
SE Browser Trend Search

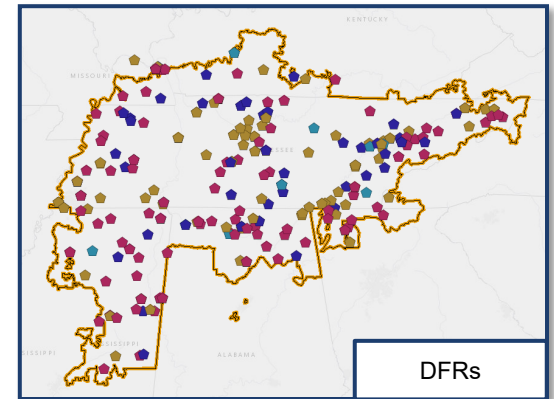
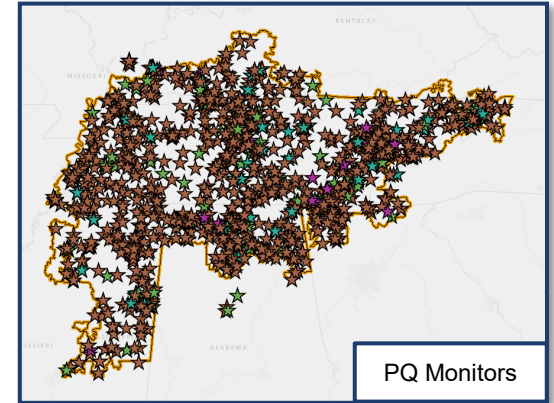
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Trend Search | Business Case

- Responsible for managing the quality of energy delivered to 150+ local power companies and 60+ directly-served industrial customers across the seven-state region
- Visibility provided by data collected from a fleet of field instrumentation
 - 2200+ power quality monitors
 - 250+ digital fault recorders
- Trend data from these devices provides critical input to:
 - Event analysis
 - Asset health
 - Incipient failure detection



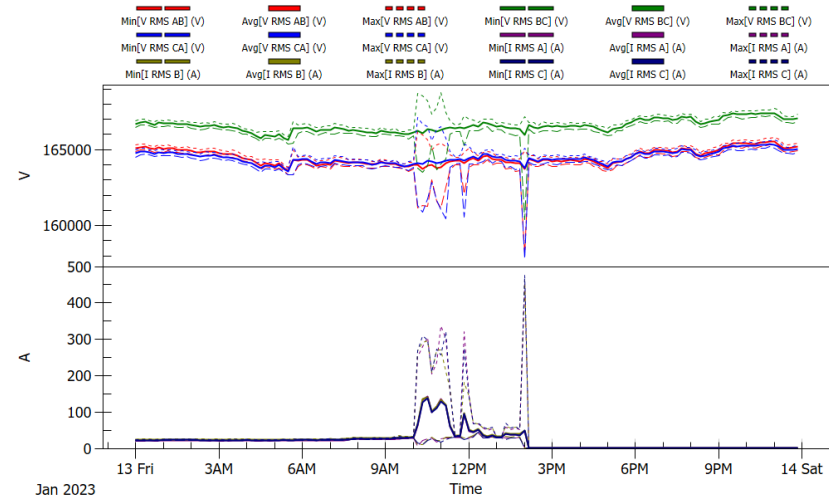
Trend Search | Business Case

- Multiple visualization and data analysis tools already in various stages of development and production for the Open PQ Dashboard
- Gap remains in the ability to quickly view trend data from meters in an ad hoc fashion

The logo for PQDashboard features the text "PQDashboard" in a bold, blue, sans-serif font. The letter "Q" is stylized with a white gear-like border and a yellow pencil tip pointing towards the top right.The logo for TrenDAP features the text "TrenDAP" in a bold, blue, sans-serif font. A yellow line graph with an upward-pointing arrow is superimposed over the letters "renD". Below the main text, the tagline "open-source trending-data analytics platform" is written in a smaller, italicized, black font.The logo for System Event Browser features the text "System Event Browser" in a bold, blue, sans-serif font. The word "System" is smaller and positioned above "Event". The letter "B" in "Browser" is stylized with a white gear-like border and a yellow pencil tip pointing towards the top right.The logo for POWER QUALITY Digest features the text "POWER QUALITY" in a bold, black, sans-serif font, followed by "Digest" in a blue, sans-serif font. A red and blue waveform is superimposed over the letters "Di" in "Digest".

