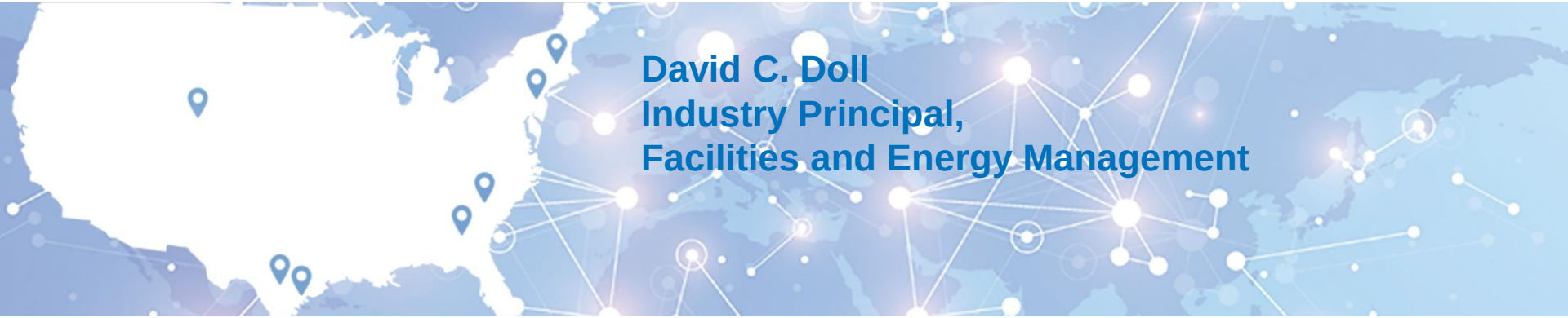
Transform Your Facilities

The Convergence of IT and OT

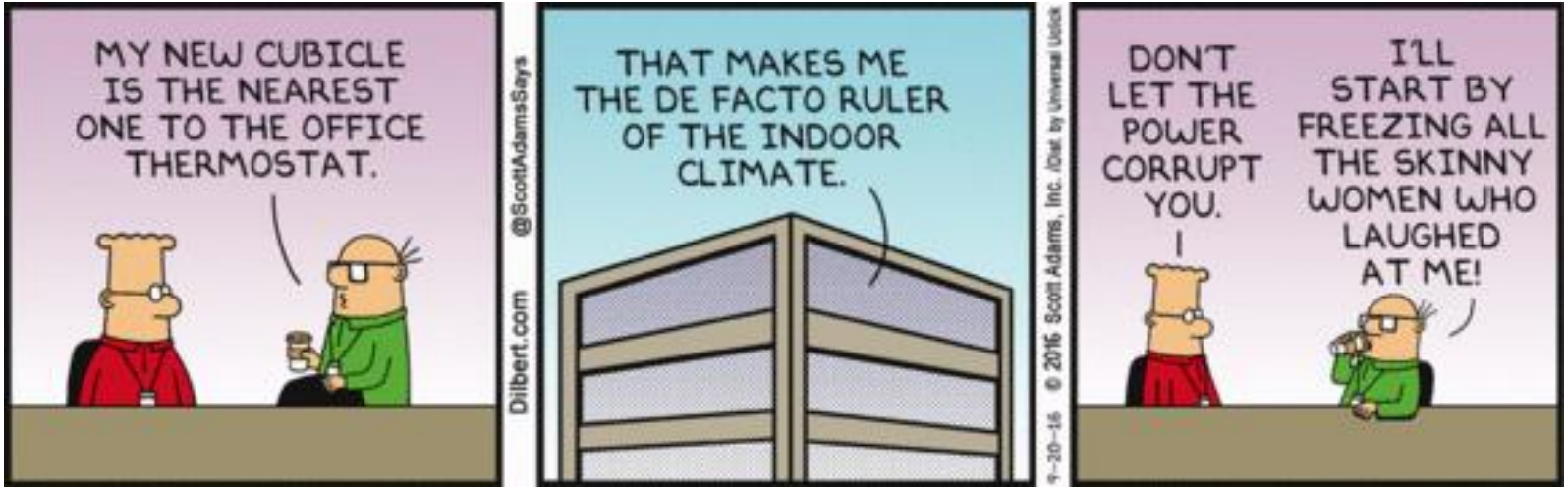


David C. Doll
Industry Principal,
Facilities and Energy Management

OSIsoft.

