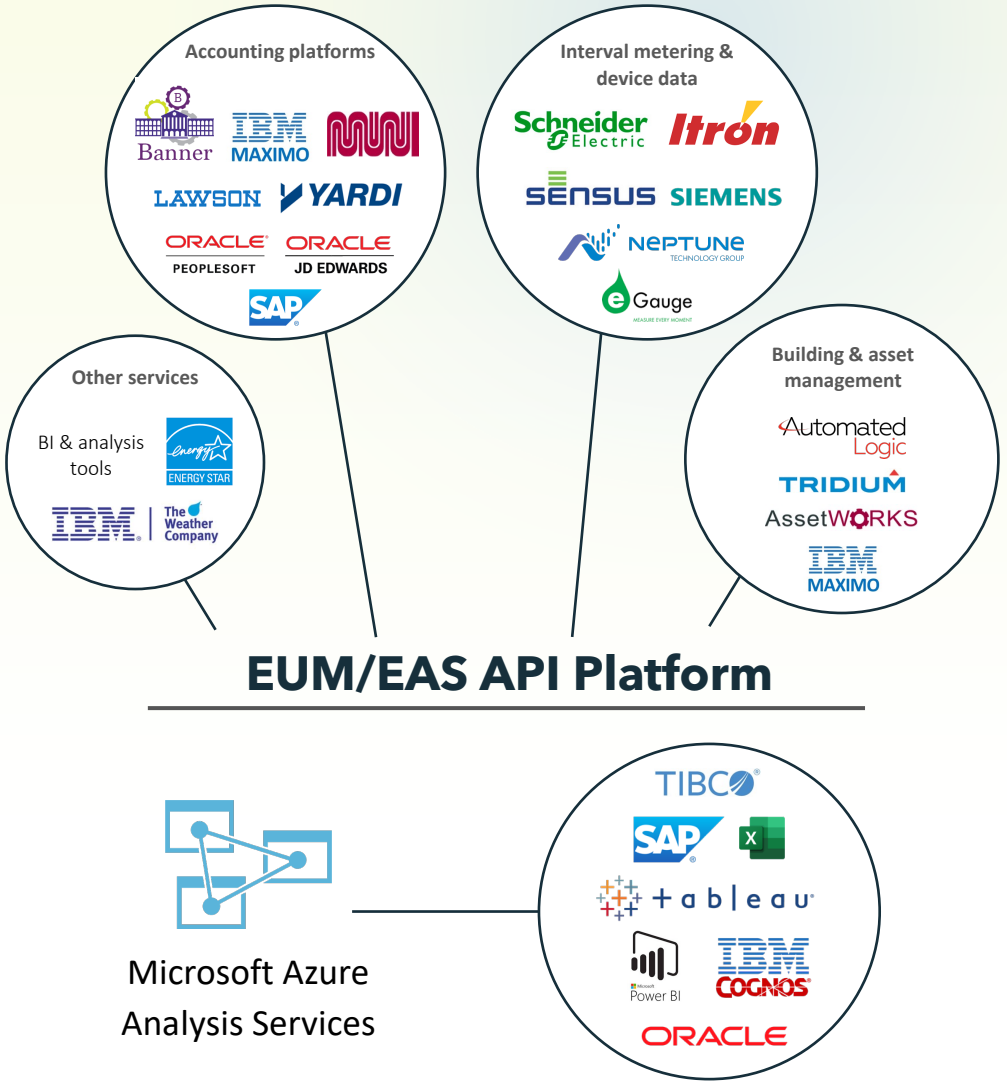
Robust resources available for developers to extend EnergyCAP features and integrate additional systems

Dedicated developer website:
https://developer.energycap.com
https://developers.wattics.com

Additional integration services

ENERGY STAR submission/reporting features

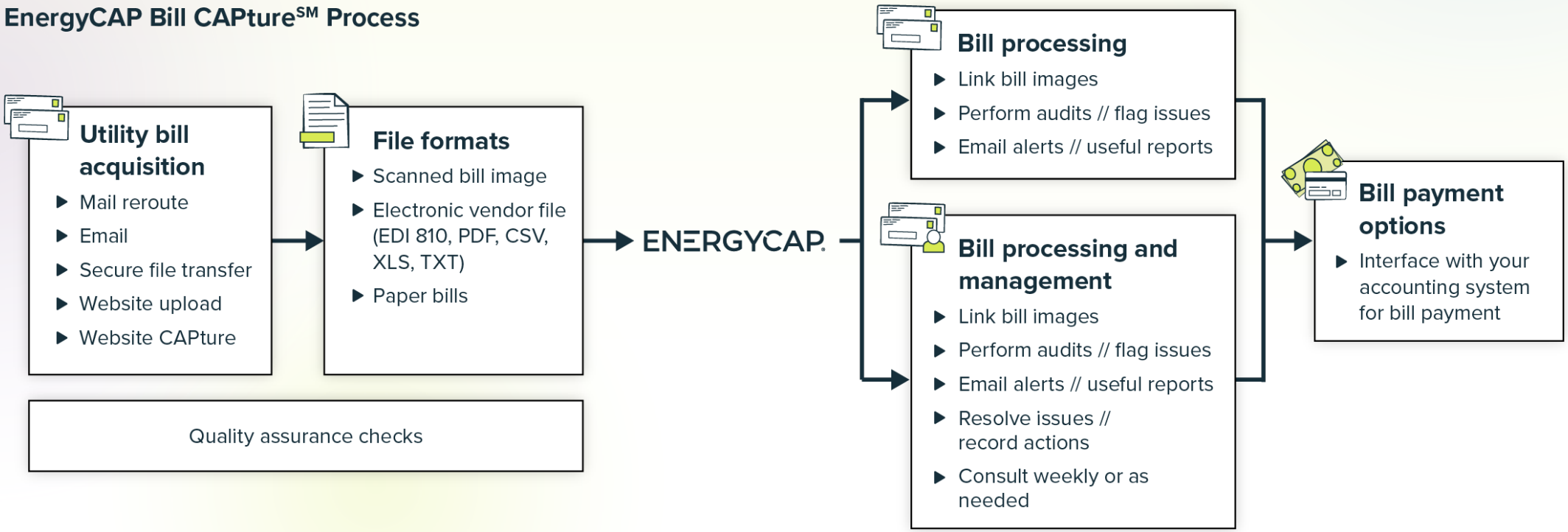
Business intelligence and reporting add-on



