

# REDUCING POWER QUALITY INCIDENTS THROUGH LOCAL POWER QUALITY COMMUNITIES

**Andrew Taylor,**  
CEO, Applied Power  
Technologies, Inc.

**Rick Turner,**  
Senior Manager of Site  
Operations, NetApp

**Don Bray,**  
Executive Director, Joint  
Venture Silicon Valley

**Larry Owens,**  
Manager of Energy Services,  
Silicon Valley Power

**Kerry Haywood,**  
Executive Director, Moffett  
Park Business Group



# ANDY TAYLOR

**CEO, Applied Power Technologies, Inc.**

Andy Taylor, CEO of APT, is a registered professional electrical engineer in the State of California since 1994 with over 25 years of experience in facilities, manufacturing, and utility engineering. He has a bachelor's degree in electrical engineering from the University of Idaho, and a master's degree in manufacturing systems engineering from Stanford University.

Andy's professional background includes nearly a decade at Intel Corporation in various positions in facilities and manufacturing as well as experience as a consulting electrical engineer for Quasar Engineering and ABB Impell. As a seasoned professional skilled in both facilities management and manufacturing systems improvement, Andy is able to apply his experience to provide flexible and creative solutions, which have been formally recognized and awarded by clients and employers alike.



# DON BRAY

## Executive Director, SEEDZ, Joint Venture Silicon Valley

Don Bray serves as Executive Director for Joint Venture Silicon Valley's Smart Energy Enterprise Development programs (SEEDZ Initiative). The SEEDZ Initiative brings together a broad coalition of business, governmental, institutional and utility stakeholders to focus on shared solutions for advanced energy system performance and sustainability. This includes electric vehicle infrastructure, energy efficiency, community-based renewable energy systems, and power quality.

Don brings an extensive background in clean technology, systems integration, and business consulting to this role. In 2007, he co-founded AltaTerra Research, publishing a wide range of market research reports on emerging business solutions for energy and resource efficiency, sustainability, and commercial-scale renewable energy. Prior to AltaTerra, Don was a Managing Partner at Accenture. Over 22 years, Don was instrumental in building Accenture's high technology industry practice in Silicon Valley, architecting and delivering global-scale business transformation and technology integration programs.

Don holds an MS in Engineering Management from Stanford University, and a BS in Civil and Environmental Engineering from the UC Davis.



# KERRY HAYWOOD

## Executive Director of the Moffett Park Business Group

Kerry is currently Executive Director of the Moffett Park Business Group (MPBG) located in Sunnyvale, California. The MPBG is a membership-driven organization, committed to supporting the social, environmental, and economic health of our community through mutual cooperation and advocacy. We address common business concerns within the Moffett Park area, with a focus on development, sustainability, community engagement, and improved mobility. As Executive Director, Kerry has worked on a wide variety of issues, including power quality, transportation infrastructure improvements, emergency response and building development policy.

Kerry became Executive Director of MPBG in March 2006. Prior to coming to MPBG, Kerry worked in the airline industry for ten years for Southwest Airlines. There she worked in training, management and ground operations. She holds a B.A. in Rhetoric from the University of California, Berkeley.



# RICK TURNER

## Senior Manager of Site Operations, NetApp

Richard is Senior Manager of Site Operations @ NetApp, Inc., located in the heart of Silicon Valley with offices worldwide. As Sr. Site Operations Manager, he was one of the primary architects of the facility operations group at NetApp, developing and leading a group of contracted facility professionals who demonstrate through measured performance, is an organization that can be counted with “Best in Class” organizations.

Richard brings a unique set of skills to the position with his background and experience in service Contracting, Facility Management and Operations. During his career, he has successfully transitioned his experience and skills into different high tech industries from Semi-Conductor to Pharmaceutical and Information Technology.