What's the Problem?

The State of the World: Controlled by a Little Box



How Big is the Problem? BIG!

6
MILLION
commercial buildings and industrial facilities in the United States[1]

40%
percentage of all U.S. greenhouse gas emissions that are caused by commercial and industrial buildings[3]

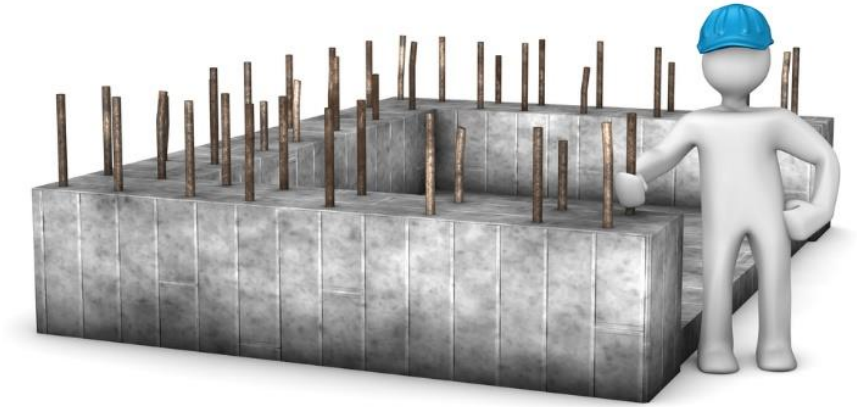
$400
BILLION
combined annual energy costs of commercial and industrial facilities[2]

30%
portion of energy in commercial and industrial buildings used inefficiently or unnecessarily[4]

Energy Waste is Significant Across All Industries

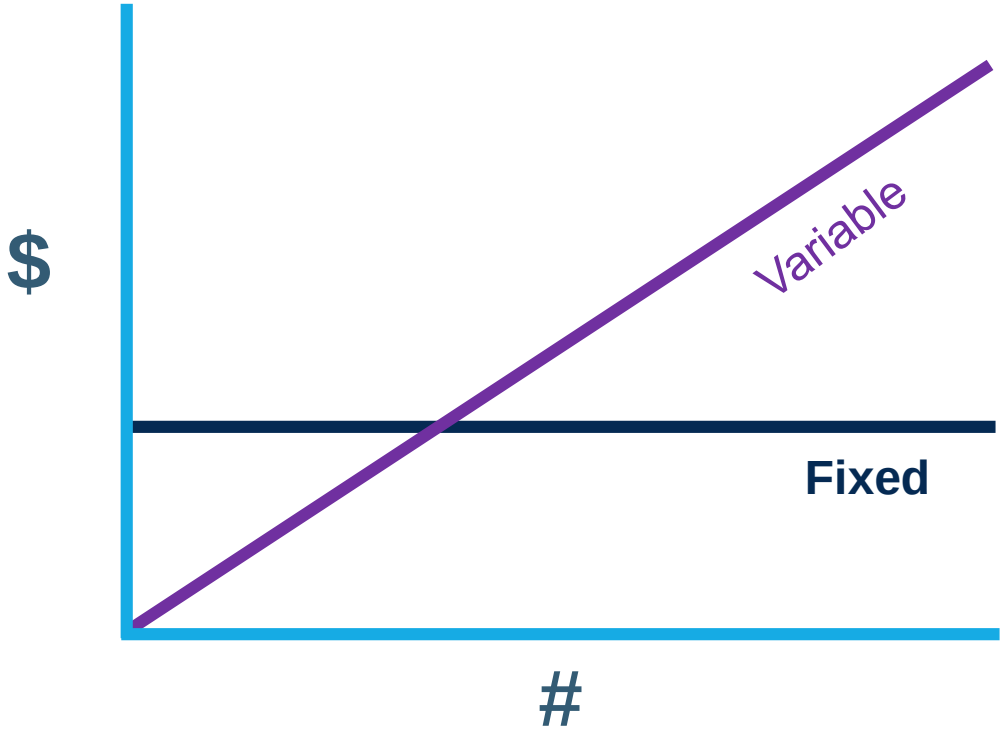
INDUSTRY	ENERGY INTENSITY Energy Cost as Percentage of Total Product Cost	IMPROVEMENT POTENTIAL OECD Countries
Chemical and Petrol Chemical	50%-85%	9%-25%
Petroleum Refining	50%-60%	10%-25%
Non-Ferrous Metals	30%-50%	5%-35%
Iron and Steel	10%-30%	10%
Cement	25%-50%	20%
Glass	7%-20%	30%-35%
Pulp and Paper	15%-35%	25%
Textile	5%-25%	10%
Food and Beverage	1-10%	25%
Automotive	1-10%	10%-15%

