

CLEMSON UNIVERSITY SELF-HEALING GRID

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Existing System

- Served from one Duke Energy substation
- Limited to 28 MW
- Exceeded 24 MW in 2012/2013



Existing System

35+

outages from
2008-2013

4 days^{up to}
to restore power

28MW

current substation size

24MW

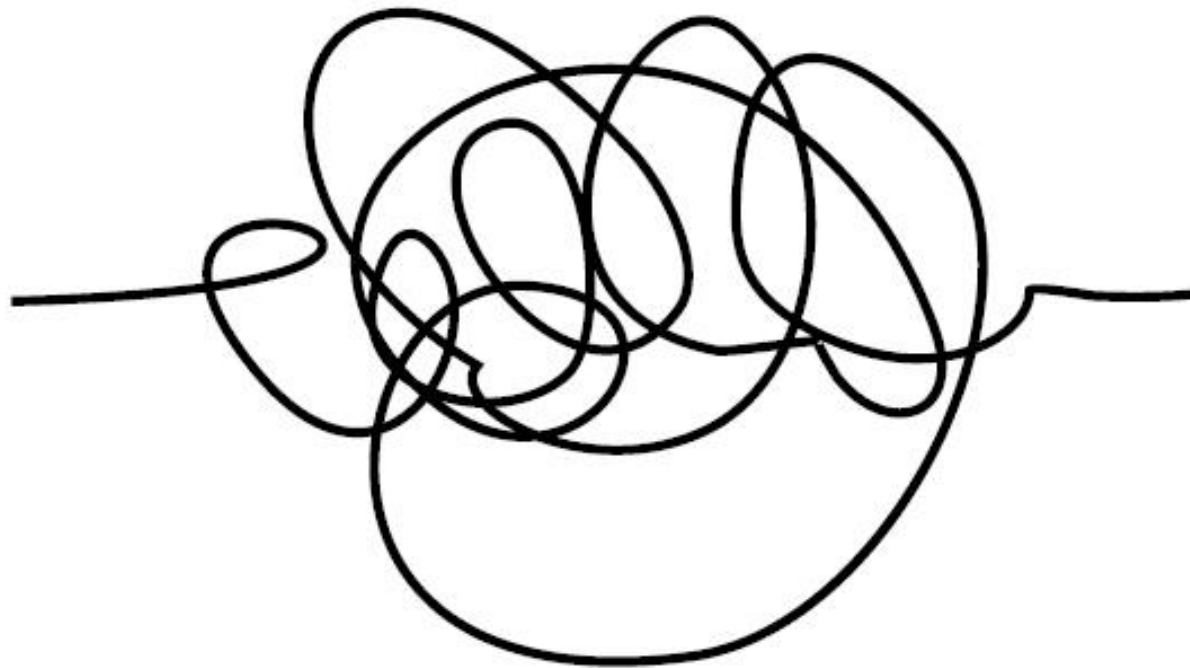
campus load, 2014



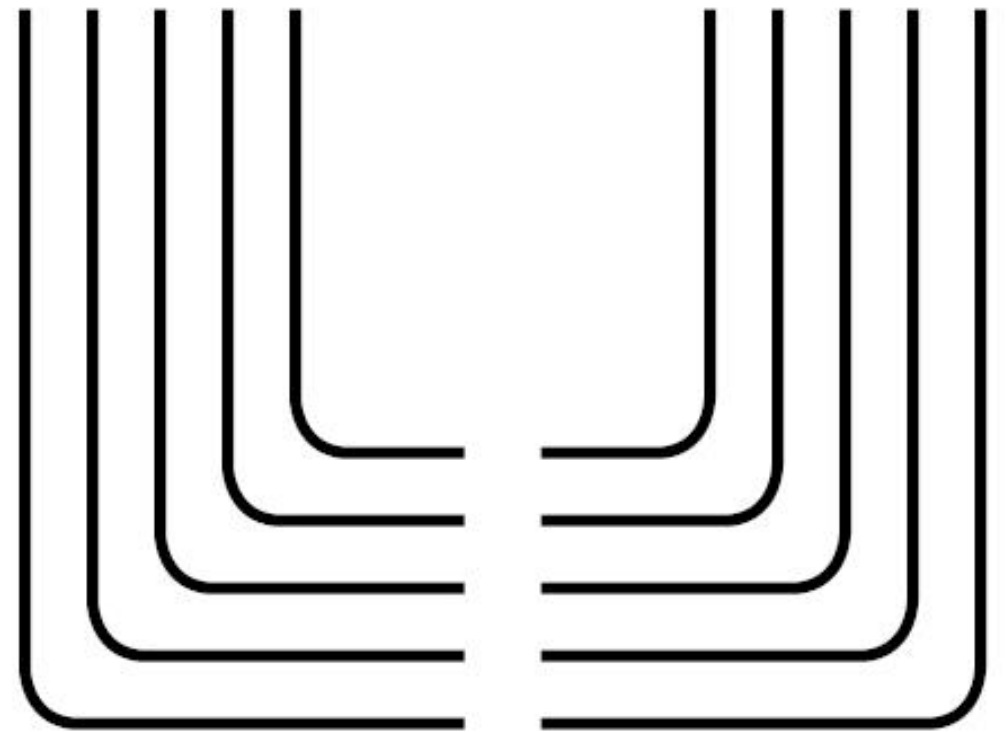
Untying the Knot

Untying the Knot