Bill CAPture℠

Capture utility bill data and convert it into important energy cost and consumption information.

We do the work for you to collect, interpret, process, and enter utility bills into EnergyCAP.



Bill CAPture℠ services history

Original offering was bill imports (xls, txt, EDI 810)

Leverage OCR and other technologies since 2009

130K+ utility bills processed per month including

- >40% EDI bills per month
- >45% PDF bills per month
- >70 commodities (electric, natural gas, waste, telecom, etc.)

4K+ unique worldwide vendors' bills processed monthly

200+ organizations utilize this service

Customer volumes range from 100 bills per month to more than 30K

Service levels and formats

Service levels (pre or post pay)

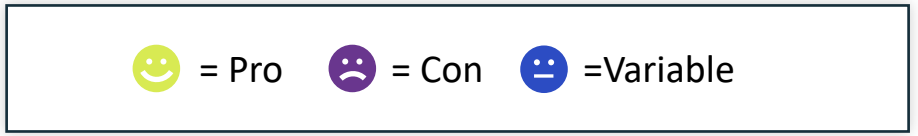
Number of annual bills “transactions”

Acquisition methods

Bill formats

Workflow considerations

Trait	Paper	PDF	Flat files	EDI 810
Data richness				
Processing speed				
Automation ability				
Vendor ability				
Processing cost				