Source: LNS Research, “Top Strategies for Energy Intelligence”

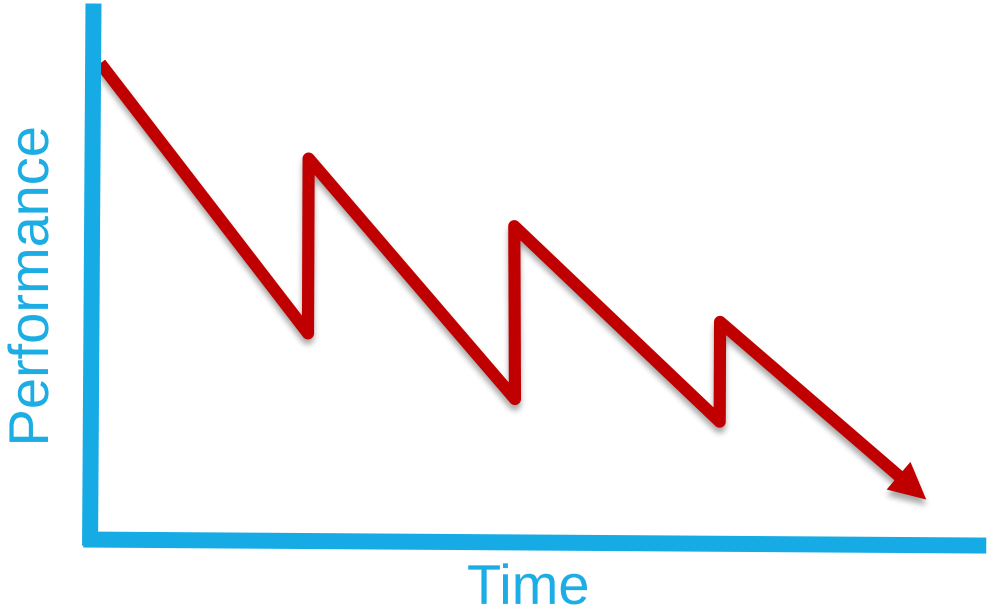


Foundational Concepts

Rule #1: Energy Is Not a Fixed Cost



Rule #2: Everything Fails



Rule #3: Understanding Sensor Data

