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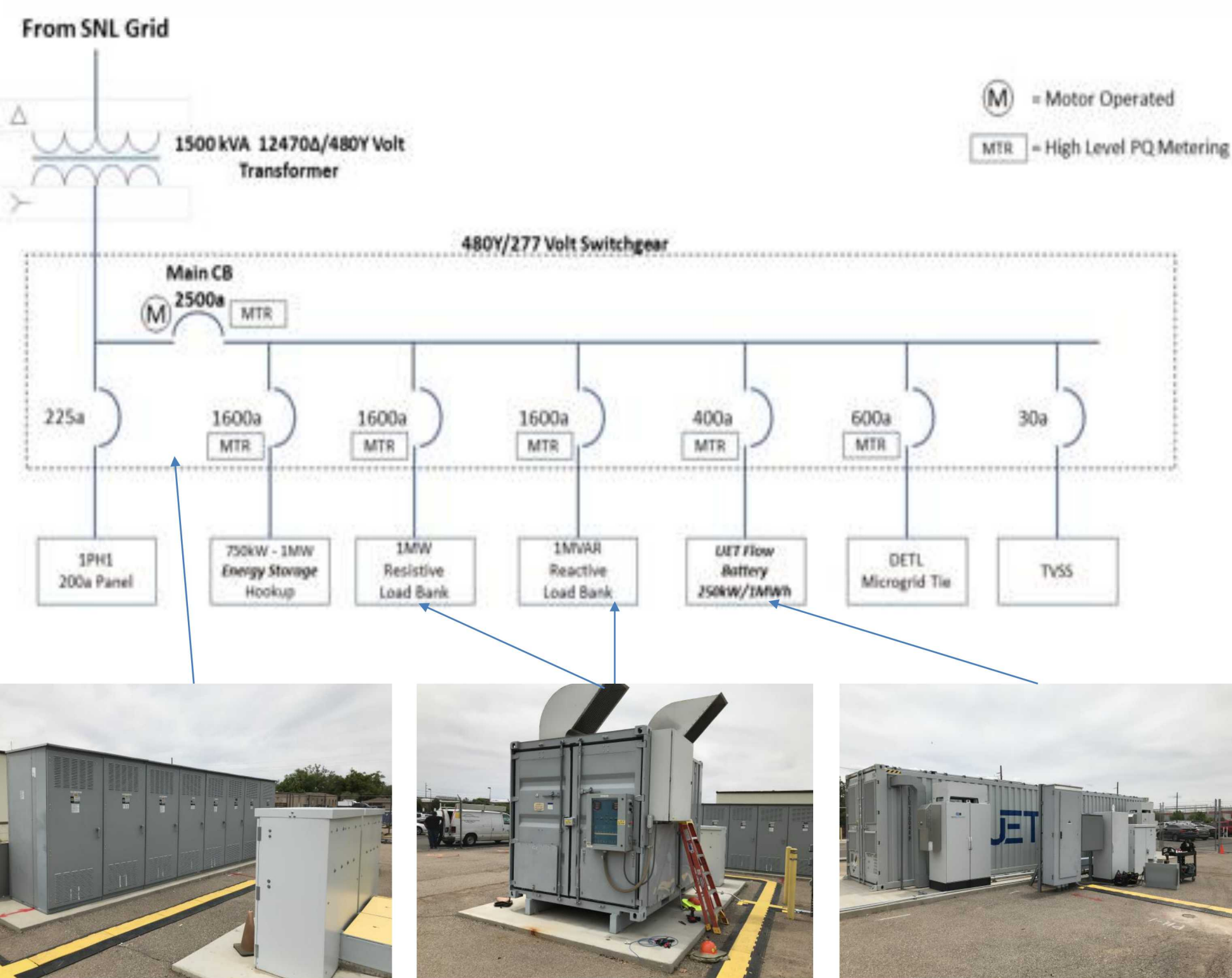