Solution option // Optical Character Recognition

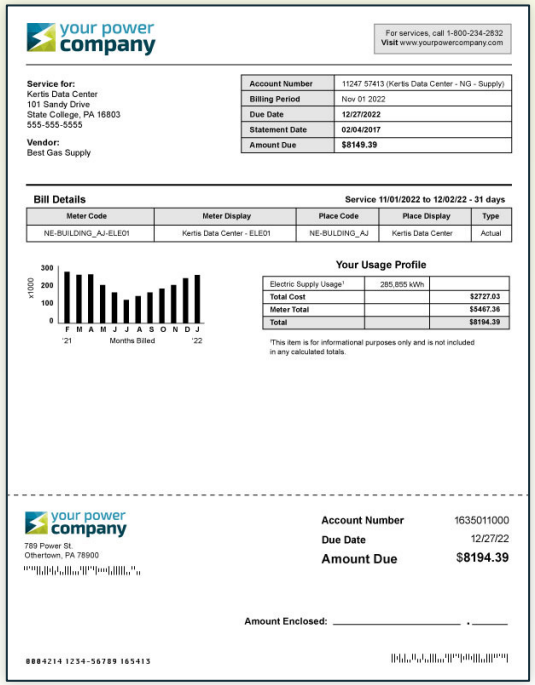
Paper/PDF/Scans

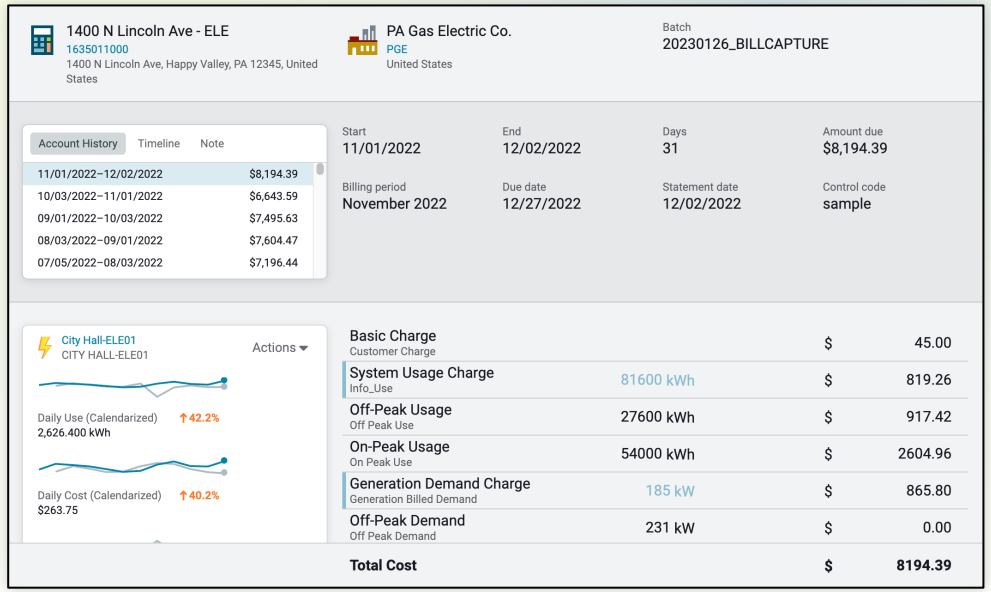
FTP

Website Upload

Email

Mail Reroute





OCR Software

	AccountCode	StartDate	EndDate	A/C/E	VENDORCODE	DUEDATE	CONTROLCODE	USE:KWH:Electric Usage	DEMAND:KW:Electric Demand	CHARGE:USDOLLARS:Cost
2	12345-09995	20110701	20110801	A	ELELOCAL	20110816	107808820	3983211	5993	219985.19
3	12345-09995	20110801	20110901	A	ELELOCAL	20110916	250350511	3893899	5860	222456.97
4	12345-09995	20110901	20111001	A	ELELOCAL	20111016	662314443	3522684	5308	225499.63
5	12345-09995	20111001	20111101	A	ELELOCAL	20111116	804474826	3042992	4594	230680.06
6	12345-09995	20111101	20111201	A	ELELOCAL	20111216	352578543	3107560	4690	225494.37
7	12345-09995	20111201	20120101	A	ELELOCAL	20120116	73763808	4002335	6021	198282.46
8	12345-09995	20120101	20120201	A	ELELOCAL	20120216	531811739	3650521	5498	246756.56
9	12345-09995	20120201	20120301	A	ELELOCAL	20120316	358933753	3734493	5623	252957.79
10	12345-09995	20120301	20120401	A	ELELOCAL	20120416	347485659	2961438	4472	272651.25
11	12345-09995	20120401	20120501	A	ELELOCAL	20120516	638219149	3240981	4888	199978.84
12	12345-09995	20120501	20120601	A	ELELOCAL	20120616	152116463	3184985	4805	252677.73
13	12345-09995	20120601	20120701	A	ELELOCAL	20120716	835037114	3799800	5720	188365.95
14	12345-09995	20120701	20120801	A	ELELOCAL	20120816	566381323	3079231	4648	228458.08
15	12345-09995	20120801	20120901	A	ELELOCAL	20120916	347088883	2652243	4012	277768.4
16	12345-09995	20120901	20121001	A	ELELOCAL	20121016	766211372	3749406	5645	175760.82
17	12345-09995	20121001	20121101	A	ELELOCAL	20121116	641702527	3702011	5574	203263