During his career Richard was one of the Project Managers responsible for design and construction of one of Silicon Valley’s first sub-micron clean rooms which is portrayed in the book entitled “Silicon Valley Inventing the Future” (page 368 “Integrated Device Technology”) ~ published in 1992 ~ written by Jean Deitz and John Kevin Waters.

Richard co-authored a technical paper entitled “Building a Facility for the Future in the Floor Space of the Present”, and was a contributor to SEMICON West 1996 technical program panel on the subject of design, protocols and installation techniques related to ultra-pure gas distribution systems.

Born and raised in Silicon Valley, he served four years in the United States Army before attending the University of Maryland, later San Jose State and finally and most impacting to his career (as he will attest), the “University of Hard Knocks”, Silicon Valley.



# LARRY OWENS

## Manager, Customer Services and Marketing, Silicon Valley Power

Larry Owens' work at Silicon Valley Power (SVP), the Electric Utility of the City of Santa Clara began over 20 years ago just after completing a Bachelor of Science Degree in Environmental Studies. Larry oversees SVP's full range of services for all customer segments large and small including energy-efficiency and renewable energy programs, customer communications, dark fiber leasing services, and customer-facing online information products and services. Larry also championed SVP's Power Quality Alert program and the SVP MeterConnect program for "smart grid" technologies that brought free outdoor Wi-Fi to the entire city, he lead the effort to bring Google Fiber to Santa Clara and also proactively represents SVP in the media.



# SEEDZ BACKGROUND



## JVSV Smart Energy Enterprise Development Zone Goals:

- Build key elements of a more sustainable, high-performance 'energy network of the future' here in Silicon Valley
- Accelerate deployment of smart energy elements on a community/regional scale
- Serve as a smart energy 'innovation and collaboration platform' for local C&I energy customers, municipalities, institutions, solution providers, and utility interests



# SEEDZ TRANSFORMATION PRIORITIES

## 'Smart' Energy Network of the Future . . .

✓ Integrated ✓ Renewable ✓ Distributed ✓ Community-scaled ✓ Efficient



- Renewable energy
- Electrification of transportation
- Building energy efficiency and load management
- Dynamic, high-performance grid





# SEEDZ ZONE

## Geography

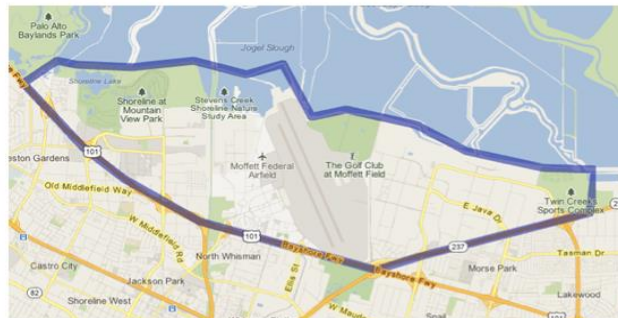
- Local community involvement
- North Sunnyvale, North Mountain View
- Includes leading high-tech companies

## SEEDZ ZONE PROFILE

### SEEDZ Geography and Energy Demographics

Located in the heart of Silicon Valley, the SEEDZ initiative is centered on a zone spanning north Sunnyvale, north Mountain View and Moffett Field, California.