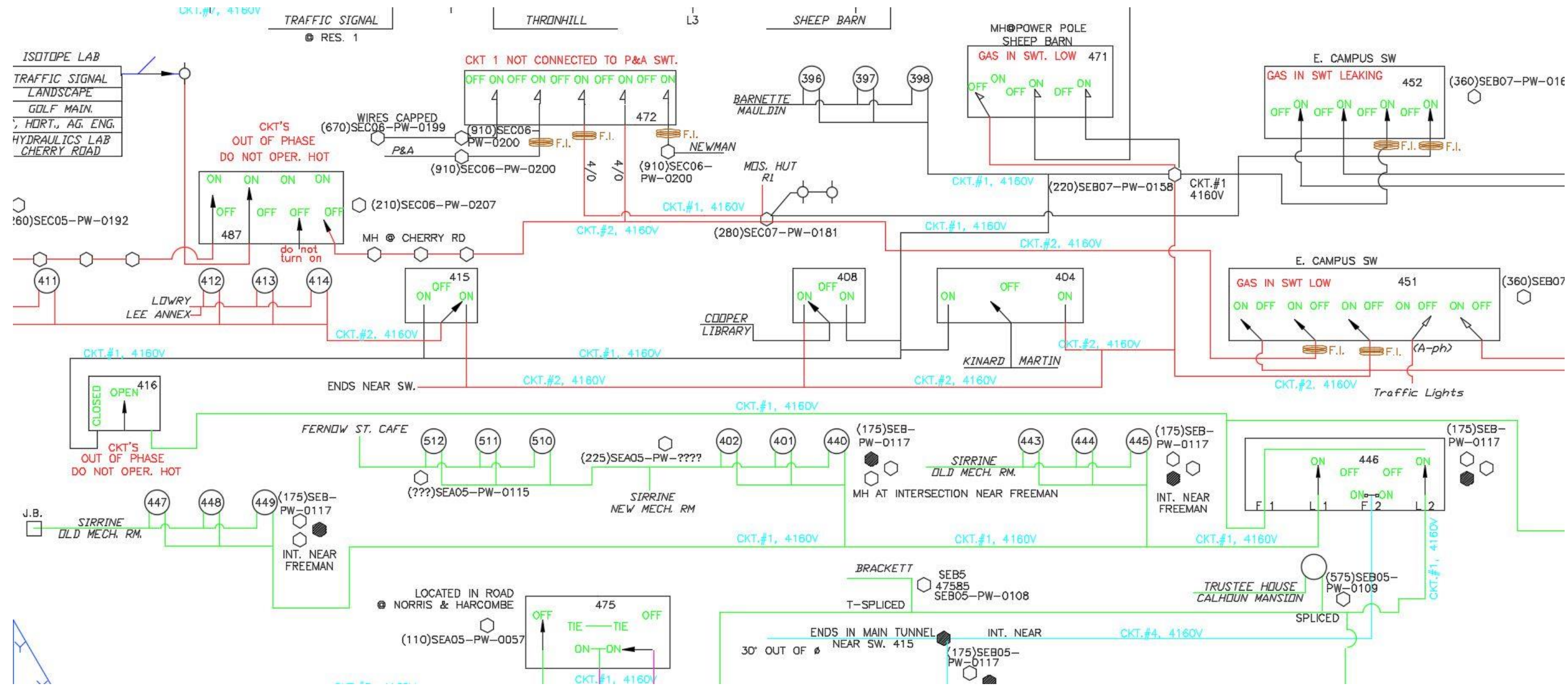
chaos



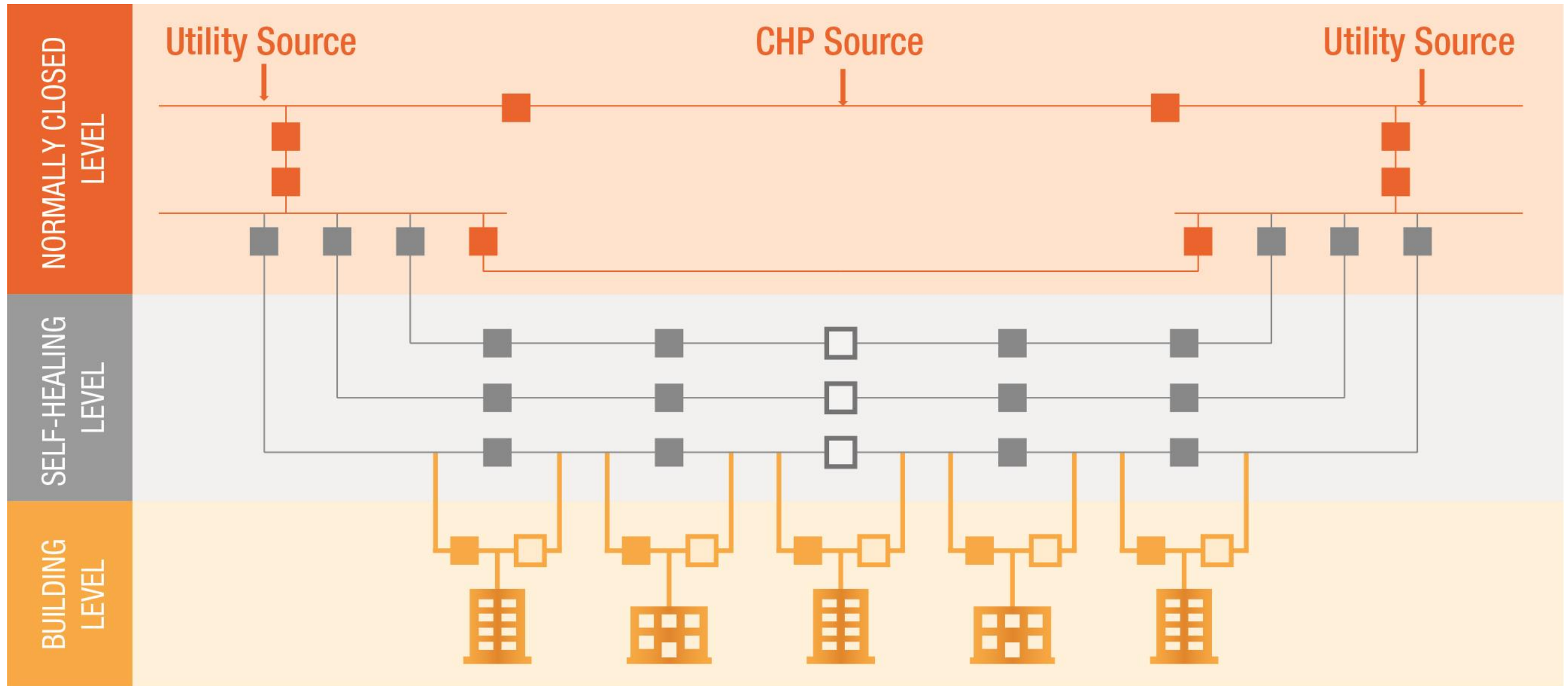
order



Chaos



Order





Challenges

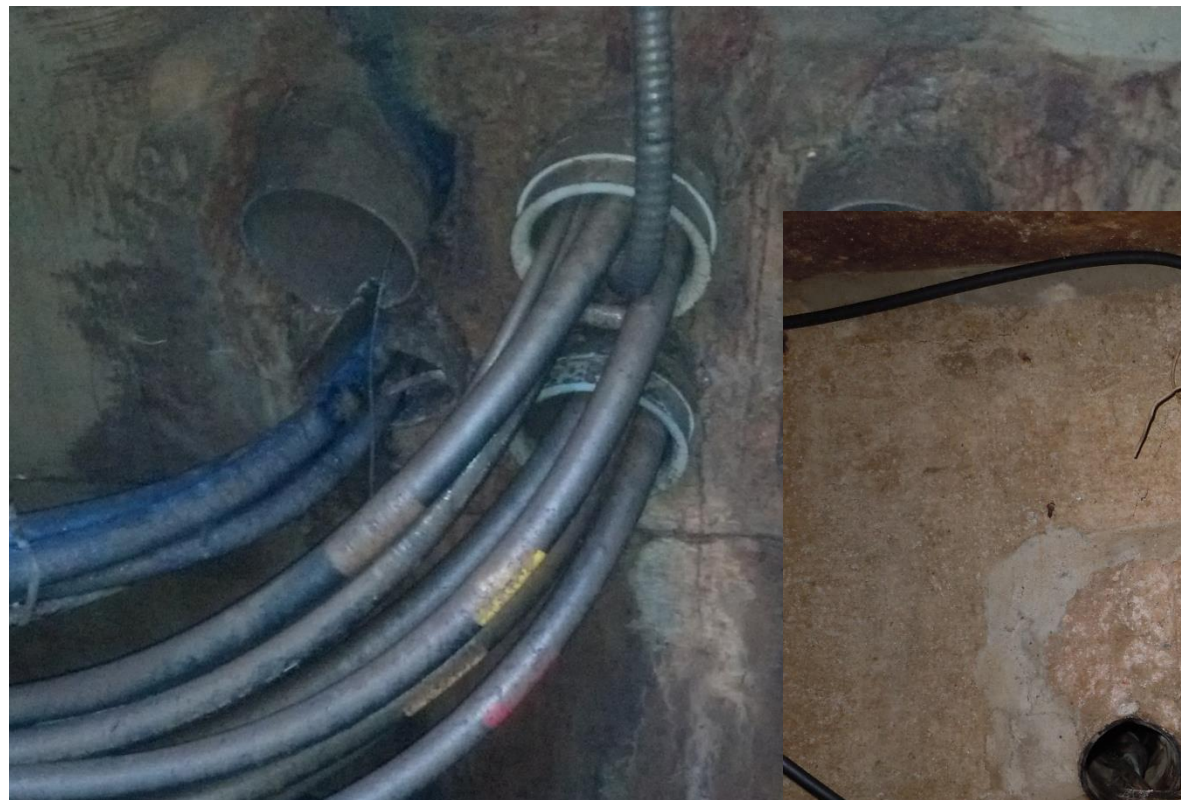
Building Retrofits



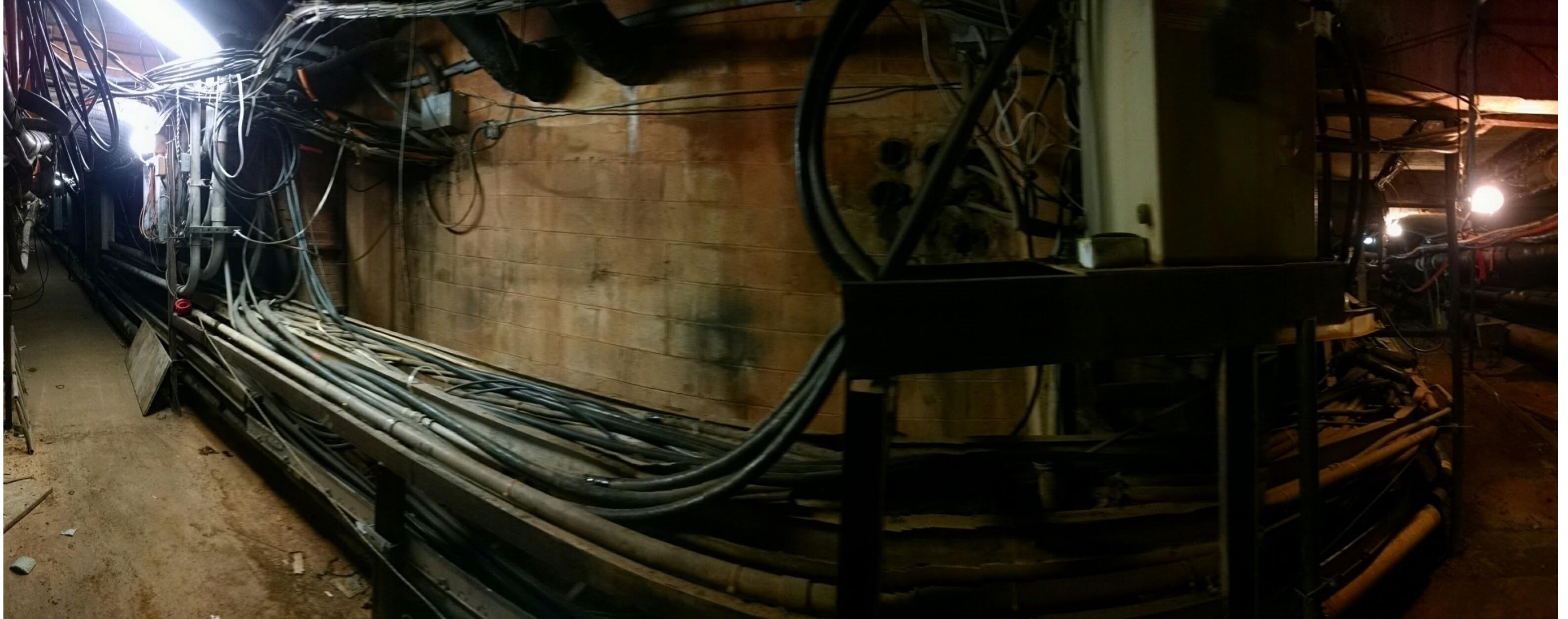