Solution option // Website CAPture

Thousands of supported vendors

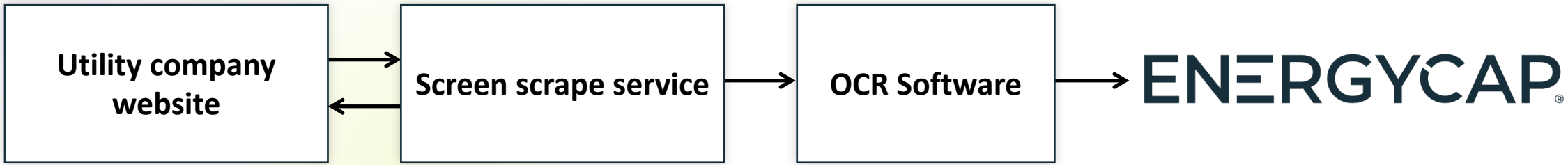
Login using credentials

Download PDF

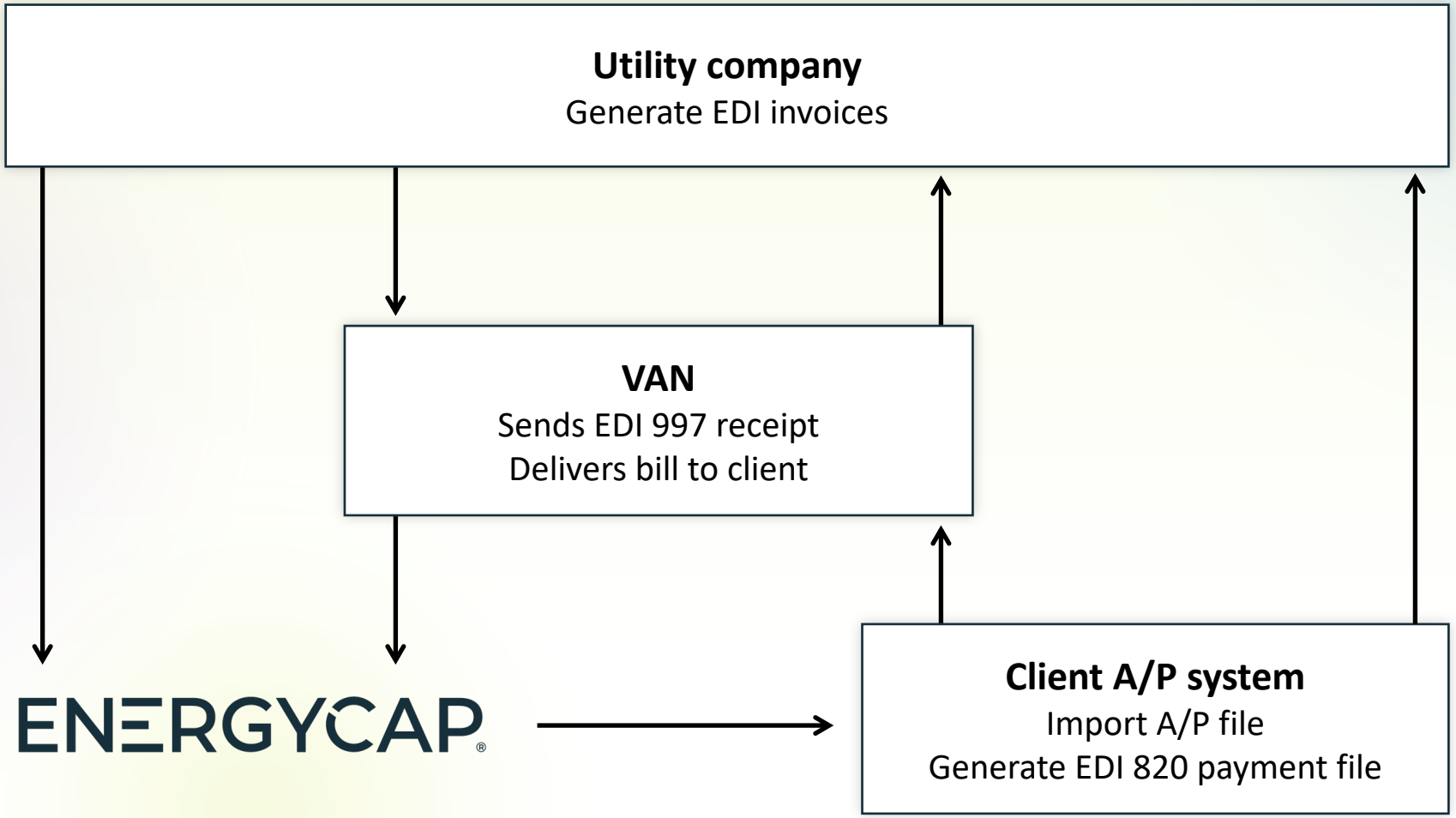
Longer SLA

Considerations for dual authentication and CAPTCHA

~ **14,000** supported utility vendors worldwide



Solution option // EDI 810



Solution option // Flat File Import

7 Lessons learned over 40 years of data processing

EnergyCAP's Mission

Help clients derive value from energy information through technology-based solutions.

Accurate, accessible, and timely energy information.

1. Outsourcing saves time

Takes time to capture bill details, disruptive to bill payment activities

Typical accounting departments and systems don't identify errors or capture the detailed cost and usage on utility bills

Nature of utility bills cause delays, late fees, cumbersome processing

Processes include:

- Incoming mail: receive, open, sort, distribute
- Pre-data entry processing: verify invoice details (names/locations), assign GL codes, assign tax and surcharges, establish batch totals
- Data entry processing: key data, verify data, make necessary data updates, research and reconcile exceptions (errors, duplicates, past due, balance forward, rebills)
- Provide data to energy management

Saves **40+ hours/month**

No longer **manually entering bills**

Bill CAPture service **frees up time to focus on more important job functions**

2. We're human, and software helps catch our errors

The most common source of savings are billing errors. Utility companies are not perfect, and mistakes do happen.

All too often, accounting personnel prioritize on-time payment over verifying a bill's accuracy.

1 of 16
bills are flagged as possible issues

55%
of flagged bills result in action

35,000+
cases of systemic estimated bills

~100,000
duplicate bills have been flagged

Over $166 million of flagged bills were voided

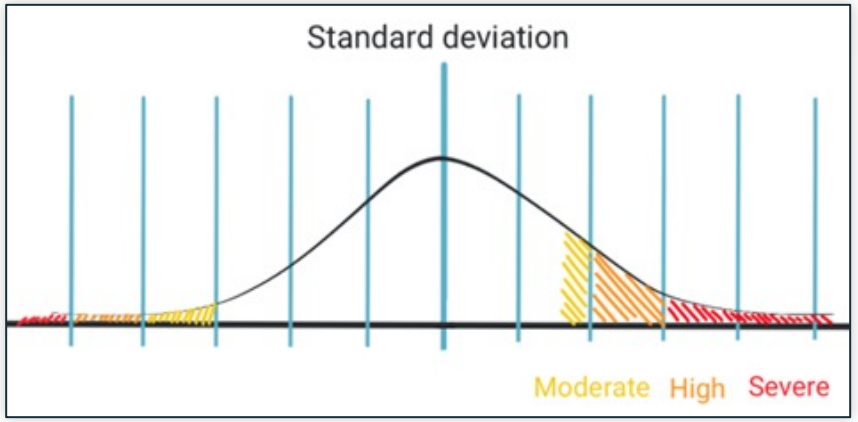
demonstrating cases where customers found problematic bills and were able to cancel the bills before affecting accounts payable and reporting processes.

