

Smarter ways of Designing High-Voltage Substations

Apex Summit 2018
Robert Sawrey

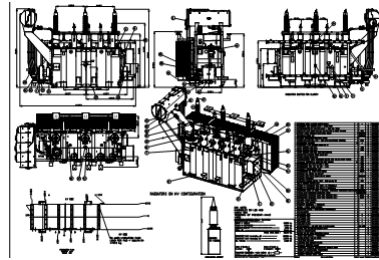


Presentation Overview

- Basic design process today
- Ways of combining information
- Advanced things we can do today
- What we should strive for

Brownfield Design Process

- Acquire a lot of data from site
 - 3D point cloud
 - Precise feature survey
 - Photos
- Acquire a lot of drawings
 - Hand drawn
 - Duplicates
 - Conflicts
- Design 3D Model
- Produce drawings



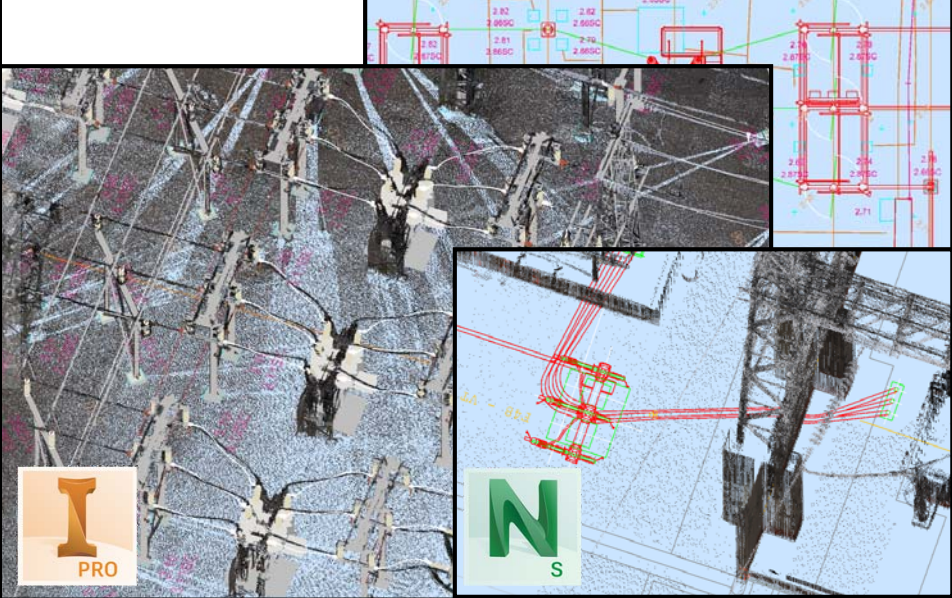
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Design Stakeholders

- Primary
- Secondary
- Civil
- Structural
- Building Services – Lighting
- Building Services – HVAC
- Surveyors
- Project Manager
- Client's counterparts
- ...

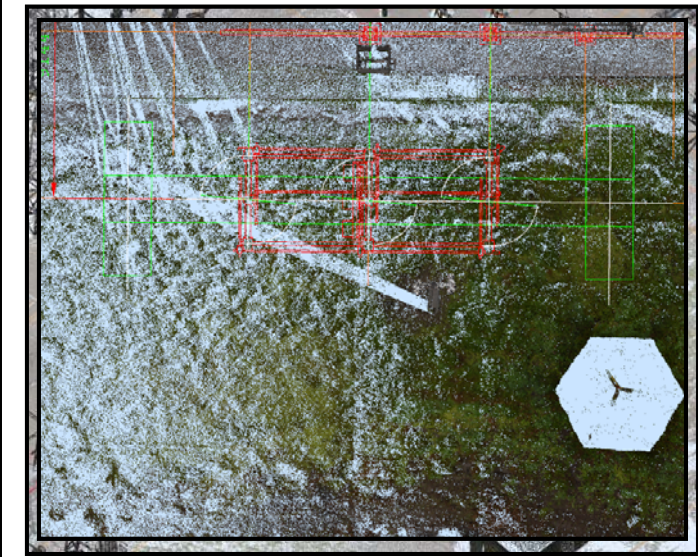
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Combining Data



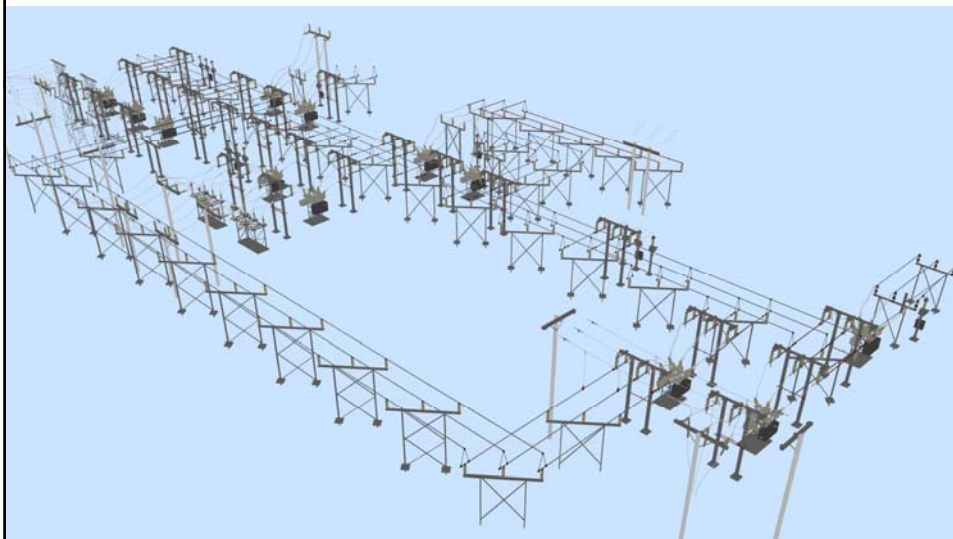
This slide illustrates the integration of different data sources. It features a large aerial point cloud of a construction site. Overlaid on this are several data layers: a 2D plan view in the top right showing red and green lines with numerical labels (e.g., 2.82, 2.81, 2.80); a 3D wireframe model in the bottom right showing red and green lines; and a small inset in the top left showing a white rectangular area. In the bottom left corner, there is an orange icon of a vertical bar labeled 'PRO'. In the bottom center, there is a green 'N' icon with a small 'S' below it.

Combining Data



This slide illustrates the integration of different data sources. It features a large aerial point cloud of a construction site. Overlaid on this are several data layers: a 2D plan view in the top left showing red and green lines; a 3D wireframe model in the bottom right showing red and green lines; and a small inset in the top right showing a white rectangular area. In the bottom right corner, there is a green 'N' icon with a small 'S' below it. Below the 'N' icon is a small photograph of a group of people in business attire sitting around a table with a laptop. At the bottom right, there is a blue 'S' icon and the logo for 'BECA'.

Advanced things



 Beca

Advanced things



 Beca

The Future – Parametric Refurbishment

- Every part and component accounted for in 3D model
- Copy + replace
- Instant Bill of Materials
- Free up design time to develop
 - BIM functionality
 - Detailed stages
 - Training scenarios
 - “Nice to haves”



Questions