Decrepit Manholes



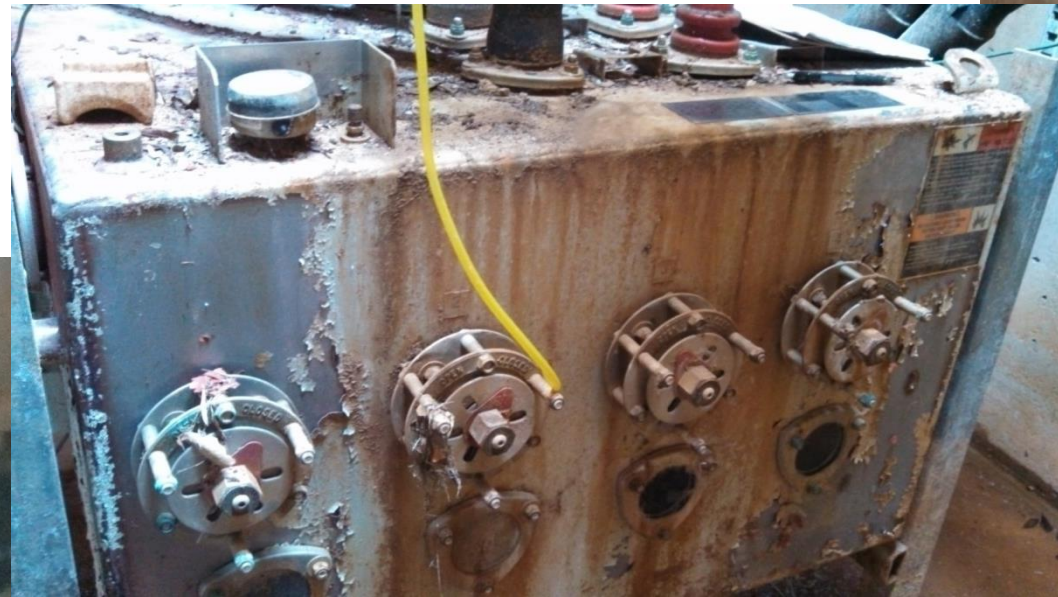
Failing Ductbanks



Hazardous Tunnel Installations



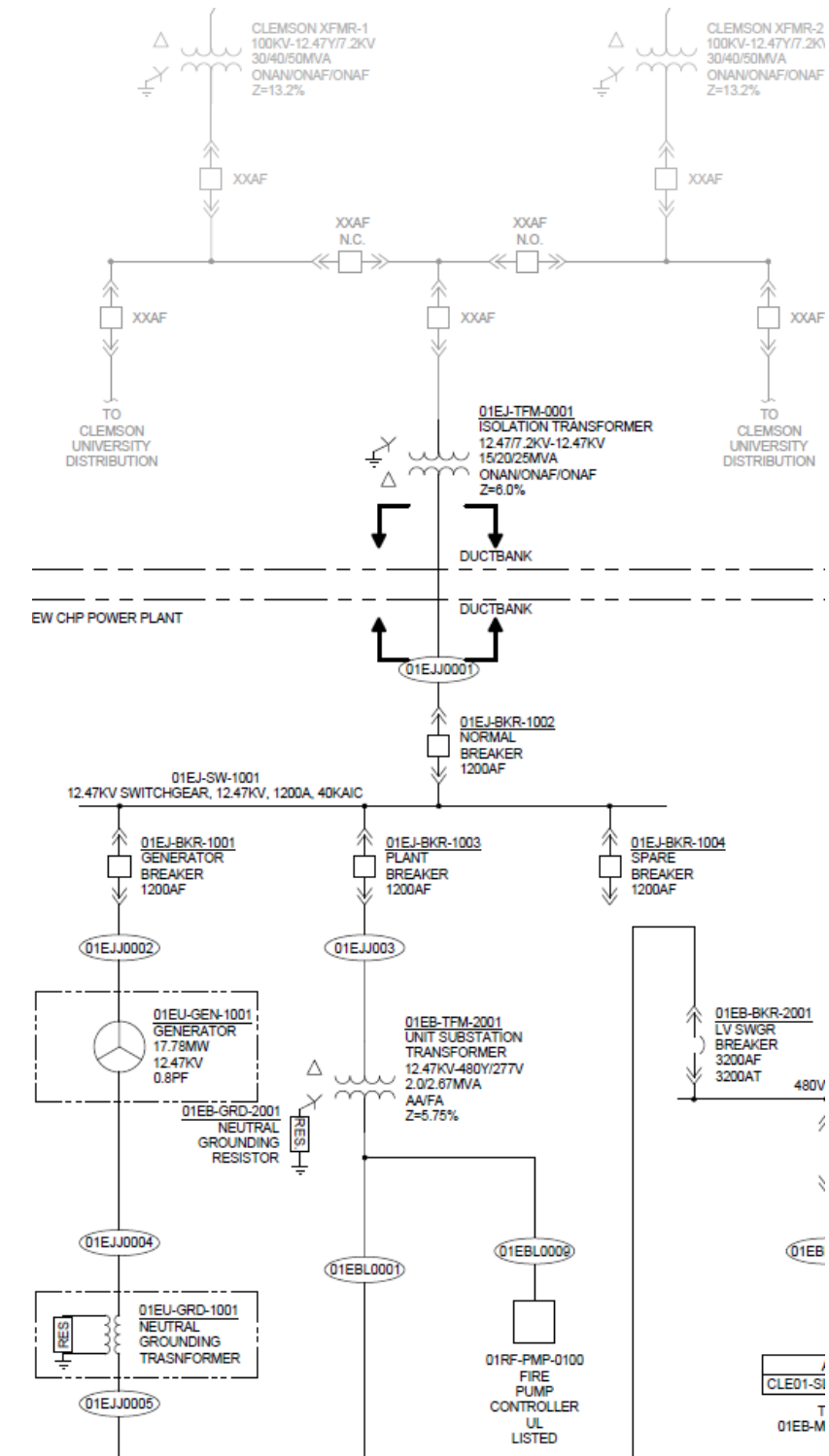
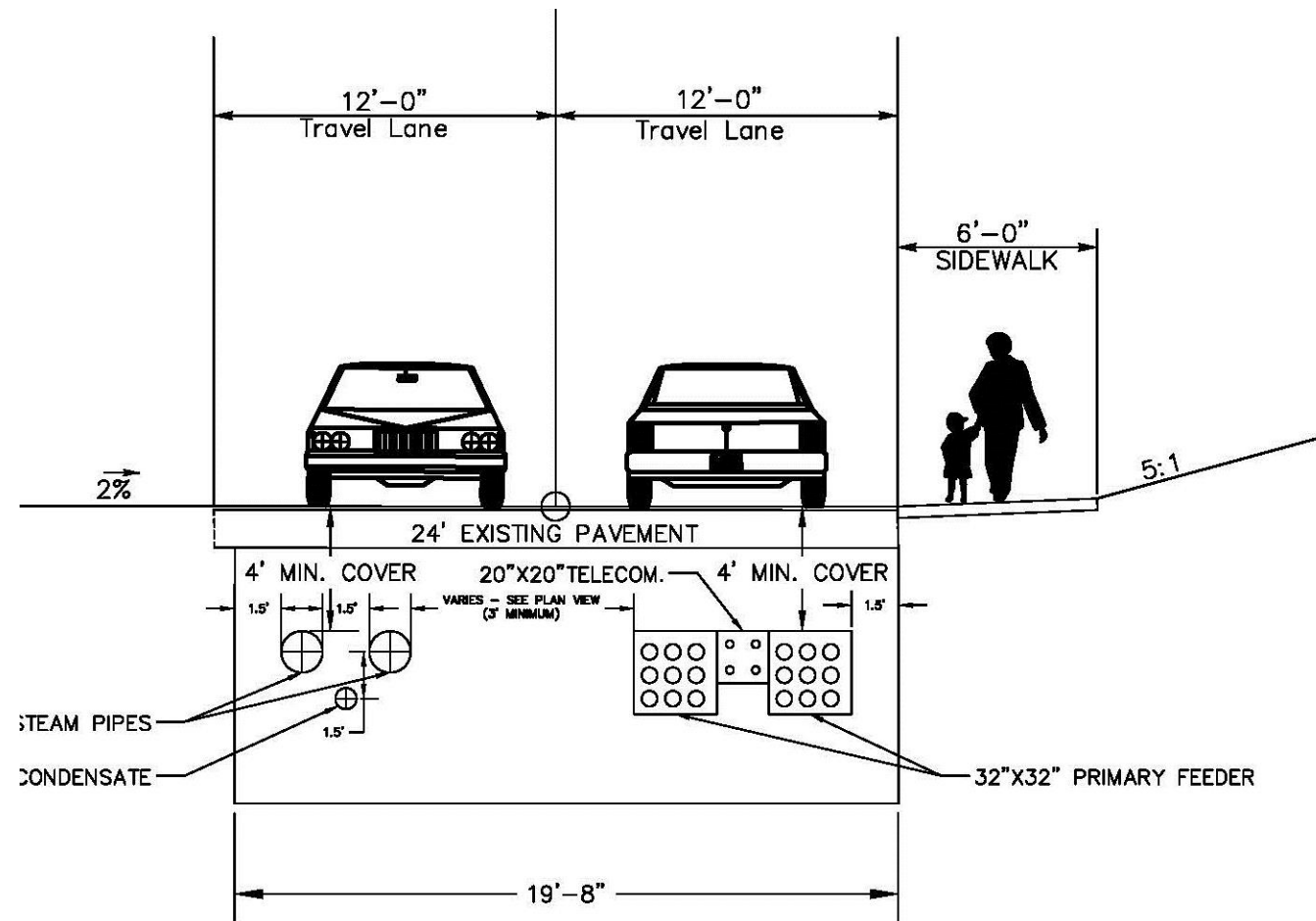
Aged Equipment