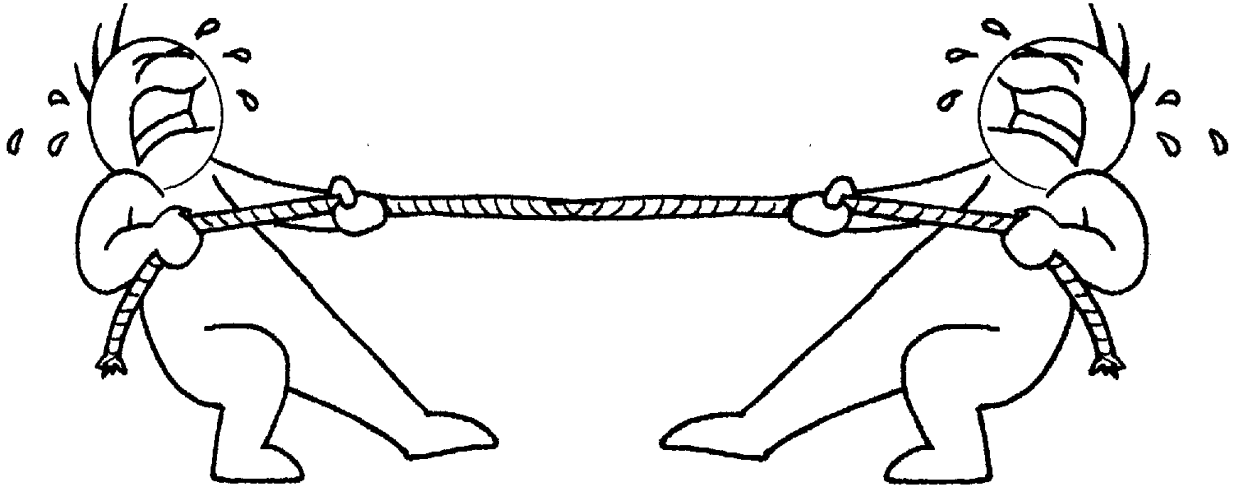
IT Systems

Relational Data
Record-based
Data sets

OT Systems

Time-based
Streaming
Unpredictable

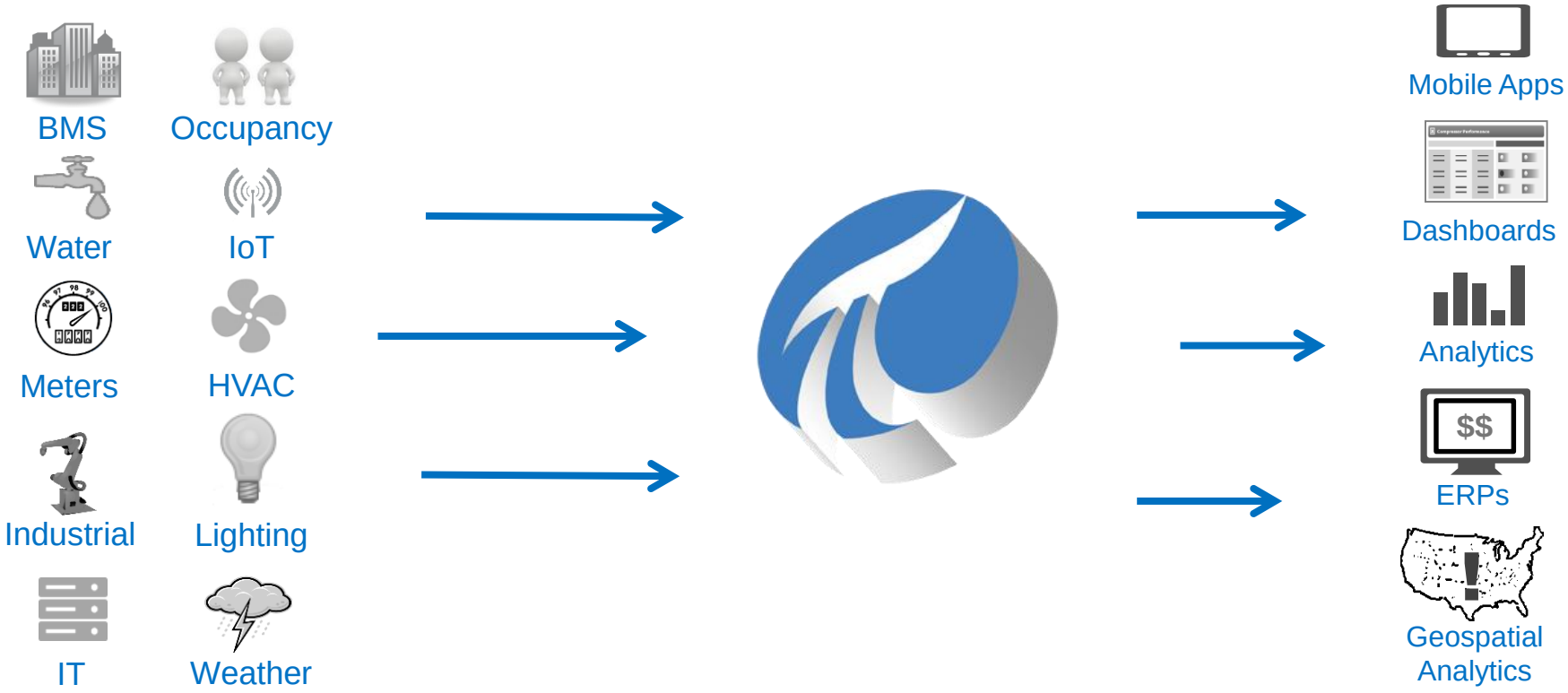
Rule #4: Help Them Help You