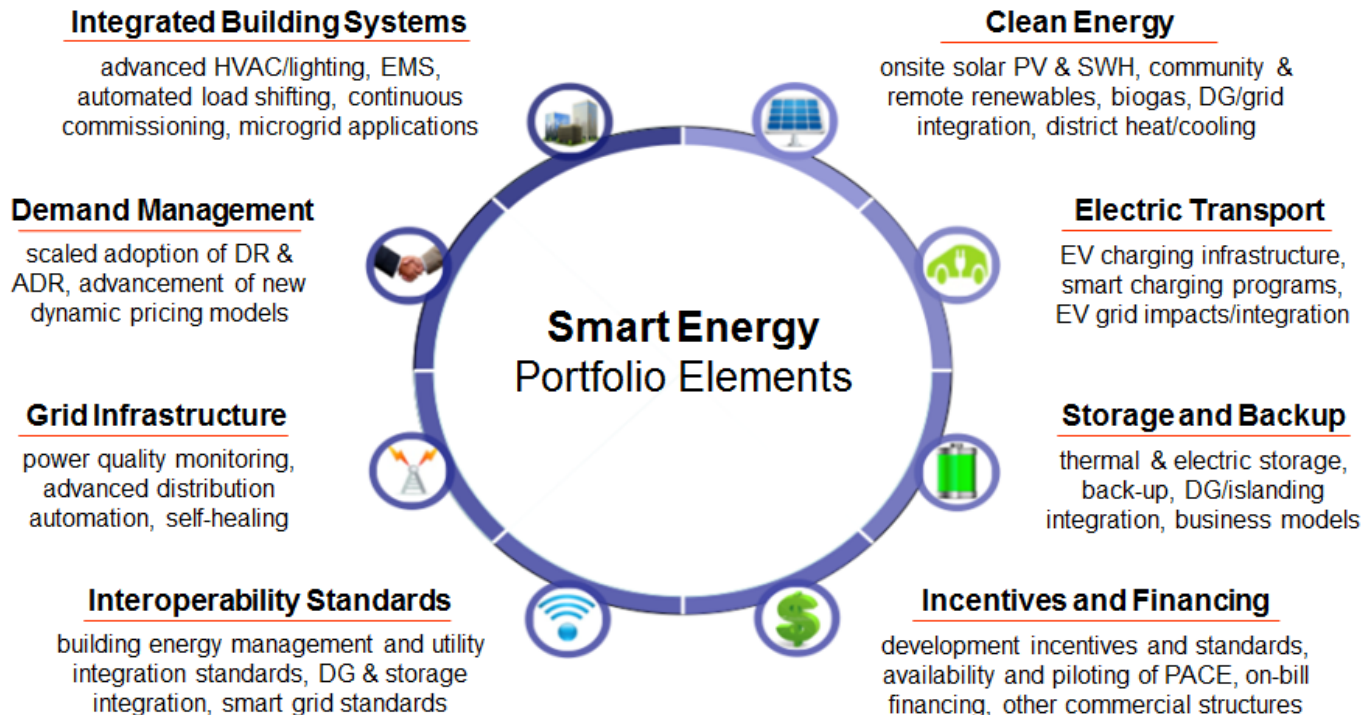
Primarily a commercial and industrial area, the zone is home to leading high-technology companies including Google, Juniper Networks, Yahoo!, NetApp, LinkedIn, Intuit and Bloom Energy, and R&D campuses for such organizations as NASA, Lockheed, Hewlett-Packard, Microsoft, Amazon, and Carnegie Mellon University.



This area is especially well suited for development, demonstration, and commercial-scale implementation of new smart energy solutions.



# SEEDZ ELEMENTS . . .



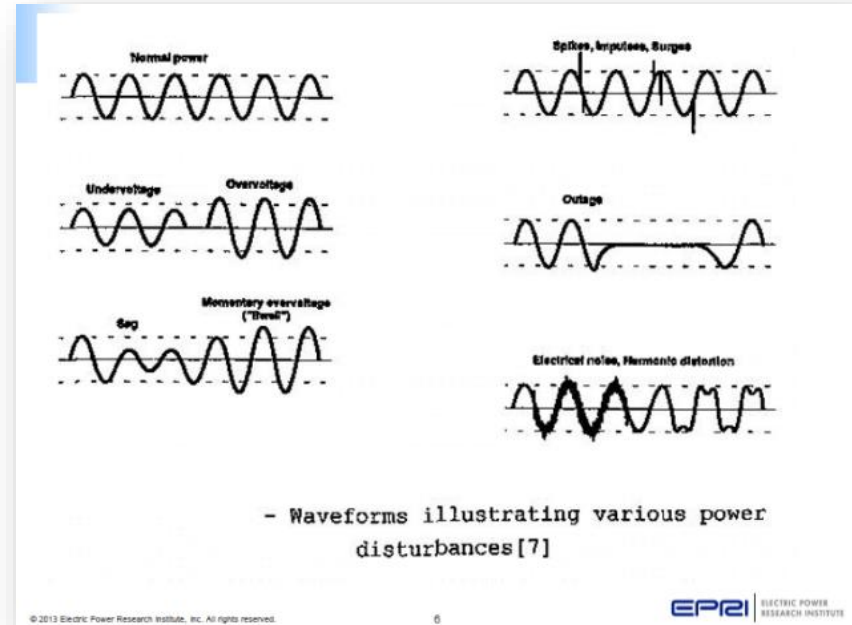
# WHAT IS A POWER QUALITY EVENT?