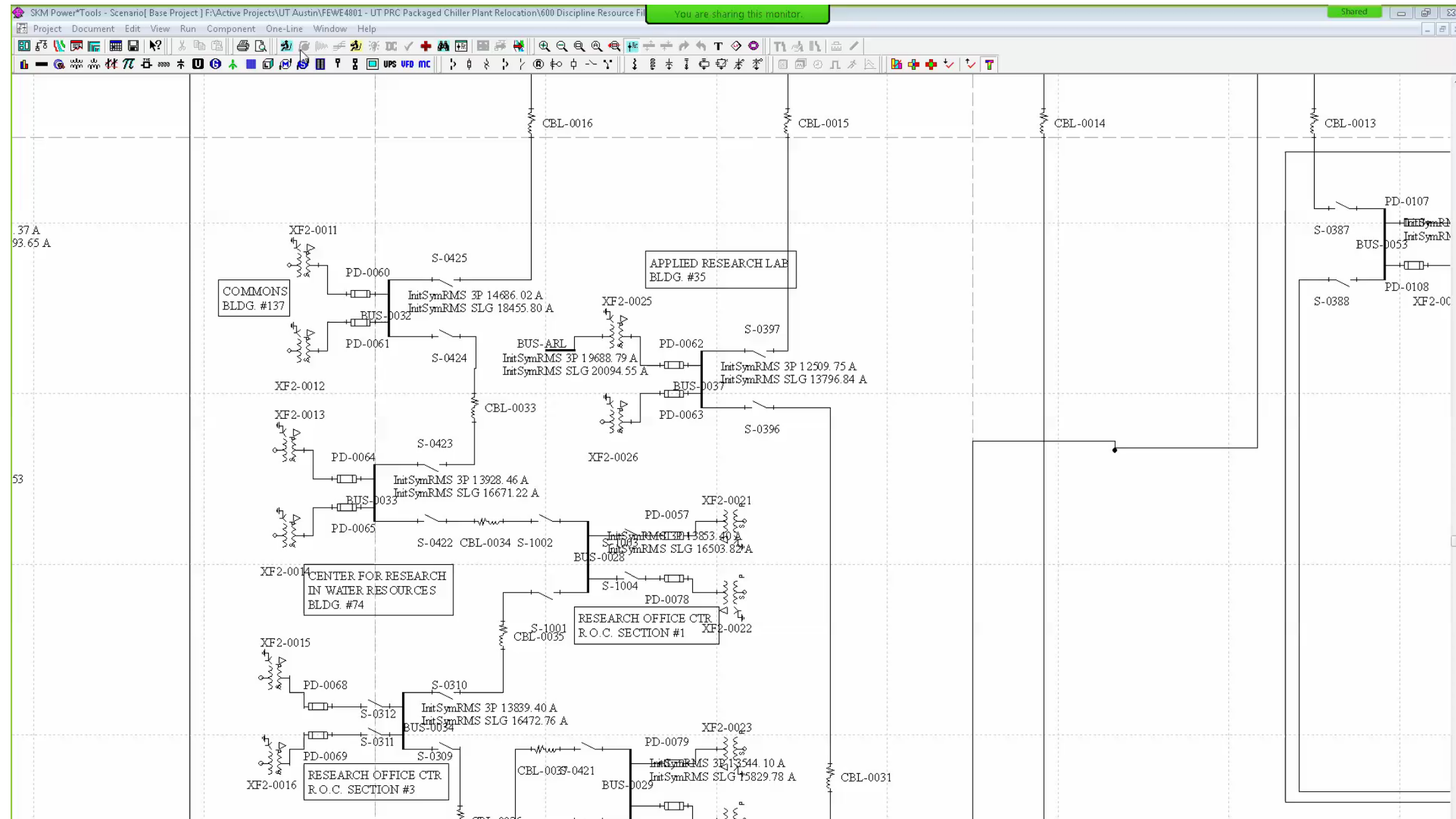
Integration of CHP



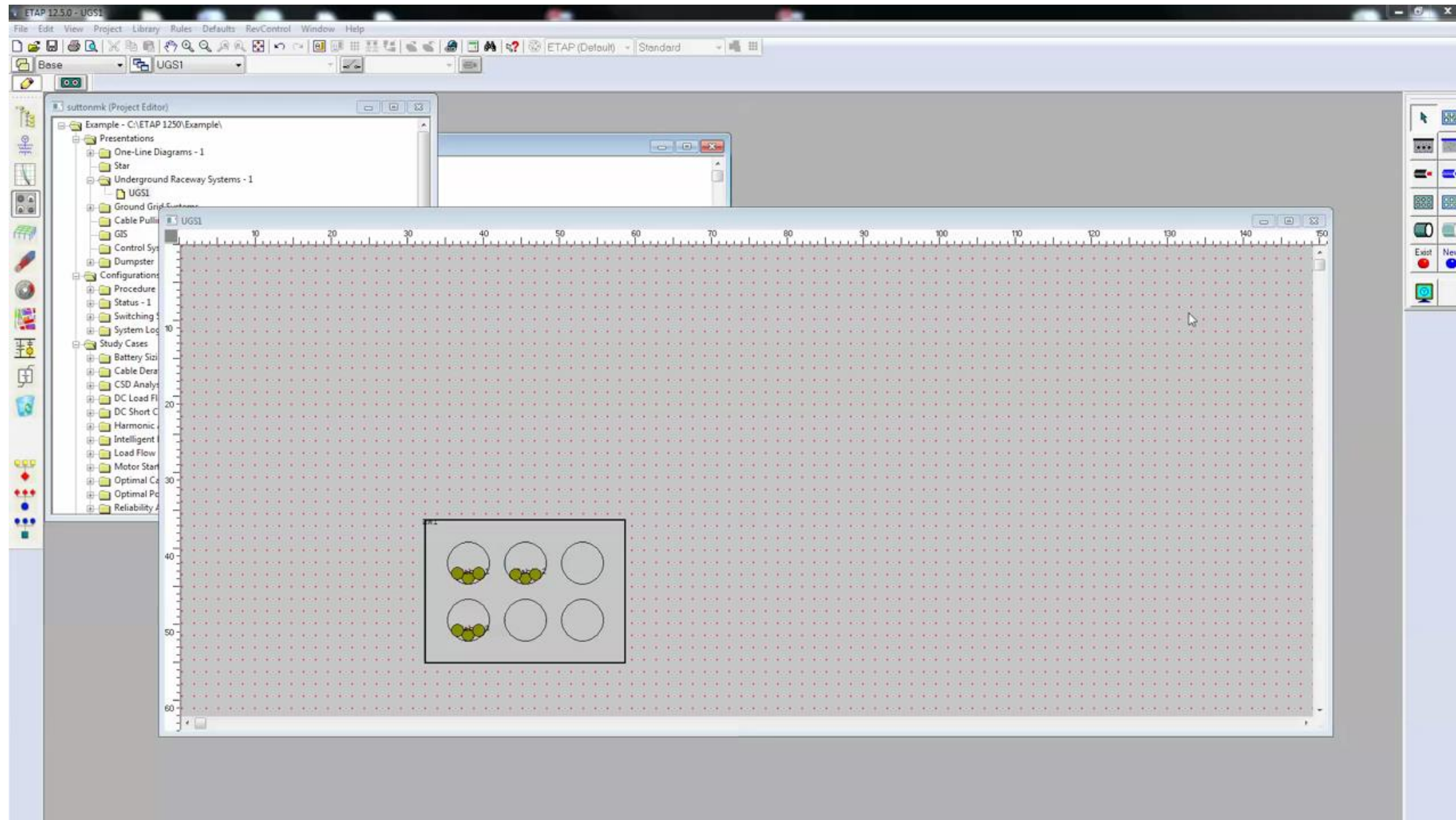
Integration of CHP



Fault Current Limitations



Thermal Optimization



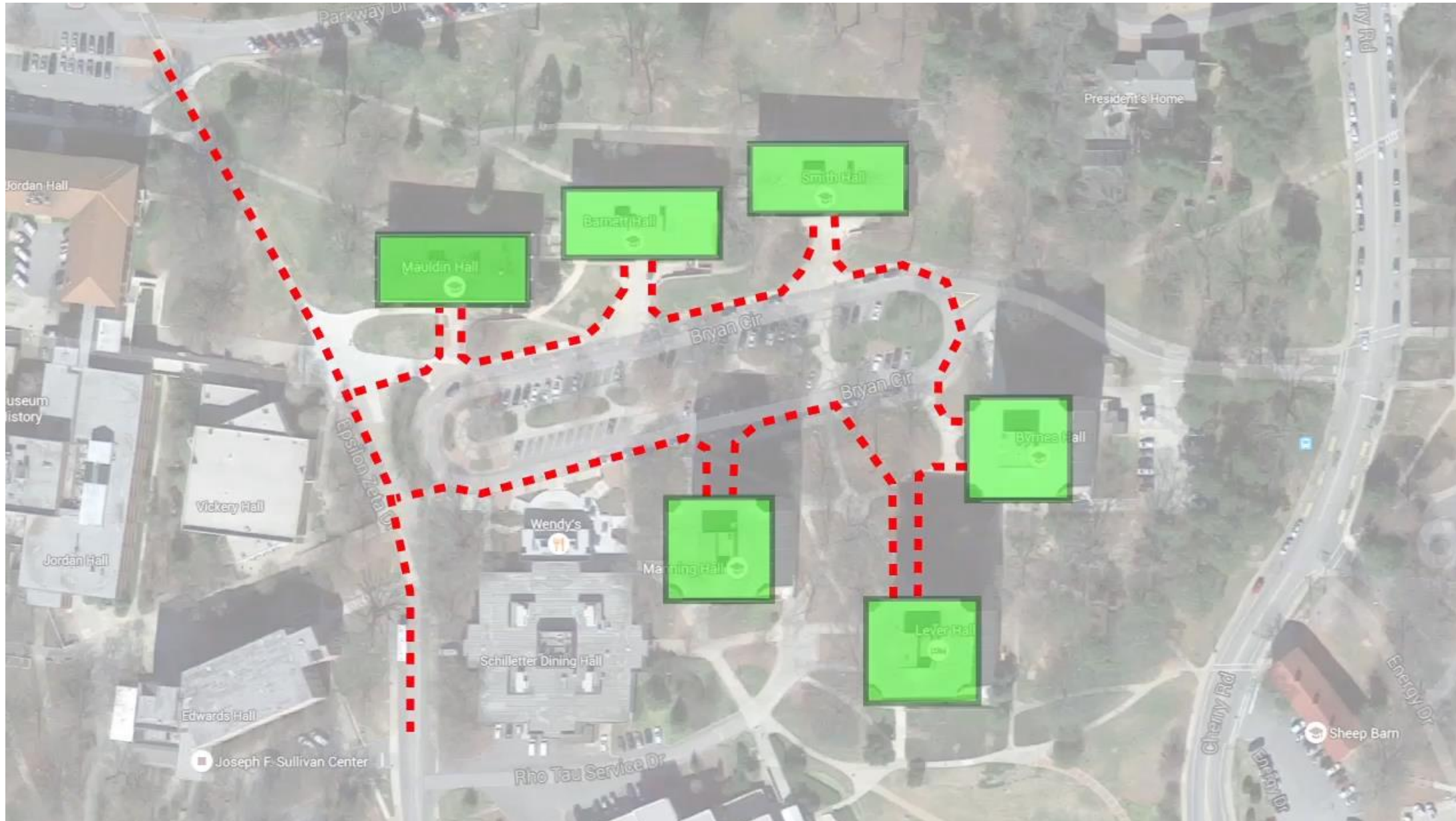
Navigating Outside Regulatory Agencies

South Carolina DoT
Environmental Protection Agency
Office of State Engineer
Duke Energy
Clemson University
South Carolina Dept of Health and
Environmental Control
Army Corps of Engineers
Pickens County
City of Clemson