# Energy Storage System Testing

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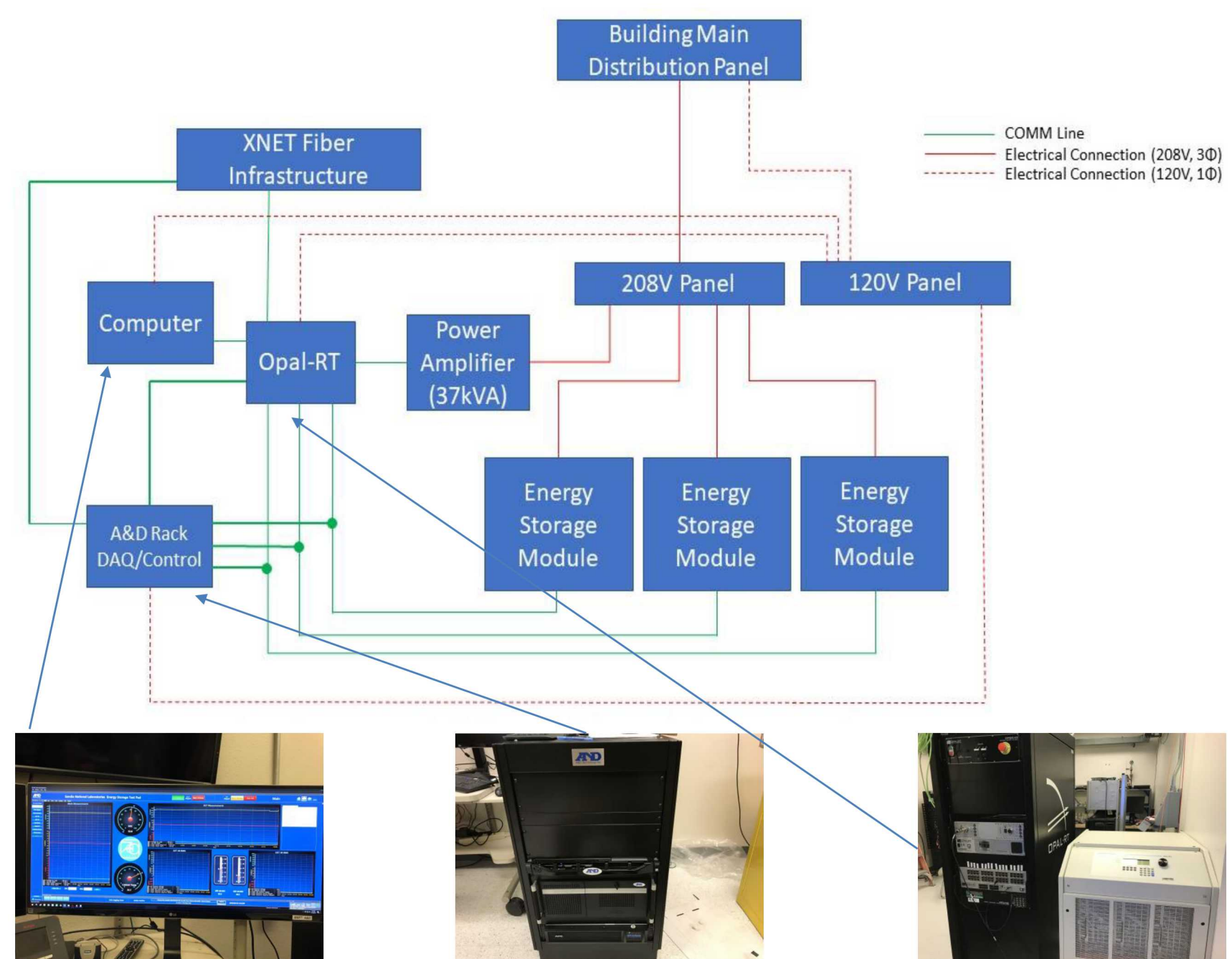
## Energy Storage Test Pad (ESTP)

The ESTP is able to show us how an energy storage system performs and gives us the ability to conduct efficient research on what we can do to better the technology and build a more resilient grid for the future.