## Power Quality Event:

- Any occurrence manifested in voltage, current or frequency deviations which results in failure or mis-operation of end-use equipment.

## Types of Events:

- Power Outage
- Voltage Sag (most common)
- Voltage Swell
- Voltage Transient
- Harmonic Distortion
- Electrical Noise



# POWER QUALITY PORTAL

## Power Quality Community

- Three levels of involvement
- Shows power quality incidents
- Local community involvement

[Recipeanalytics.com/seedz](http://Recipeanalytics.com/seedz)

**RECIPE** Products News About PQ Community Register Log In

**SEEDZ** Power Quality Monitoring **APT** Contact us »

In cooperation with Joint Venture Silicon Valley's Smart Energy Enterprise Development Zone (SEEDZ) initiative, Applied Power Technologies, Inc. created a web-based power quality monitoring system that shares the impact of electrical reliability between community members. This service is for utility users who want to understand if outages and events impact the whole community, or just them. A subscription to our secure, remotely hosted web portal provides notification, impact reports, and root cause analysis.

**Alert \$50/month**

- Email alerts of power quality incidents
- Single email account

**Impact \$100/month**

- Email alerts of power quality incidents
- Up to five users
- Record impact
- Manually create incidents

**Improve \$200/month**

- Email alerts of power quality incidents
- Up to ten users
- System connection to power quality portal
- Automatic incident reports
- Record impact
- Root cause analysis
- Utility collaboration

Register » Login »

**RECIPE** Incidents 8/1/2016 - 1/20/2017

Note that only incidents outside the CBMA/ITC zone will be reported through email.  
Planned events (for utility users) are not shown on the CBMA/ITC grid.

Incident	Account	Duration	Cycles	Outage	Planned	All events	Date	Time	Info	Your Impact?	All impact?	Planned?
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2001	Harold	08:00am	3:05	77%			2/19/2016 - Tue	00:41 AM				
2002	Harold	08:00am	3:05	69%			2/19/2016 - Tue	00:42 AM				
2003	APT	08:00am	3:05	77%			2/19/2016 - Tue	00:39 AM				
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2012	Harold	08:00am	3:05	77%			2/19/2016 - Tue	00:39 AM				
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Showing 1 to 24 of 24 entries

Disturbances (2000 CBMA - ITC review)

Download as CSV

**RECIPE** Advanced Virtual Metering and Reporting System  
Inquire for a reseller in your area with an email  
0.0 - 2/3/2016 12:59:11 AM (UTC)