Trend Search | Concept Deliverables

- Selection of meter(s) and channel(s) with user-friendly filters
- Selection of time range with typical “quick-pick” options
- Options to render selections on the same or separate charts with stacked or multi-axis displays
- User capability to format, label, annotate, toggle plotted data
- Dynamic pan and zoom
- Option to render histogram with statistical summary



Trend Search | Concept Mock-Up

System Event Browser

Event Search

Meter Activity

Custom Reports

- Breaker Report
- TripCoil Report
- CapBank Report
- DER Report

Time Window:

Date: 12/05/2022

Time Window(+/-): 12:00:00.000 PM

Time Window(+/-): 10 Year

Event Types:

- Faults
- Sags
- Swells
- Interruptions
- Breaker Ops
- Transients
- Breaker TCE
- Others

Event Characteristics:

Duration (cycle): 0 to 0

Mag-Dur: ITIC

Sags (p.u.): 0 to 0

Phase: Select All

Transients (p.u.): 0 to 0

Swells (p.u.): 0 to 0

Other Filters:

- Meter
- Asset
- AssetGroup
- Station

New widget on System Event page displaying V, I trends for +/- 2 hours

Trend Data

Time	Event Type
02/09/2021 19:24:32.1634140	Other
02/10/2021 19:15:32.5106560	Other
02/12/2021 00:00:32.1425420	Transient
02/12/2021	Other

Waveform Analysis | Fault | Correlating Events | Configuration | All

View in OpenSEE

Voltage Disturbance in Waveform:

Disturbance Type	Phase	Magnitude (%)	Duration (ms)	Start Time
Transient	AN	91.2	0.39	00:00:32.637
Transient	BN	94.8	0.42	00:00:32.643

Trend Search | Concept Mock-Up

Trend Search

Event Search

Meter Activity

Custom Reports

Breaker Report

Trip/Coil Report

CapBank Report

Time Window:

Other Filters:

Meter (2)

Asset

Time Window:

Date: 08/03/2022

12:00:00.000 PM

Time Window(+/-): 10 Week

Event Types:

Phase:

Select All

A B C

This Hour Today This Week This Month
 Last Hour Yesterday Last Week Last Month
 Last 60 Mins Last 24 Hours Last 7 Days Last 30 Days

This Quart This Year
 Last Quart Last Year
 Last 90 Ds Last 365 Days

Event Characteristics:

All Selected ▾

All

Voltage

Current

Unbalance

Flicker

Reactive Power

Select Channels

Channel Name

V RMS AB

V RMS BC

V RMS CA

V THD AB

V THD BC

V THD CA

V FREQ

V S2/S1 All

V SPOS All

V SNEG All

V SZERO All

V Flicker Pst AB

V Flicker Pst BC

Hide Filters

Reset Filters

ics:

Mag-Dur: Sags (p.u.): Meter (2)

Name	Key	Substation	Make	Model
Bludhaven 13-T3	Bludhaven13-T3	BLUDHAVEN	Schneider	ION 8650
Bludhaven 13-T1	Bludhaven 13-T1	BLUDHAVEN	Schneider	ION 8650

Hide Filters

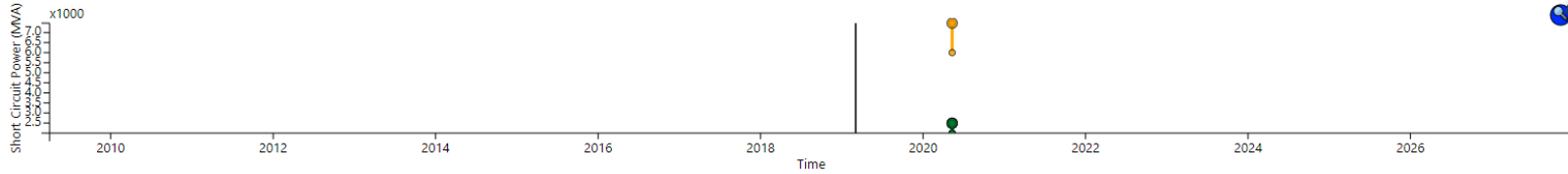
Reset Filters

Trend Search | Concept Mock-Up



Graphical icons to create new plot (hover for text)