2. We're human, and software helps catch our errors

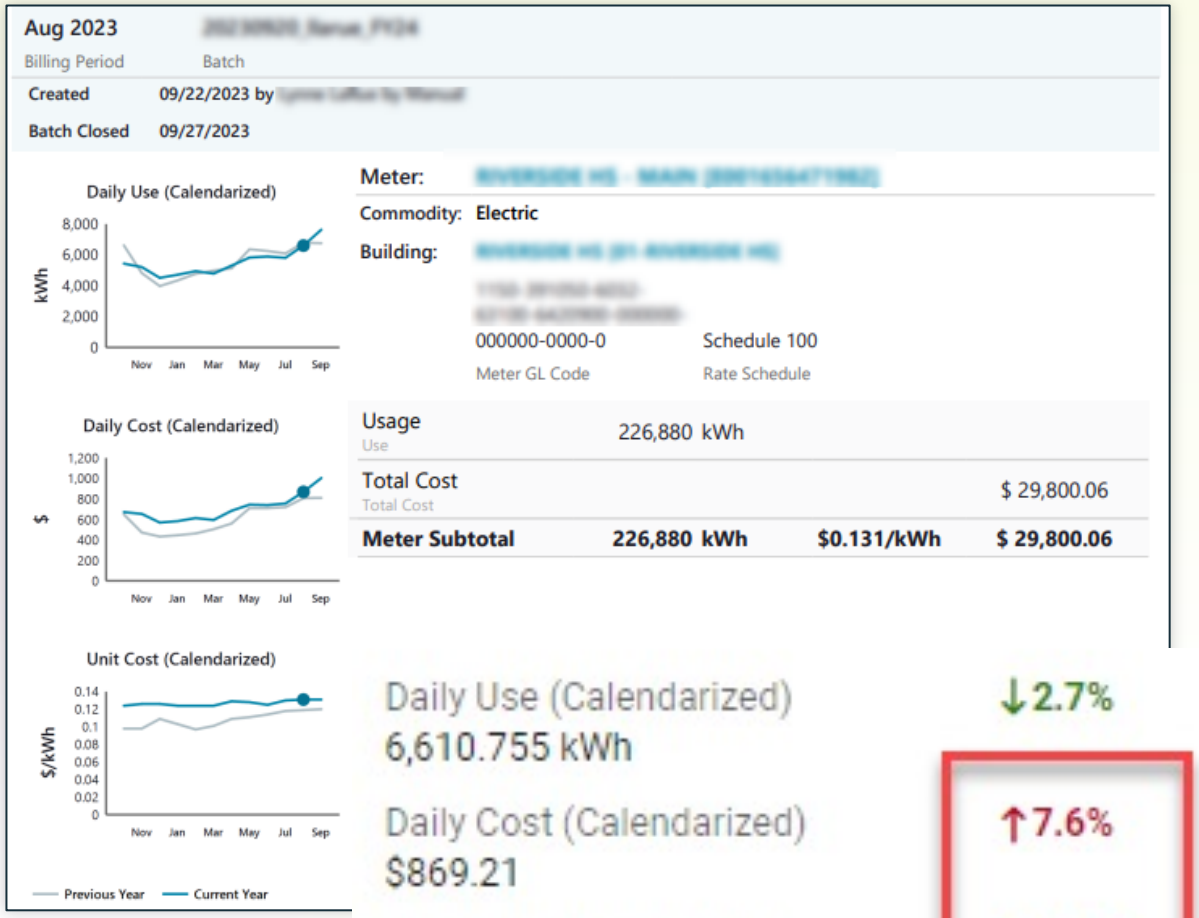
Audits have gotten smarter over time. **Predict** results rather than setting percentages and thresholds.

Advanced outlier analysis is paying dividends for our customers. Over a four-month period…

- EnergyCAP has flagged 5,000 demand outlier bills, 17,000 use outlier bills, and 21,000 cost outlier bills.
- Over 575 customer organizations have been notified about outlier bills.
- Flagged outlier bills have a value of more than $126 million during just the four months of analysis.



3. The devil is in the details



Granularity on bills helps to uncover many issues and answer questions.

- Estimated bills
- Units of measure
- Meter multipliers
- Double-counting use (distribution vs supply)
- Load factor
- Power factor
- Late fees
- Deposits, late fees, and other
- Demand

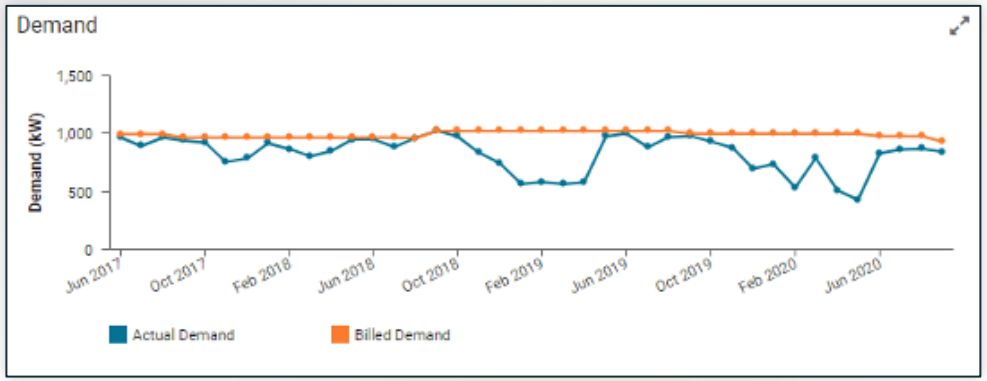
In this example: Why is cost and blended unit cost high when use is low?