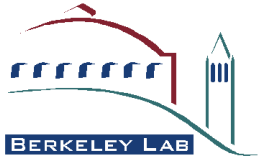
Efficiency Consumption

The PI System for Facilities and Energy Management

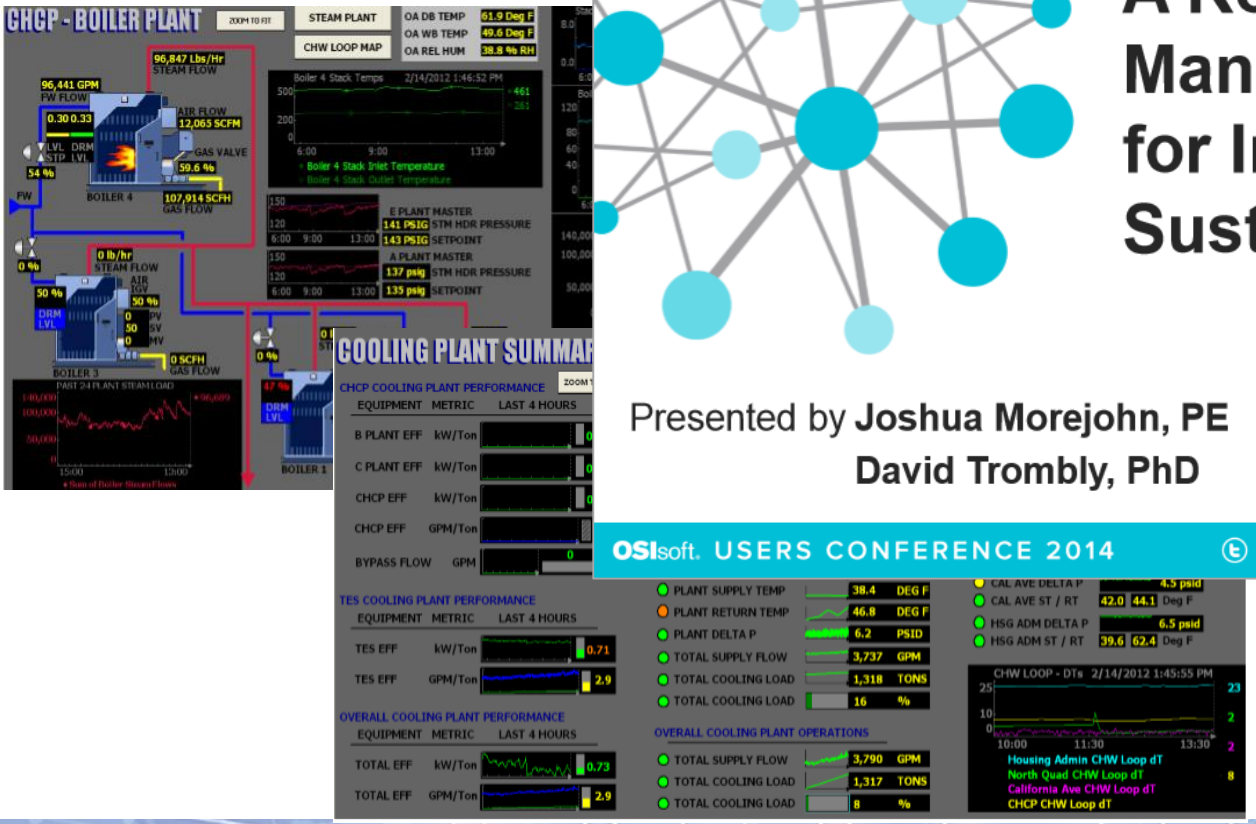
The PI System is the Common Infrastructure



