

PCE 3.3: Reducing Power Quality Incidents Through Local Power Quality Communities

Andy Taylor, CEO
Applied Power Technologies, Inc.



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Reducing Power Quality Incidents Through Local Power Quality Communities

In the Silicon Valley many Fortune 500 companies cannot afford downtime. The lost productivity, damaged equipment, lost data and disruption to business could cost an organization millions of dollars. The quality of service provided by a utility is a crucial factor in the uptime of critical systems. Local Power Quality Communities, also known as Share PQ, can help to reduce the number and severity of incidents and improve the power quality in the region.

Andy Taylor



Andy, CEO of Applied Power Technologies, Inc., 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.

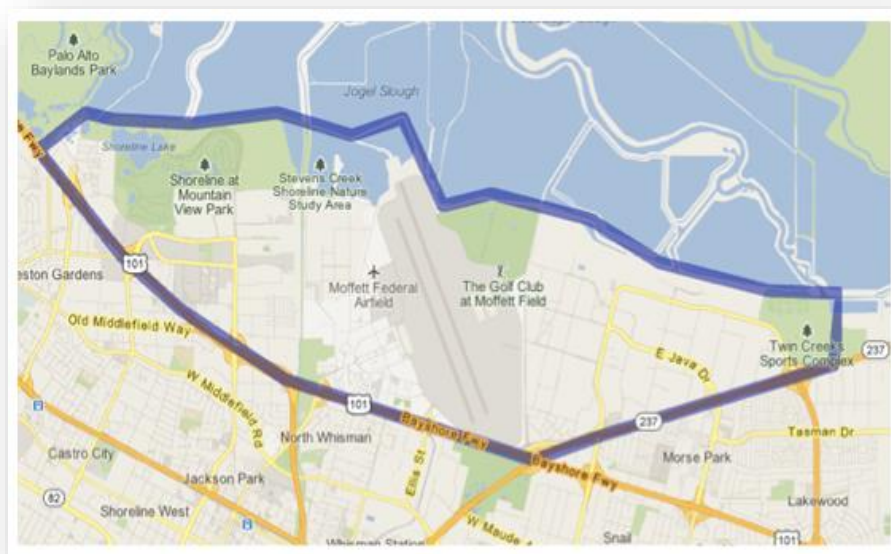
Background of Project



- Smart Energy Enterprise Development Zone (SEEDZ)
- Created in 2012
- Joint Venture Silicon Valley Initiative
- Energy management and sustainability

SEEDZ Zone

- Local Community Involvement
- North Sunnyvale, North Mountain View
- Includes leading high-tech companies



Stakeholders

- Companies/Customers within SEEDZ Zone
- Joint Venture Silicon Valley
- Energy Solutions Providers
- Local Utilities

Power Quality Portal

- Three levels of involvement
- Alerts for Power Quality incidents
- Displays details for each incident
- Local community stakeholder involvement
- Recipeanalytics.com/seedz

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SEEDZ Power Quality Monitoring

APT
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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
- Manual impact
- Manually create incidents

Improve \$200/month

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

Register Login

RECIPE Incidents

Incident	Status	Priority	Severity	Location	Created	Updated	Assigned	Resolved
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM
10/10/2016 10:00:00 AM	Open	High	3	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM	10/10/2016 10:00:00 AM

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Recording Impact

- Incident detail
- Users record their impact
- Add comments
- Planned/unplanned

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Incidents 7/23/2015 - 1/20/2016

Note that only incidents outside the CBEMA-ITIC curve will be reported through e-mail.
Planned events (like utility meter maintenance) are not plotted on the CBEMA-ITIC plot.