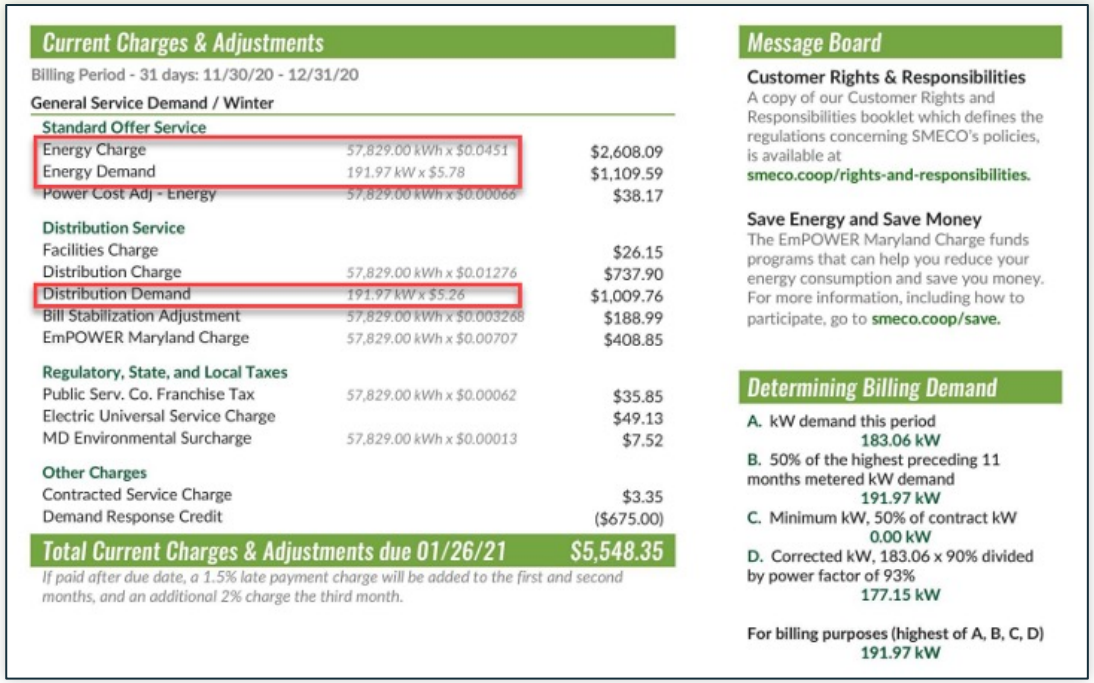
3. The devil is in the details

Details provide for a better understanding of charges and rate structures

Demand related charges usually represent 30–70% of most commercial customers' electric bills

Billed vs Actual demand is important to understand, 'demand rachet' can be the costliest component of your bill





Current Charges & Adjustments

Billing Period - 31 days: 11/30/20 - 12/31/20

General Service Demand / Winter

Standard Offer Service		
Energy Charge	57,829.00 kWh x $0.0451	$2,608.09
Energy Demand	191.97 kW x $5.78	$1,109.59
Power Cost Adj - Energy	57,829.00 kWh x $0.00066	$38.17
Distribution Service		
Facilities Charge		$26.15
Distribution Charge	57,829.00 kWh x $0.01276	$737.90
Distribution Demand	191.97 kW x $5.26	$1,009.76
Bill Stabilization Adjustment	57,829.00 kWh x $0.003268	$188.99
EmPOWER Maryland Charge	57,829.00 kWh x $0.00707	$408.85
Regulatory, State, and Local Taxes		
Public Serv. Co. Franchise Tax	57,829.00 kWh x $0.00062	$35.85
Electric Universal Service Charge		$49.13
MD Environmental Surcharge	57,829.00 kWh x $0.00013	$7.52
Other Charges		
Contracted Service Charge		$3.35
Demand Response Credit		($675.00)

Total Current Charges & Adjustments due 01/26/21 $5,548.35

If paid after due date, a 1.5% late payment charge will be added to the first and second months, and an additional 2% charge the third month.

Message Board

Customer Rights & Responsibilities
A copy of our Customer Rights and Responsibilities booklet which defines the regulations concerning SMECO's policies, is available at **smeco.coop/rights-and-responsibilities.**

Save Energy and Save Money
The EmPOWER Maryland Charge funds programs that can help you reduce your energy consumption and save you money. For more information, including how to participate, go to **smeco.coop/save.**

Determining Billing Demand

A. kW demand this period
183.06 kW
B. 50% of the highest preceding 11 months metered kW demand
191.97 kW
C. Minimum kW, 50% of contract kW
0.00 kW
D. Corrected kW, 183.06 x 90% divided by power factor of 93%
177.15 kW

For billing purposes (highest of A, B, C, D)
191.97 kW

3. The devil is in the details

Interval data allows for more granular monitoring

Monitoring fuels behavior changes

Understand the exact time periods for billed demand, what activities are going on, and what equipment is causing spikes