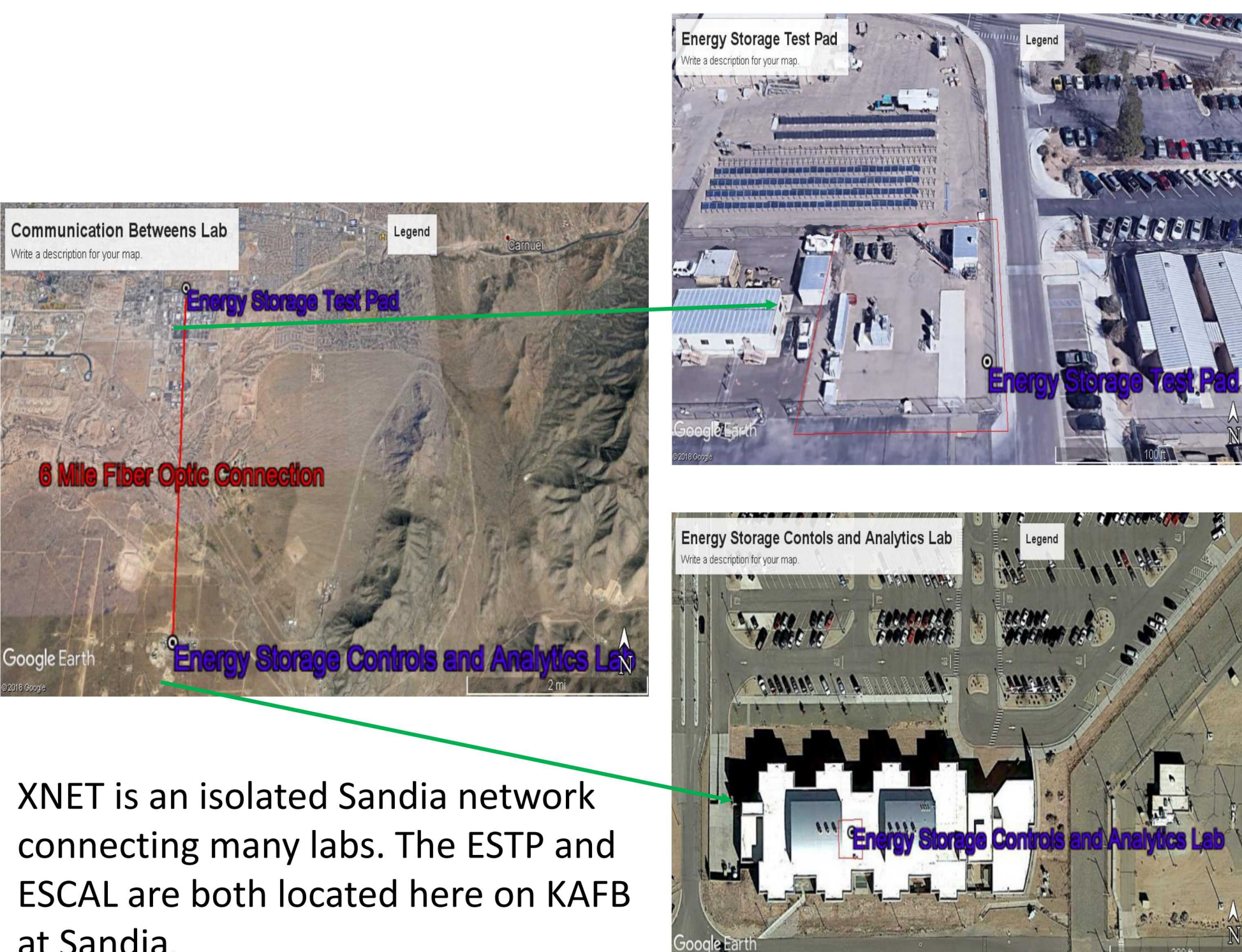


## Energy Storage Controls and Analytics Lab (ESCAL)

In the ESCAL we are able to collect all data points coming from the ESTP and can see how the energy storage unit is acting based on the incoming data. We can see the battery's voltage, current, charge, and much more. This helps us to see how the energy storage unit is acting based on different scenarios.