July 23, 2015 - January 20, 2016 Duration Account

Incident	Account	Duration	Cycles	Magnitude	Outlier	Planned	#Events	Date	Time	Info	Your Impact?	#Reported	Planned?
02214	APT	16.00ms	0.96	88%				01/02/2016 - Sat	10:18 AM		Yes No	0 0	Planned
02213	NetApp	200.36s	12022	0%	▲			12/04/2015 - Fri	09:17 AM		Yes No	0 0	Planned
02212	NetApp	41.00ms	2.46	84%				11/25/2015 - Wed	01:56 AM		Yes No	0 1	Planned
02211	NetApp	90.93s	5456	0%	▲			11/24/2015 - Tue	09:12 AM		Yes No	0 1	Planned
02210	NetApp	67.81s	4069	0%	▲			11/24/2015 - Tue	09:07 AM		Yes No	0 1	Planned
02209	NetApp	56.90s	3414	109%				11/18/2015 - Wed	01:23 PM		Yes No	0 1	Planned
02208	NetApp	58.00ms	3.48	84%				11/09/2015 - Mon	09:25 AM		Yes No	0 1	Planned
02207	NetApp	59.00ms	3.54	84%				11/09/2015 - Mon	09:19 AM		Yes No	0 1	Planned

Showing 1 to 37 of 37 entries [download as CSV](#)

Disturbances [2000 CBEMA - ITIC revised]

Click and drag a rectangle on the chart to zoom in. When zoomed in, a "Reset Zoom" button will become visible (top-right).
A click on an incident link in the table will open the detail page for your account. Details of other accounts are not accessible.
Planned incidents (for example meter maintenance) are not included in the CBEMA-ITIC plot.
To see more information on an incident, hold your mouse over the **i** icon in the table above.
No rating can be given for planned incidents.

AZZO Advanced Virtual Metering and Reporting System
Contact Azzo at azzo@azzo.com at +1 3 9870 9128 or email
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Case Study - NetApp

- Fortune 500 company
- Located in Silicon Valley (SEEDZ Zone)
- 12,000 employees
- Over \$6B annual revenue



Problem

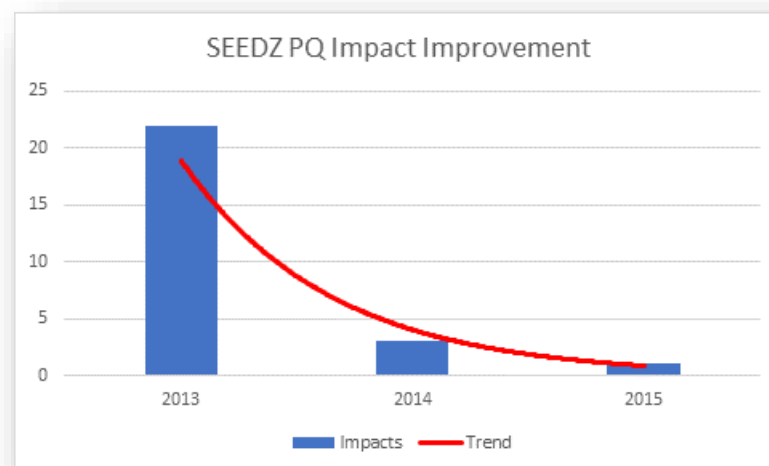
- Critical Facilities
- Downtime can cost hundreds of thousands of dollars
- Regional Power Quality issues
- Lack of insight into power quality incidents

Solution

- Power Quality Community- SEEDZ
- Regional focus
- Collaborative effort and communication between stakeholders
- Access to incident detail information and impact reporting
- Problem identification

NetApp's Results

- Power Quality incident impact reduced by 95%
- Improved communications between stakeholders
- Better understanding of power quality



“The real benefit I see is the increase collaboration between customer and supplier about these types of issues, which at the end of the day drive performance improvement.”

-Richard Turner
Maintenance Manager, NetApp

3 Key Things You Have Learned During this Session

1. How Power Quality Communities can help reduce impact from power quality incidents
2. How NetApp reduced their power quality incident impact by 95%
3. How collaboration with local stakeholders can improve the understanding of power quality

Thank you

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