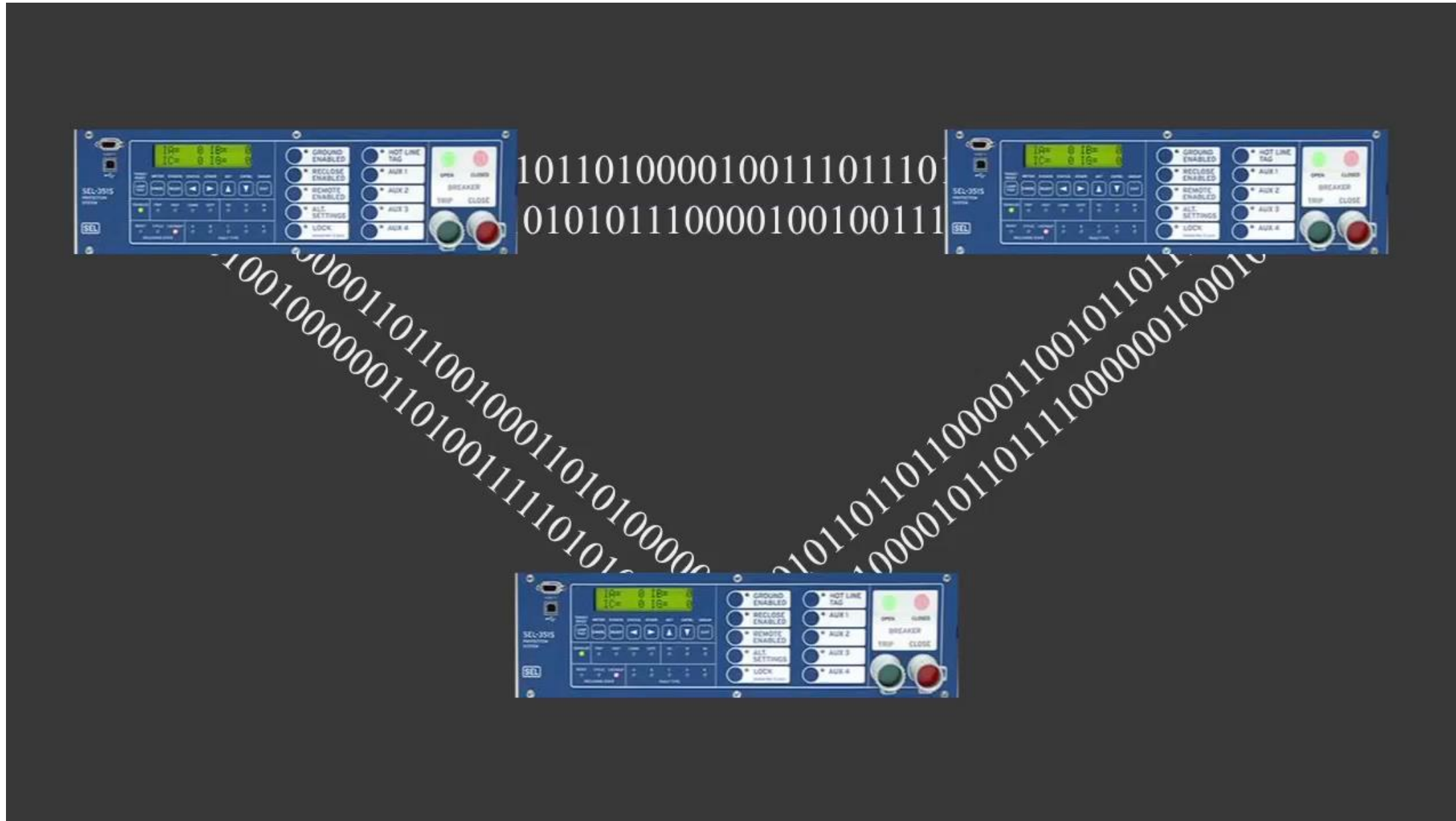


Benefits

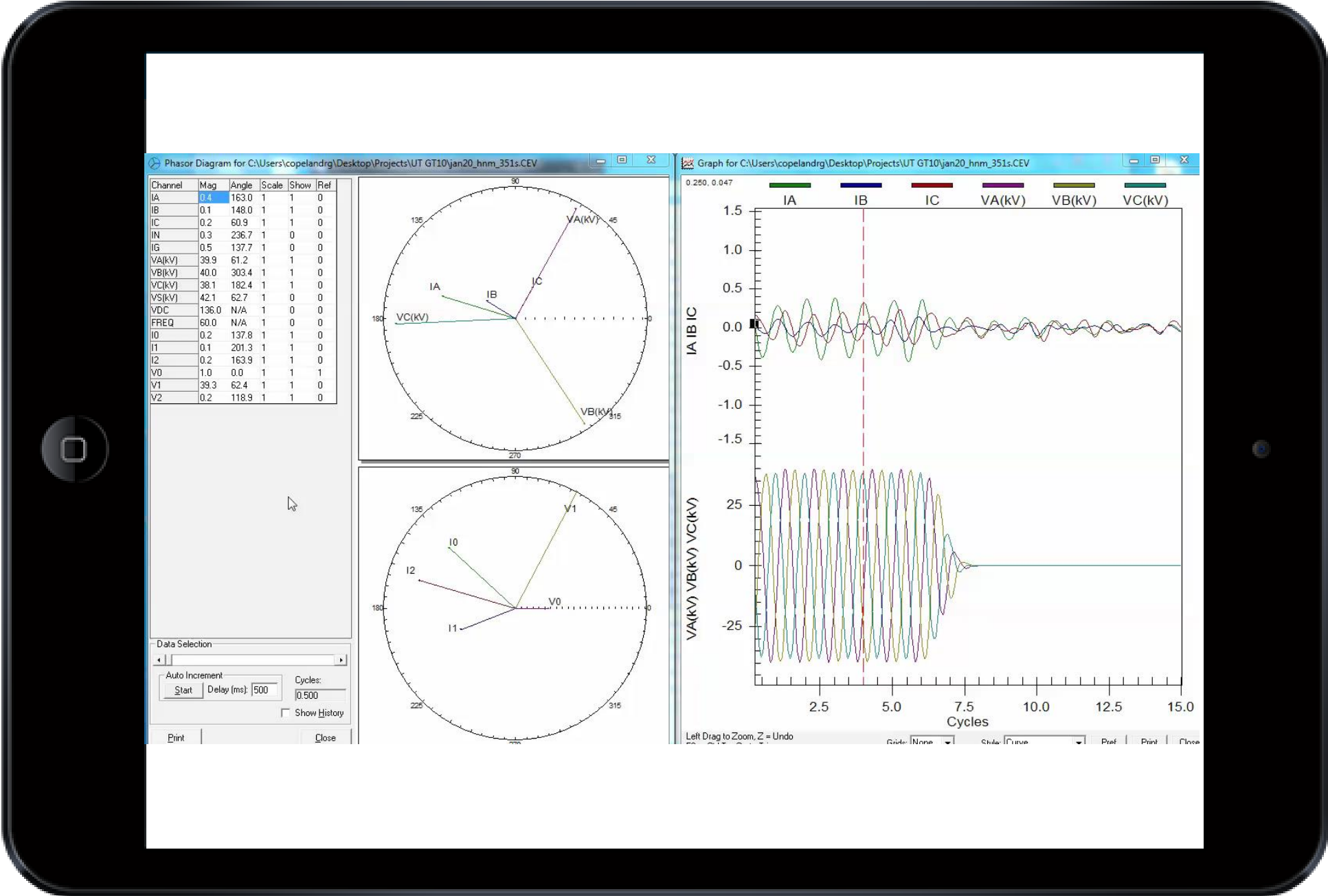
Benefits



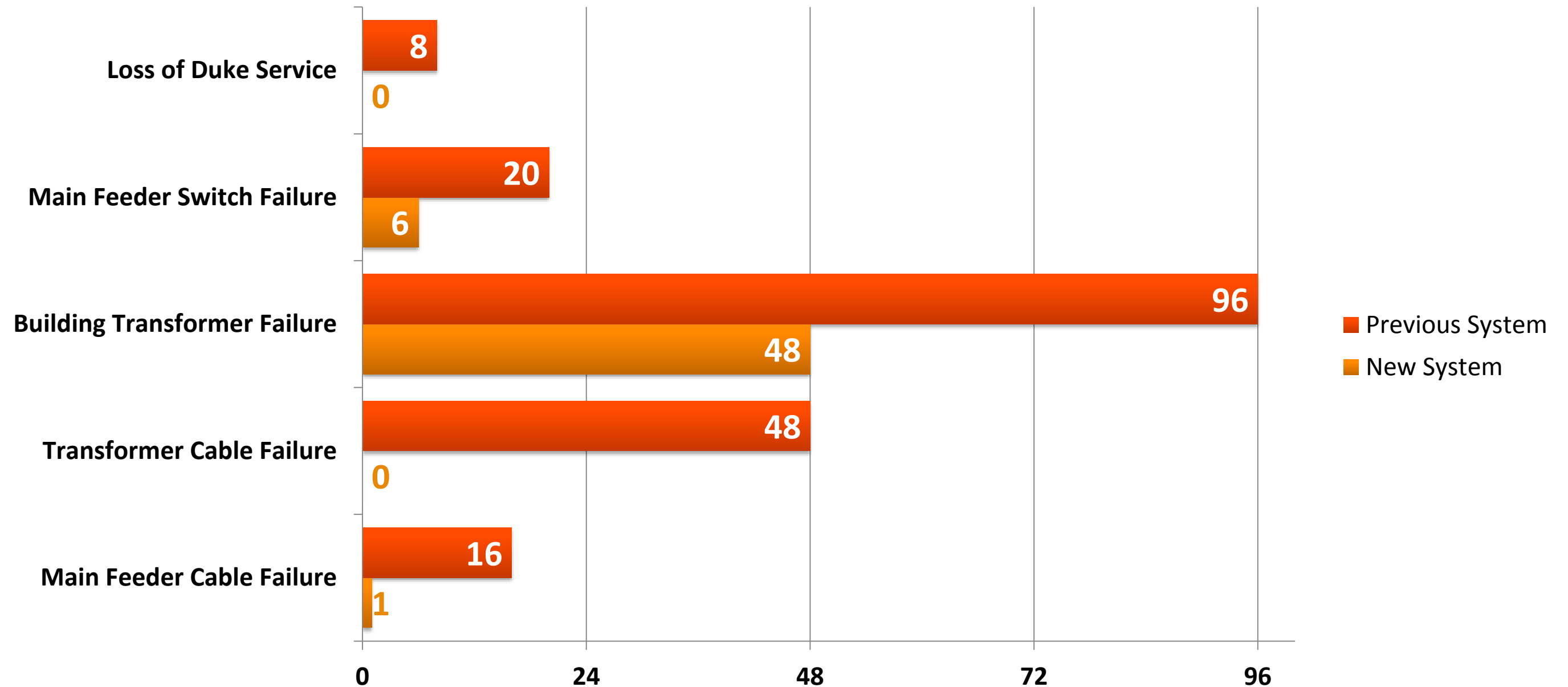
Benefits