Custom options



Phase AN (05/10/21 04:55:31: 2489.45)
Total (05/10/21 04:55:31: 7468.35)

Phase BN (05/10/21 04:55:31: 2489.45)

Phase CN (05/10/21 04:55:31: 2489.45)

Interactive legend toggles rendered values

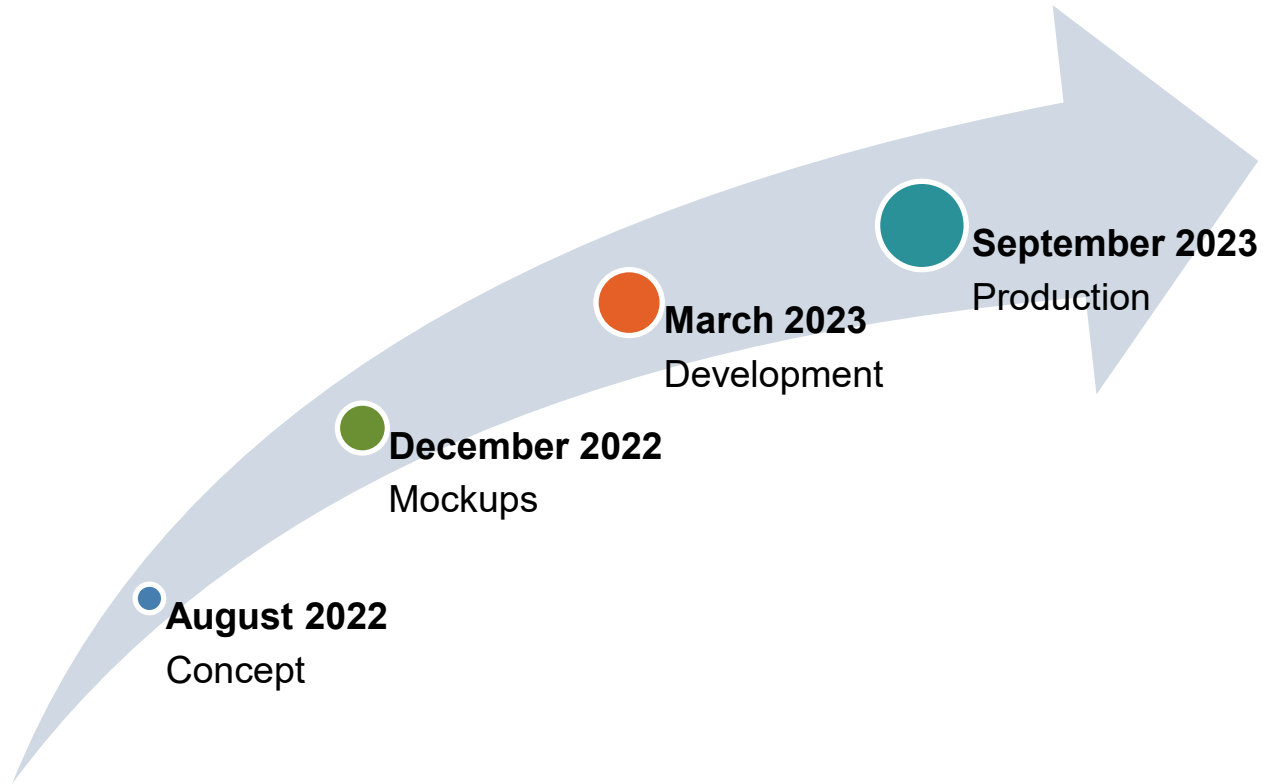
Each plot rendered is appended to the end of existing plots

Trend Search | Custom Options

- Chart title
- Axis labels
- Manual zoom (user-defined scale)
- Line color, type
- User-defined horizontal and vertical line annotations
- Text box for comments
- CSV export
- Rename series
- Graph height



Trend Search | Timeline



TVA

**TENNESSEE
VALLEY
AUTHORITY**