Be alerted prior to events and spikes occurring

4. Effective leaders make data-driven decisions, faster

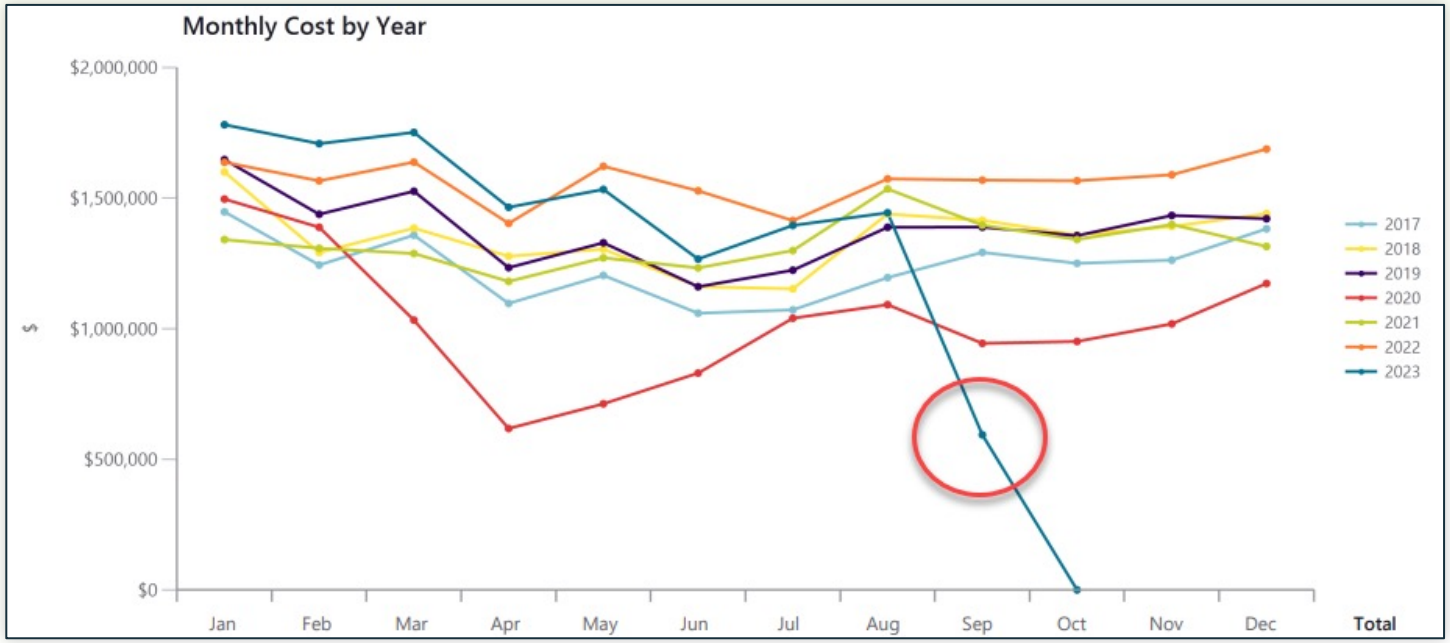
Report current data.

Bills entered, audited, validated, and ready for reporting 1–7 days after vendor generates as opposed to weeks when receiving paper mail and manual processing.

Improve time efficiency and accuracy of records.

Use the same data as finance, more trust in data for energy reporting.

> *We now spend more time evaluating utility vendor data than processing."*



5. Better data = better processes (auto-entry, audits and approvals)

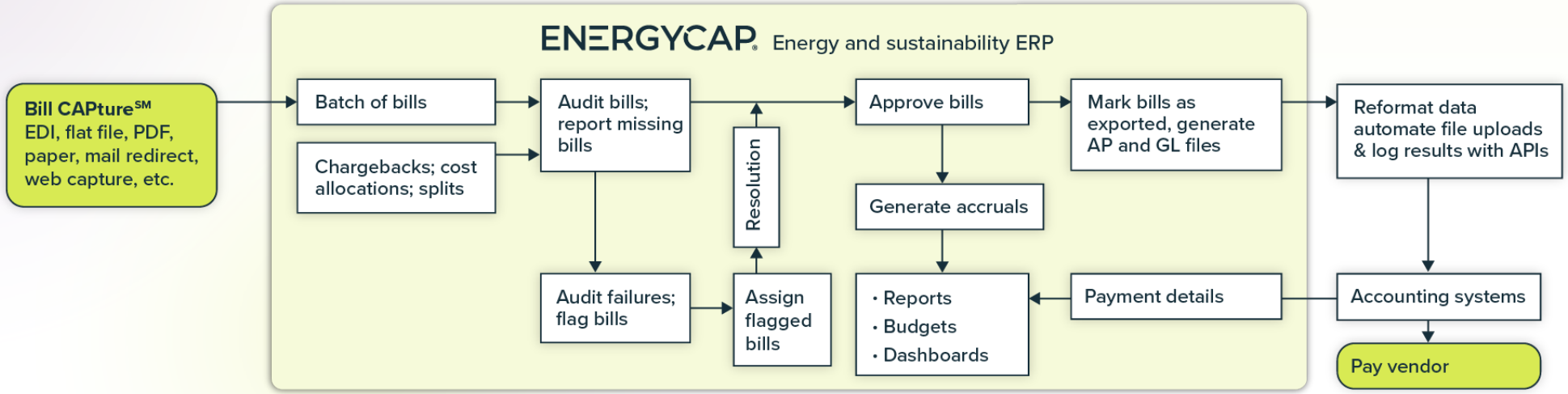
One point of entry.

Facilitate the introduction of new robust processes related to invoice processing and reporting.