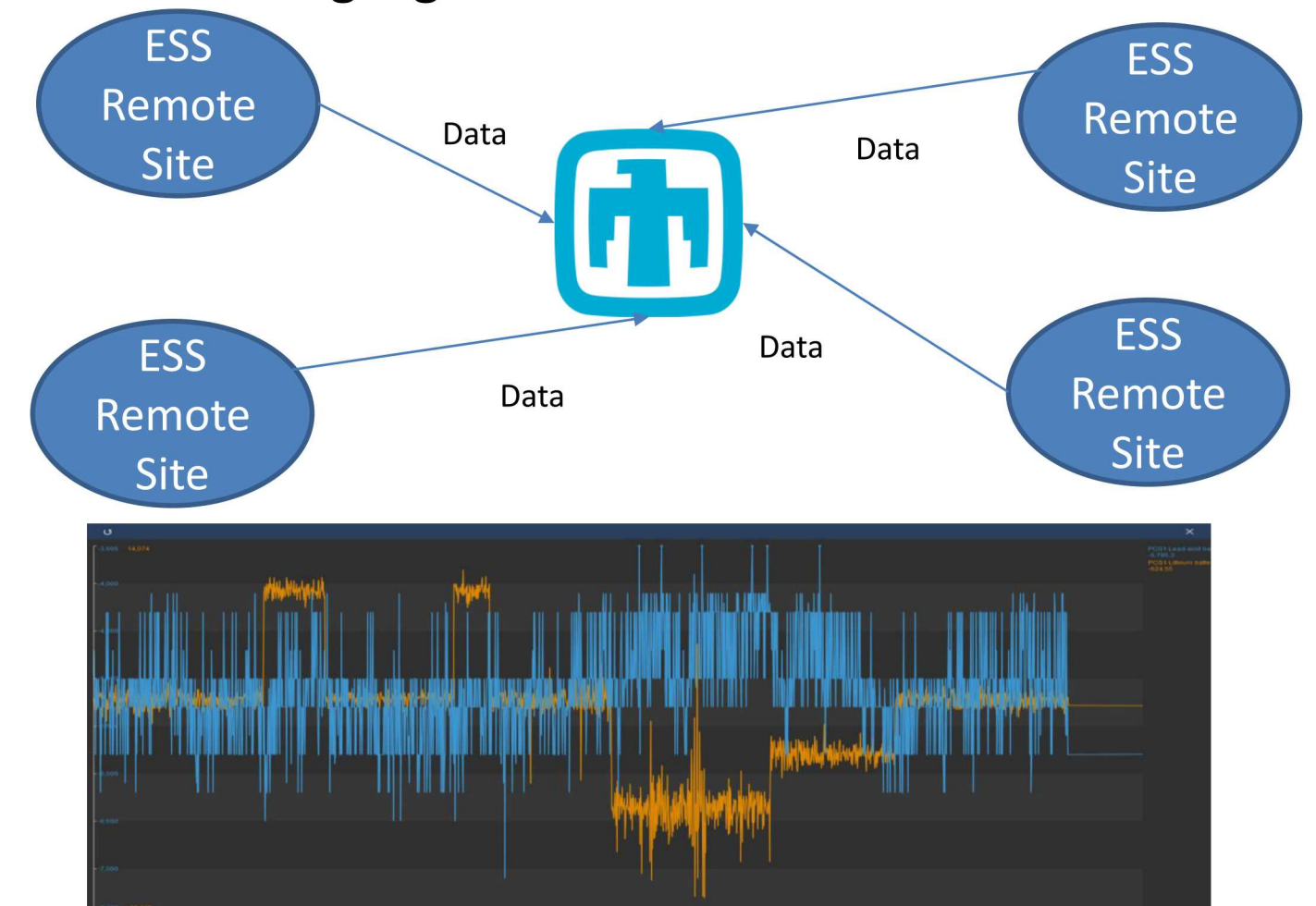
## ESTP and ESCAL Communication



XNET is an isolated Sandia network connecting many labs. The ESTP and ESCAL are both located here on KAFB at Sandia.

## Remote Data Gathering

By connecting systems all across the country we are able to gather data remotely from various locations all the way to Massachusetts. All of this data is able to be seen almost instantaneously here at Sandia. By having the data so easily accessible we can do performance evaluations such as degradation of technologies for various applications, optimize dispatch over time, and futuristically machine learning algorithms.



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