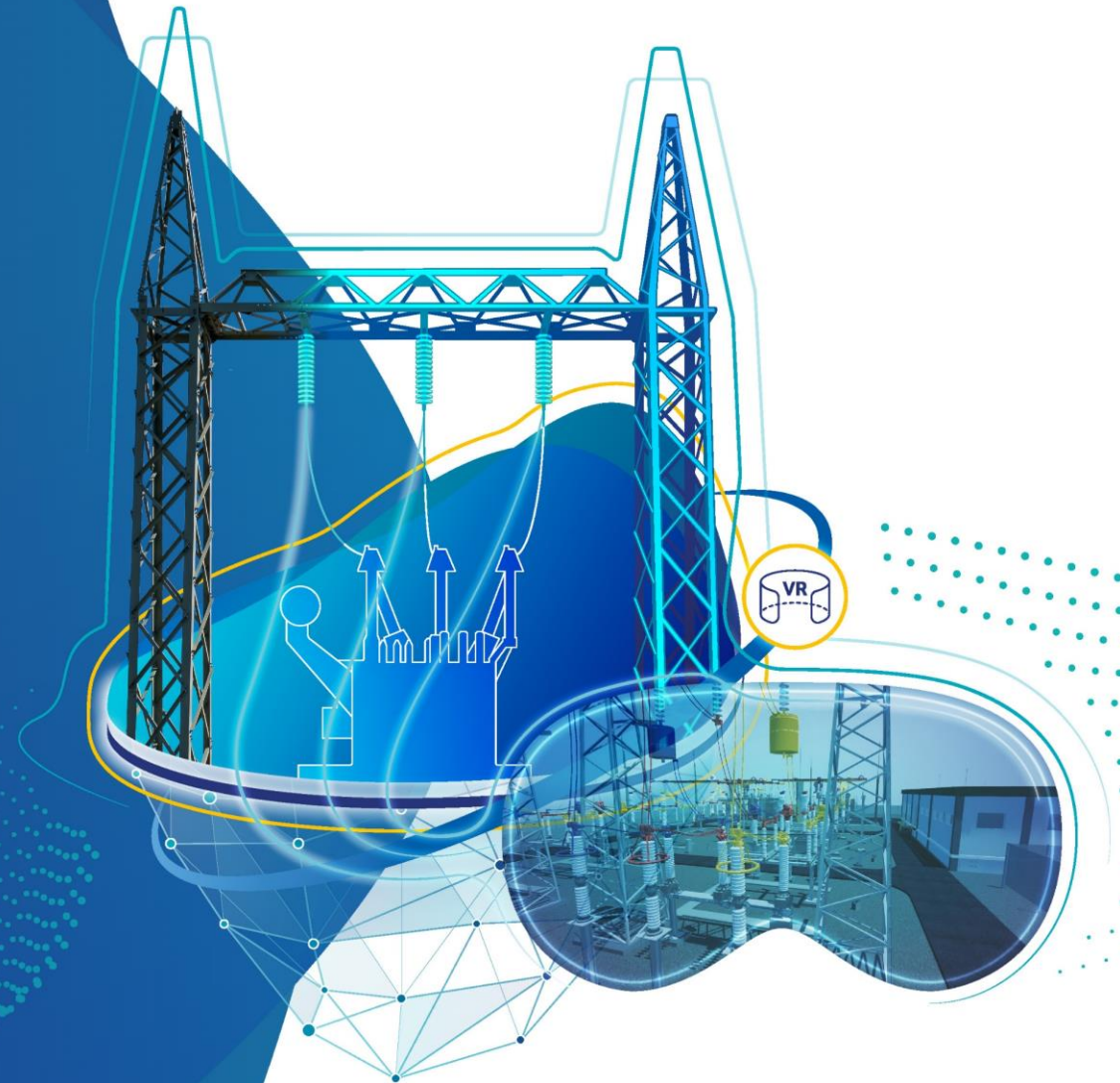




DIGITAL TWINS – 11 SUBSTATIONS, 11 UTILITIES, 10 DAYS, MANY BENEFITS

Duane Guidry
Director
Austin, TX



NOVEMBER 13, 2024

AGENDA

1 Brief Company Overview

2 Strategic Partnership

3 Technology Week Event

4 Business Application / Use Cases

5 Questions

THE POWER OF PRIMTECH

ENGINEERING EXCELLENCE

A global market and innovation leader

✓ More than 25 years
of innovation

✓ Globally local

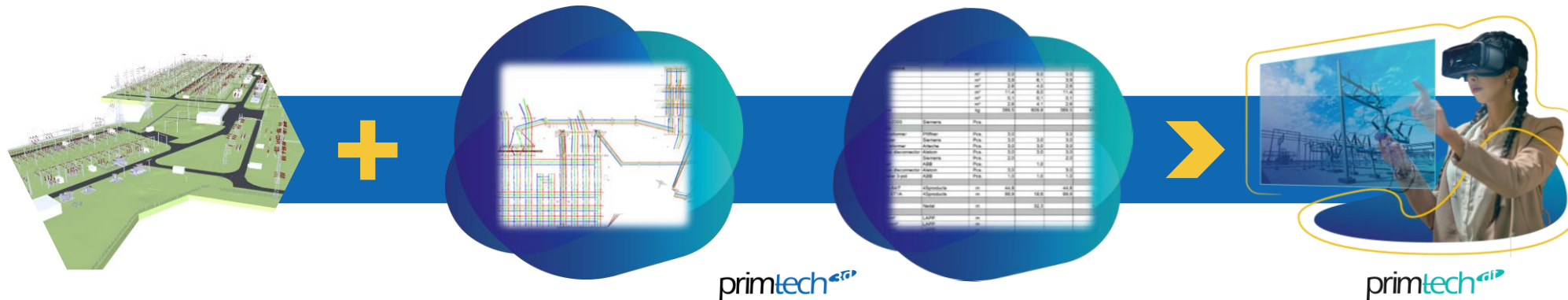
✓ From experts
for experts

✓ Adopted and used in
over 60 countries



● Partners

PRIMTECH SOLUTION



2D / 3D CAD	+	Smart Objects	+	SQL Graph Database	➔	Digital Twin
<ul style="list-style-type: none"> • Synchronized 2D drawings from 3D • Substation layout • Modeling and drawings • Geometry with parameters • ... and many more 		<ul style="list-style-type: none"> • Topology Structured and electrically connected station • Simulation Phases, Lightning Protection, Switching • Checking Minimum distances, clamps, ... • Calculations Short circuit current, Sag 		<ul style="list-style-type: none"> • Evaluations & Analyses • Detail technology • Complete and structured BOM • ERP connection • Data integration / CIM compliant 		<ul style="list-style-type: none"> • Easy and safe access from everywhere • Small and smart • Simulation Phases, safe motion areas • Single Line and power flow • Data integration ERP, Asset, Photo, ...

BIM

Intelligent substation BIM and engineering database

STRATEGIC PARTNERSHIP

primtech



POWERENGINEERS



TECHNOLOGY WEEK EVENT



TECHNOLOGY WEEK EVENT

- Where:** POWER Fort Worth, Texas Office
- What:** Opportunity for **Participants** to Leverage POWER's Experience to Demonstrate the Value of Incorporating BIM-based Substation Design and Digital Twin Technology within the Lifecycle of Their Substation Assets – **Using Participating Utility's Data**
- Who:** POWER BIM and primtech Technical Teams
- Why:** Technical Teams Training and Collaboration
Unique Offer to **Select** POWER Clients to Share Innovative Technology