Eliminate late fees and other invoice payment issues, properly handle cancelled bills and rebills, accurate accounting of deregulated accounts.

Ensure that your utility bills are audited and approved before they are paid.

Processes for overdue and missing bills.



6. Expanding your "team" is possible without hiring

Automated alerts and notifications, report distributions, and workflow dashboard widgets help but there is still a labor component with streamlined processes.

Many nuisances with utility bills makes it challenging to hire. Additional issues with turnover, hiring, onboarding, and continued education.

Our expert team can identify missing or overdue bills, engage with your utility vendors, and monitor and address bill issues. **EnergyCAP can function as a PTE or FTE on your behalf.**

More cost effective than staffing.

Removes issues of staffing retention.

7. Spend your time on things that matter most

Monitor consumption and costs

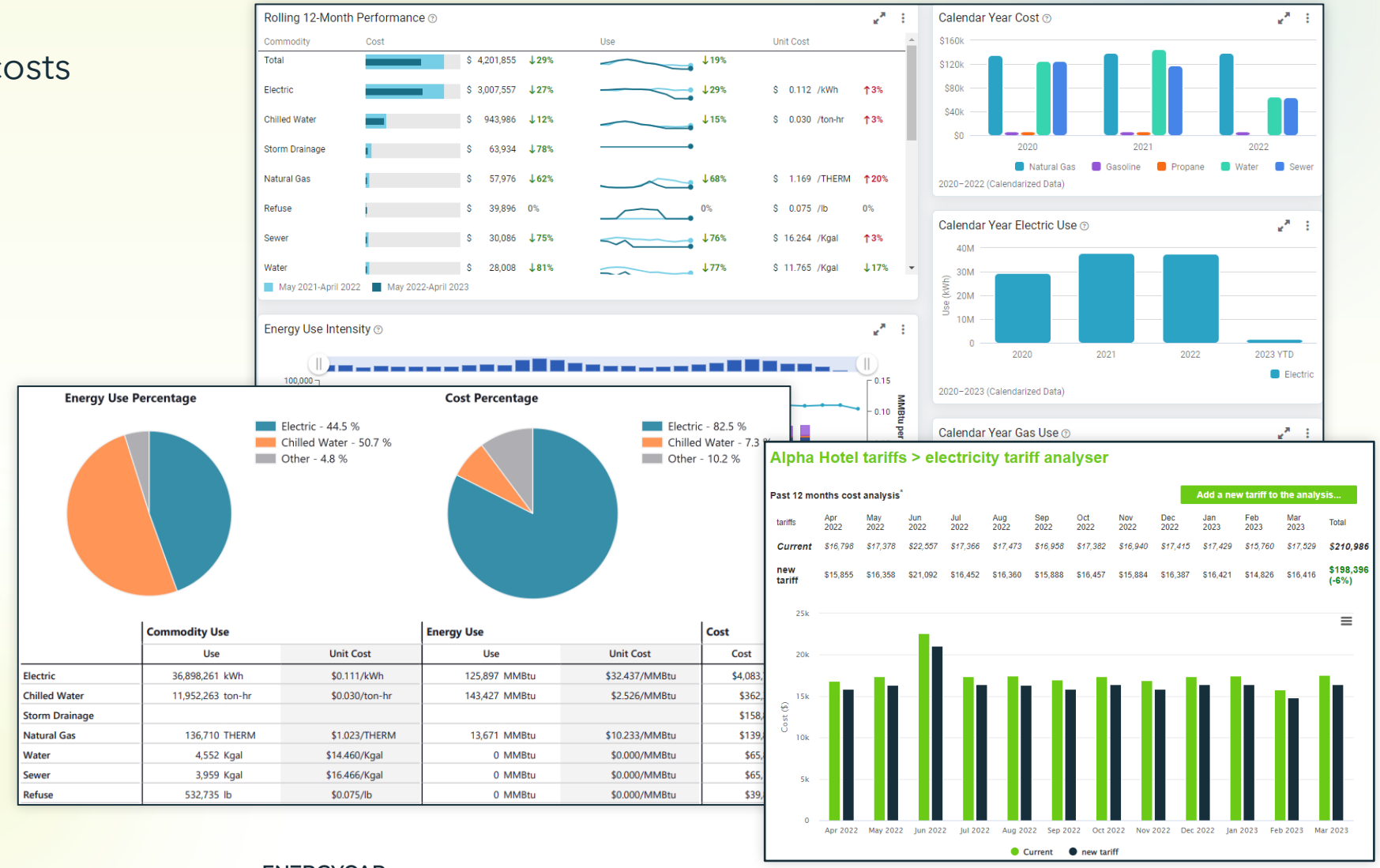
Rate optimization

Energy efficiency projects

Benchmarking

Compliance reporting

Etc….



ROI // Cost vs. savings

To calculate your internal utility bill processing cost, you must define the functional components of processing and paying a utility invoice.

Invoice processing activities:

- Direct labor costs: Receipt, processing, entry
- Indirect labor costs: QC, exceptions, imaging, support services
- Equipment costs: PCs, scanners, telecommunications
- Postage and supplies costs
- Administrative and overhead costs: Supervisory, software, occupancy, training
- Other costs: Bank fees, PO box

Experts estimate that the cost to process and pay one utility bill is **$10–$20**, when labor, IT, equipment, and postage costs are accounted for.

CATALYST

Thank You!