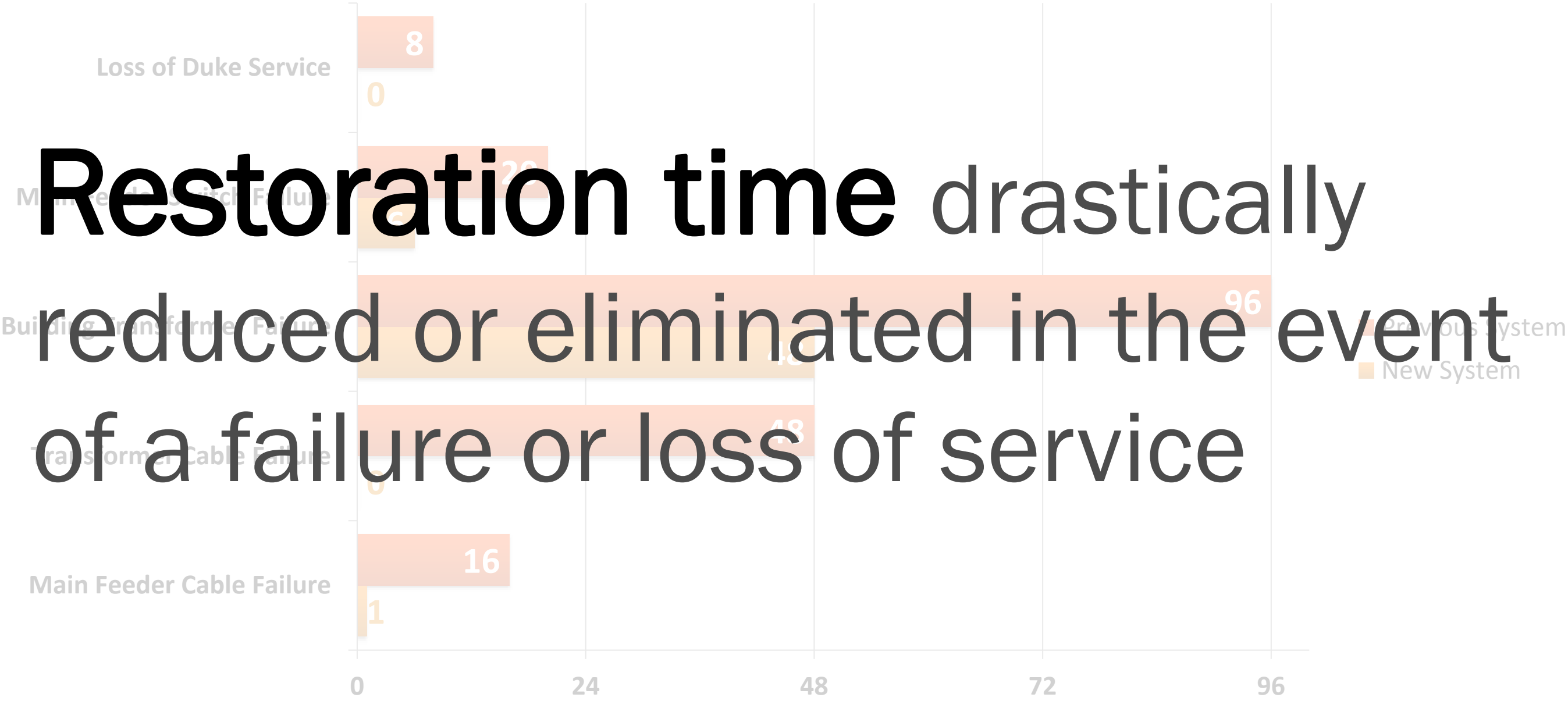
Benefits



Benefits: Restoration Time



Benefits



JACOBS®

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