A Wide Range of Customers in the Energy Space



Success Stories



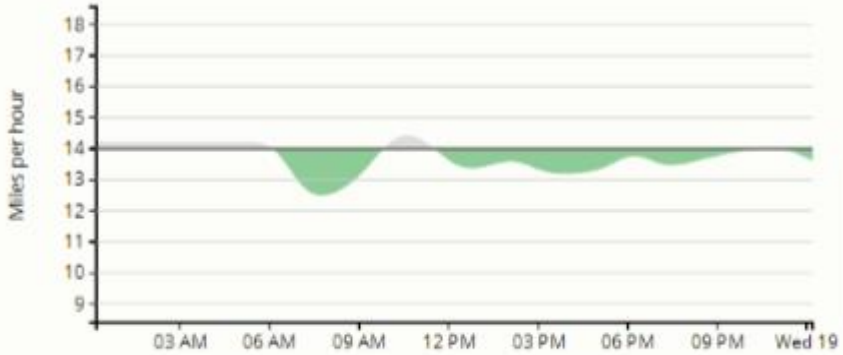
A Robust Data Management System for Integrating Campus Sustainability Goals

Presented by **Joshua Morejohn, PE**
David Trombly, PhD

UC DAVIS

OSIsoft. USERS CONFERENCE 2014 @OSIsoftUC | #UC2014

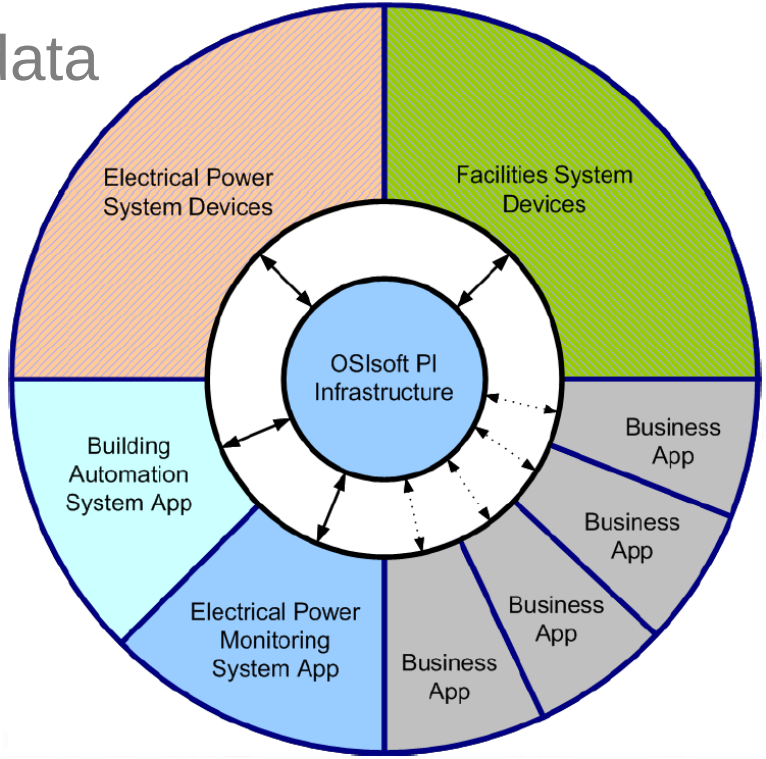
This graph is a comparison of your current energy demand and your daily goal. If your energy demand is below your goal and the area on the graph is green, you're doing great!