TECHNOLOGY WEEK EVENT



4 BIM subject matter experts



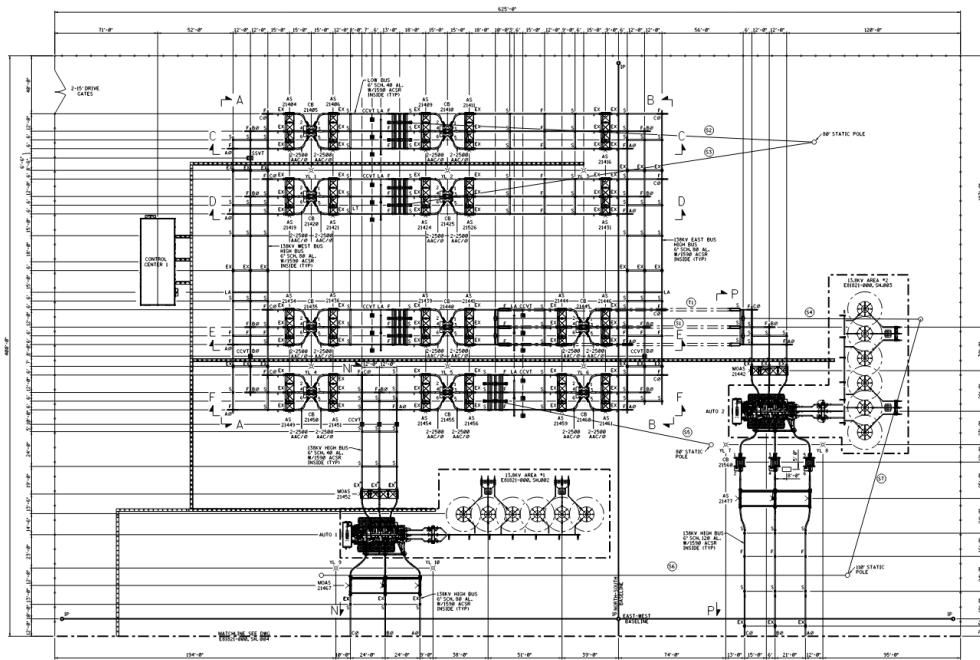
3 primtech 3d subject matter experts



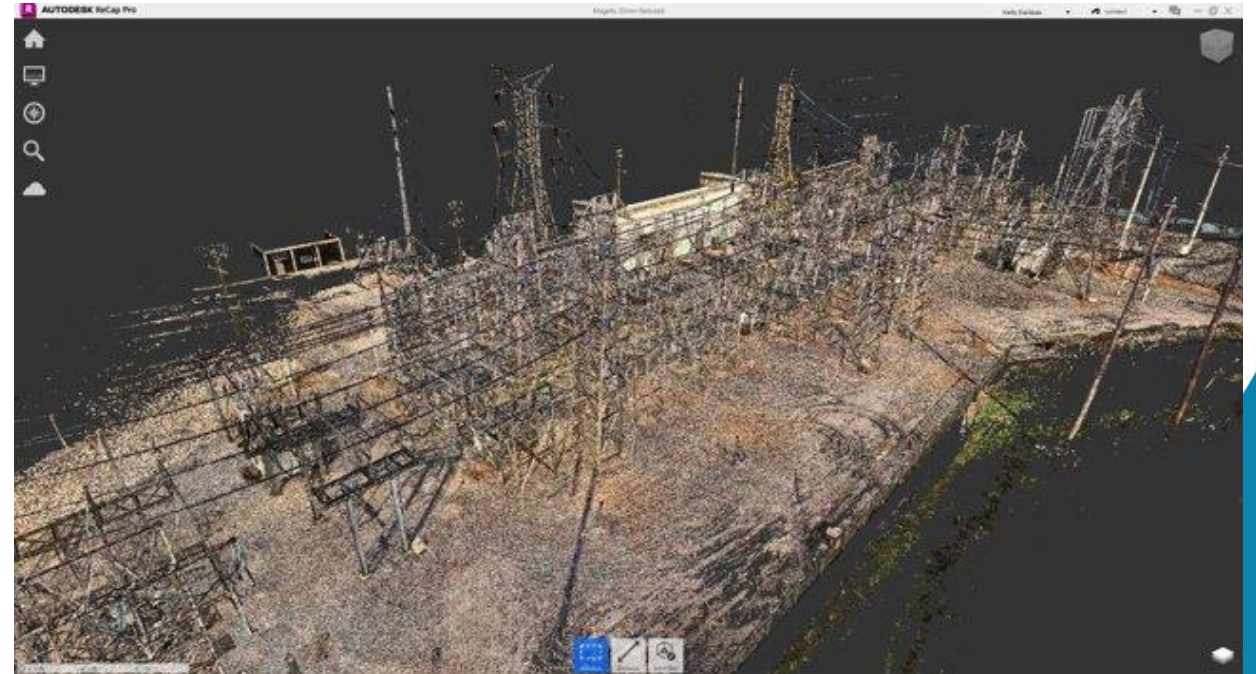
11 Utilities