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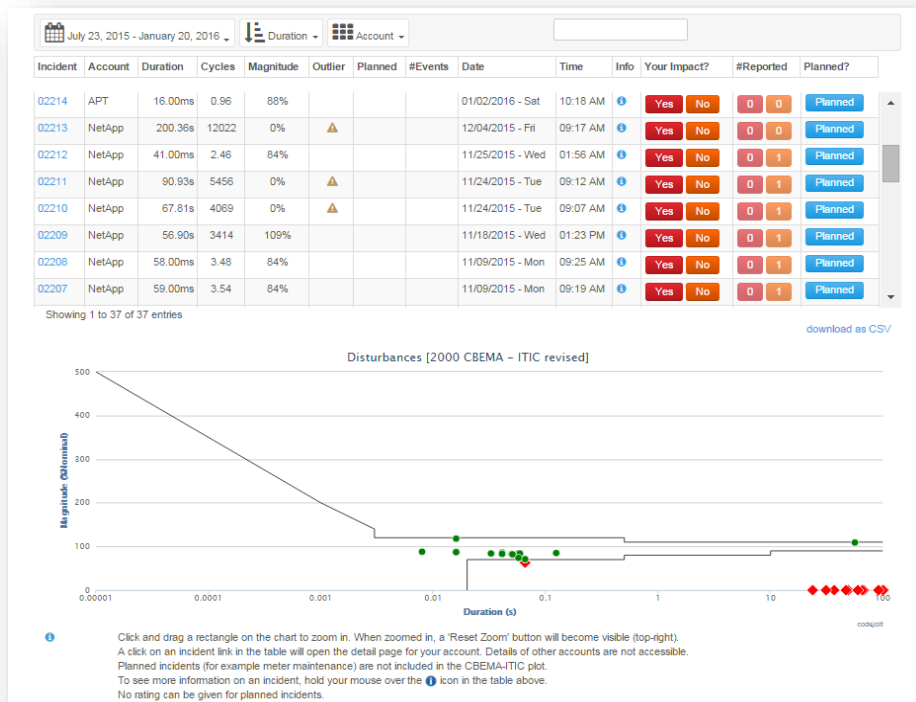
**ALCHEMY**



# RECORDING IMPACT

## How to use the portal

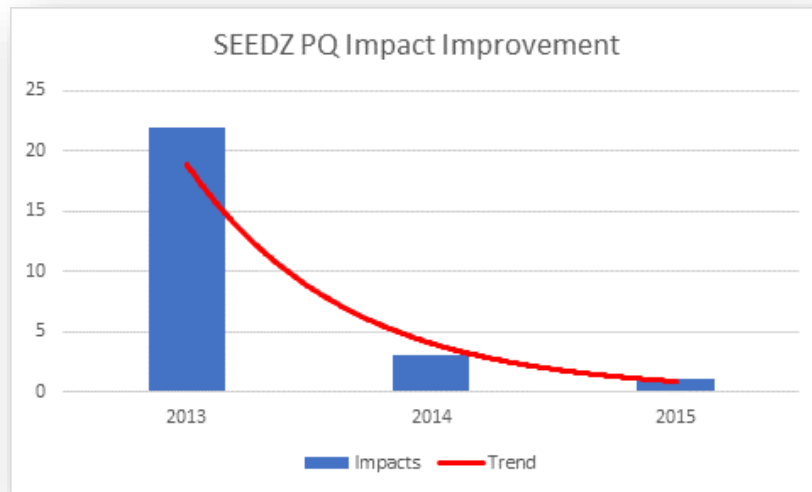
- View specific incidents
- Record your impact
- Add comments



# RESULTS OF SEEDZ

## Impact on Power Quality

- Impact from power quality events reduced nearly 95% between 2013-2015 for NetApp
- Improved communication between stakeholders
- Better understanding of power quality



# SUMMARY

For more information, or a copy of the presentation go to

**[Recipeanalytics.com/seedz](https://Recipeanalytics.com/seedz)**

Or contact [aptsales@apt4power.com](mailto:aptsales@apt4power.com) (408) 342-0790

**[www.apt4power.com](http://www.apt4power.com)**



*Thank You For Attending!*

# PLEASE LET US KNOW HOW WE DID!

*“Reducing Power Quality Incidents Through  
Local Power Quality Communities”*



## 1) WITH YOUR MOBILE DEVICE:

In the TCCLive mobile app, “Agenda” section,  
then tap “Surveys”

- OR -



## 2) FILL OUT THE PAPER VERSION

Given to you at registration