ebay™

All Critical Data Sources Feed into the PI System

- Building system data
- Electricity data
- IT data



INFRASTRUCTURE

ENERGY SUPPLY	DATA CENTER EFFECTIVENESS	INFRASTRUCTURE LOAD
CLEAN ENERGY 0.7 %	PUE 1.57 -2%	ACTIVE BUYERS 131 Million +13%
GRID 99.3 %	WUE 2.91 L / kWh -8%	SERVERS 52,53 +18%
	CUE 1.08 kg CO2e / kWh +4%	POWER 20.2 MW +18%

REVENUE

PER ACTIVE BUYER	PER SERVER	PER MWH
$12.04 -2%	$29,981 -7%	$35,617 -7%

SINESS KPIs

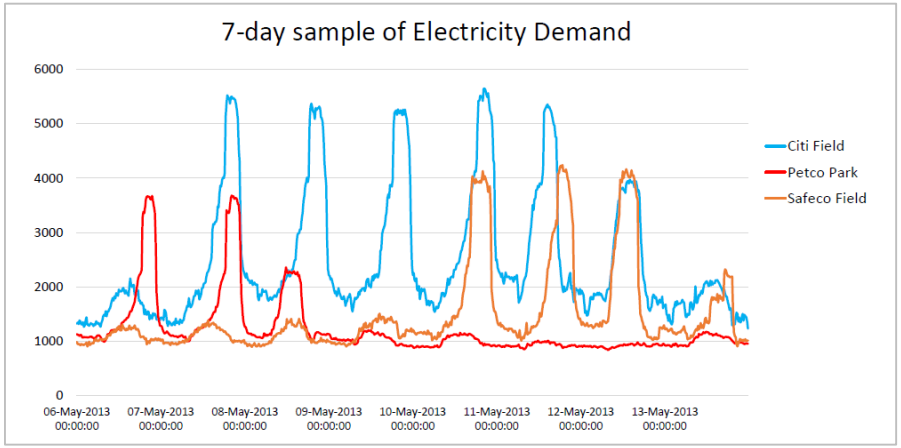
	COST	CARBON
ER ACTIVE BUYER	8 % +8%	PER MILLION ACTIVE BUYERS 184 Tonnes +21%
PER SERVER	2 % +2%	PER SERVER 0.46 Tonnes +16%
PER MWH	2 % +2%	PER MWH 0.55 Tonnes +16%

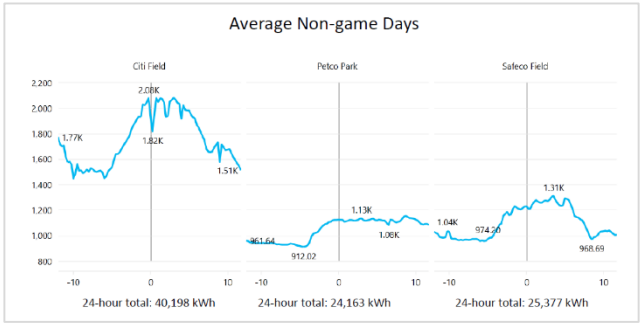
"How we operate the building makes a difference on our bottom line."

-Scott Jenkins

GREEN SPORTS ALLIANCE

MLB: Self-Service Intelligence





“That's going to enable 29 other teams to adopt the kind of behavior that’s helped us return more than $1.5 million to our bottom line in just 4 years.”