TECHNOLOGY WEEK EVENT

Source Data Provided by Each Utility

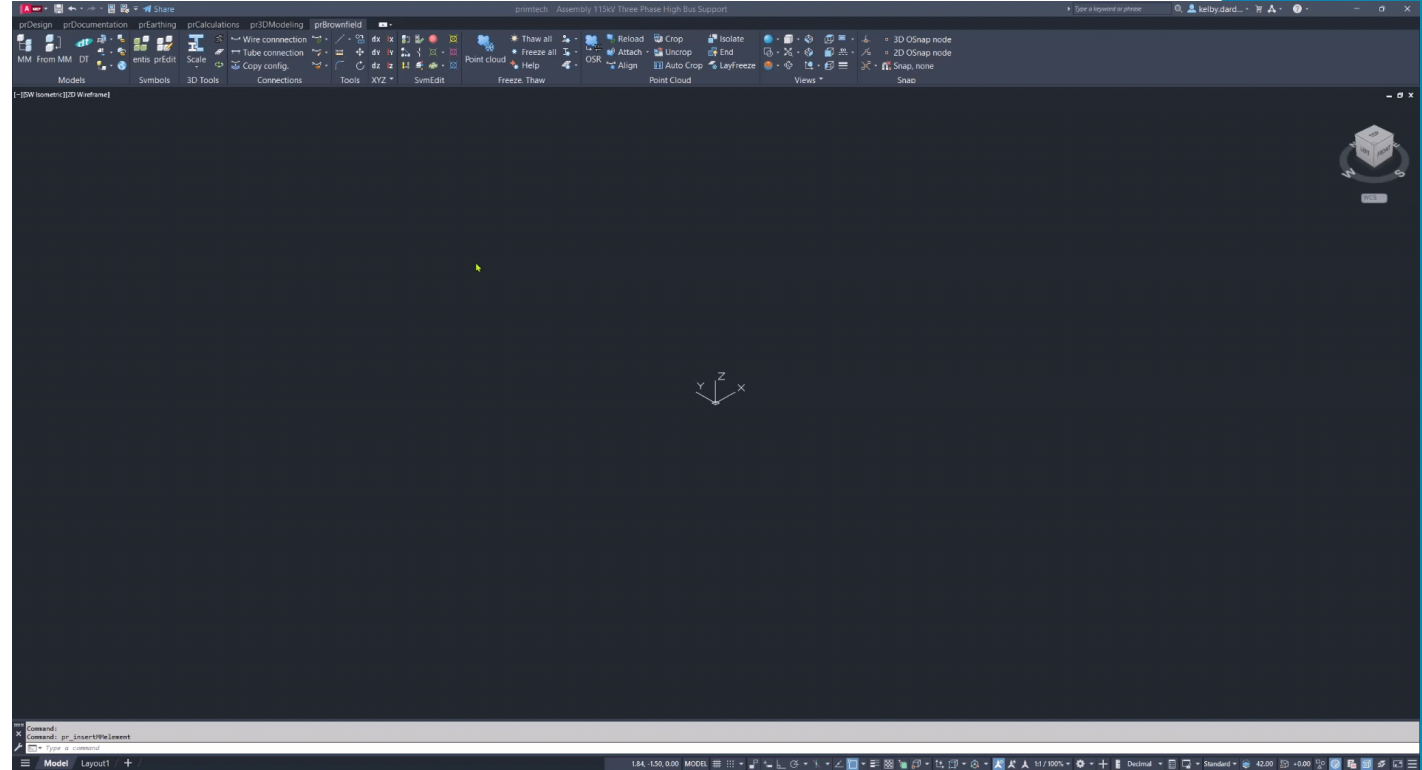


CAD Drawings



LiDAR Scan

TECHNOLOGY WEEK EVENT



TECHNOLOGY WEEK EVENT

DIGITAL TWIN DEVELOPMENT SERVICE:

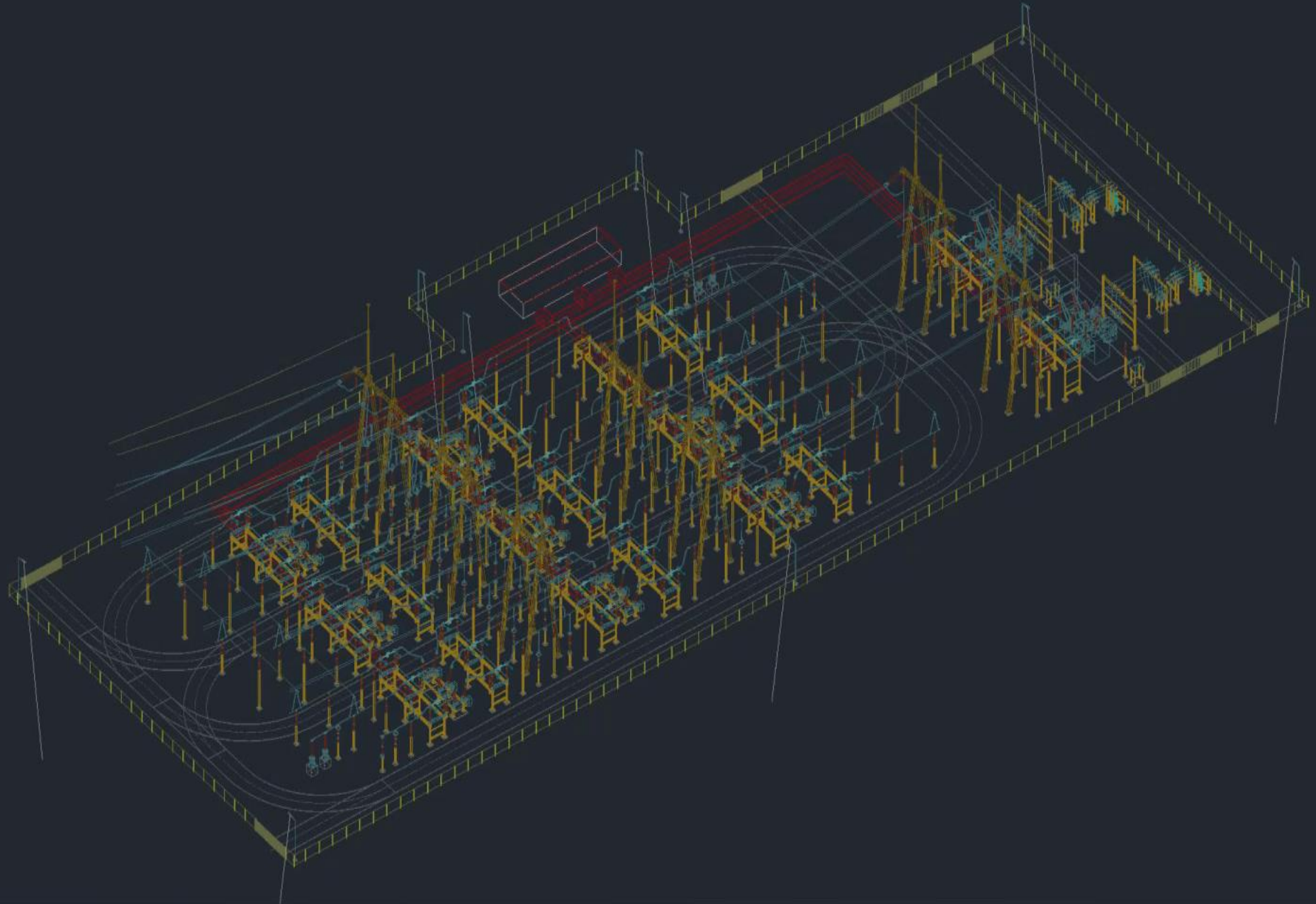
DIGITALIZE YOUR EXISTING HV SUBSTATIONS WITH EASE

From the real substation to a valid 3D model and a virtual reality digital twin.

Our OSR+PRO service is an AI-supported service for digitalizing your existing HV substations into a data-valid and functional 3D and VR model and thus the basis for creating a digital twin.

[OSR+PRO Video](#)





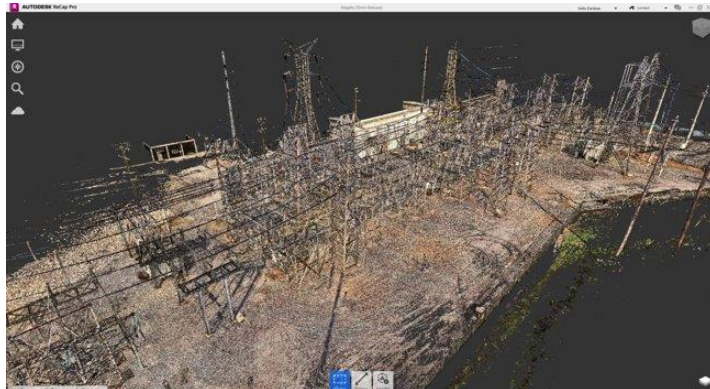
TECHNOLOGY WEEK EVENT



TECHNOLOGY WEEK EVENT

Digital Twin Source Data Requirements

- Good quality terrestrial LiDAR scan
- Equipment nameplate images
- Asset data
- One-line diagram (optional but useful)



