

The mobile substation is already well known application introduced since 1990. But it is usually limited to only emergency type mobile substation to replace the failed item or recover during disaster. It is mainly focusing on power transformer and some distribution circuit to feed this power to customer.

However, there are more usable application to utilize this mobile substation applying for the latest new product like GIS, STATCOM and ESS as below.

1. Fast Electrification for Renewable Energy
2. Relocate for Oil & Gas and Mining
3. Grid Resilience for T/L Substation
4. Maintenance for Asset Life Extension or Replacement

And GIS technology is more developing and provide more extensive role of mobile substation. And this is the one example and process to be used during the maintenance or overhaul of old substation.

Usually, there are many old substation to be replaced or upgraded in the World. But it take long construction time and utility do not make the plan due to shutdown issue. So, this proposal could be helpful to utility who has the concern of power supply to customer without outage.

And there are several slides to present to replace old AIS substation to new GIS substation using Mobile GIS.

1. Transfer all feeder to Bus-1
2. Transfer Line #1 and Bus#2 to Mobile GIS And repeat to Line #2 and TR#1
3. Partially Demolish Bus#2 to secure the space
4. Interconnect each bus to energize Bus #2
5. Transfer every feeder to Bus#2
6. Demolish Bus#1 to secure the space
7. Install & Test new Outdoor GIS, TR and E-House including secondary system
8. Transfer Line #1~2 to new GIS from Mobile GIS. And Transfer to new TR#1 instead of existing TR#1
9. Remove Mobile GIS
10. Transfer Line #3 to new GIS from existing Substation And repeat to another feeder
11. Remove existing Substation and finalize the upgrade

So, old substation can be replaced with more reliable new GIS substation with min. Shutdown duration. And 60% of footprint can be minimized.

In conclusion, there are many advantage of mobile substation expect for emergency recovery. And it is suitable solution in de-carbonization and green environment trend. Because this will reduce footprint & construction time.