- Scott Jenkins, VP Operations Seattle Mariners

"Working to **25% less water** consumption, **40% less CO2** in production, and **20% less CO2** in distribution."

- Consuelo Carmona Miura, Heineken

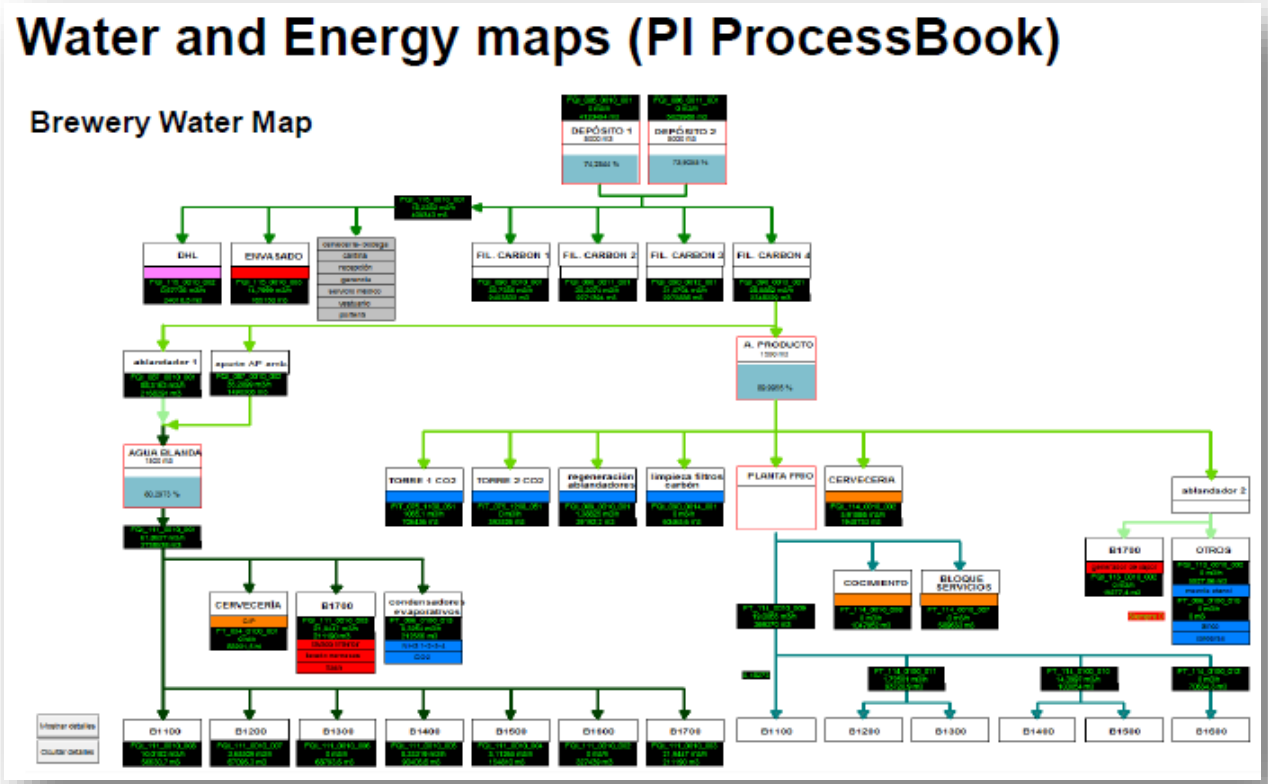
I said, “Come on! This is what I’m looking for!”

HEINEKEN

Real-time Water and Energy Mapping

HEINEKEN

Water and Energy maps (PI ProcessBook)



Wrap-up

What Did We Cover?

1. Energy is a variable cost

2. Everything fails

3. Understanding sensor data

4. Help them help you

감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado

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Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please don't forget

Complete the post event survey