Inventory Id	Equipment Class	Company No.	Manufacturer	Mfr. Rated KV	Operating KV	Serial Number	Switch Number	Technical Identifier	Bank Number
164255	Breaker	865382	Square D	15	13.2	20988	426	Feeder	
204989	Breaker	865683	Siemens	15.5	13.2	30117444-100-4	416	Feeder	
227243	Breaker	865983	Siemens	15.5	13.2	3002753763-100-2	410	Feeder	
247960	Breaker	866376	ABB	15.5	13.2	1VAS19F045RMMAG	466	Feeder	
247961	Breaker	866377	ABB	15.5	13.2	1VAS19F045RMMAG	476	Feeder	
247962	Breaker	866378	ABB	15.5	13.2	1VAS19F045RMMAG	496	Feeder	
247963	Breaker	866379	ABB	15.5	13.2	1VAS19F045RMMAG	446	Feeder	
250737	Breaker	866380	ABB	15.5	13.2	1VAS19F045RMMAG	486	Feeder	
247965	Breaker	866381	ABB	15.5	13.2	1VAS19F045RMMAG	436	Feeder	
247966	Breaker	866382	ABB	15	13.2	1VAS19E202RMMAG	452	Feeder	
248529	Breaker	866383	ABB	15.5	13.2	1VAS19F050RMMAG	420	Feeder	
80668	Breaker	871046	ABB	121	115	8001827-02	6770	Line	
231564	Breaker	871193	Mitsubishi	123	115	SG000070700002	6756	Line	
229218	Breaker	871294	Mitsubishi	121	115	SG000085190001	6736	Line	
231401	Breaker	871295	Mitsubishi	123	115	SG000085190002	6796	Line	
231402	Breaker	871296	Mitsubishi	123	115	SG000085190003	6724	Line	
229219	Breaker	871297	Mitsubishi	121	115	SG000085190001	6700	Bus Tie	
229801	Breaker	871298	Mitsubishi	123	115	SG000085190004	6766	Feeder	
229802	Breaker	871299	Mitsubishi	123	115	SG000085190005	6708	Line	
229800	Breaker	871300	Mitsubishi	123	115	SG000085190006	6748	Line	
232564	Breaker	871385	Mitsubishi	123	115	SG000090800001	6866	Capacitor Bank	
233443	Breaker	871414	Mitsubishi	121	115	SG000090800030	6706	Line	
193923	Battery	BA3241	Enersys Inc.		0.125			NERC	

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Experience your substation
as a walk-in virtual reality
model and Digital Twin

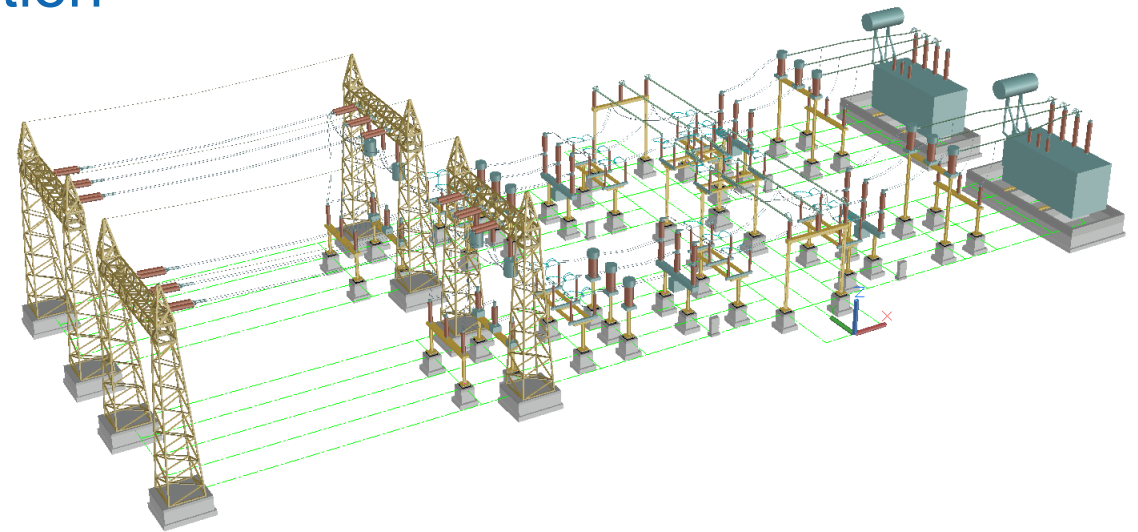
[Video](#)



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...Connecting the World

BUSINESS APPLICATIONS / USE CASES

- Quick and economical as-built validation
- Leverage BIM investment & benefits
- Greenfield & brownfield solution
- Improved safety
- Reduced cost, schedule, errors
- Quicker return on assets
- Talent acquisition / retention
- Security / ballistic threat
- Disaster recovery
- Citizen communication
- Regulatory / facility ratings and more ...



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Solution Video

DIGITALIZATION INITIATIVE



in cooperation with

primtech

Thank you for your time and attention!

QUESTIONS?



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