

# Annual Power Engineering Exchange (APEX) 2022

Technology Led Changes



## Concept Design Greytown ODID

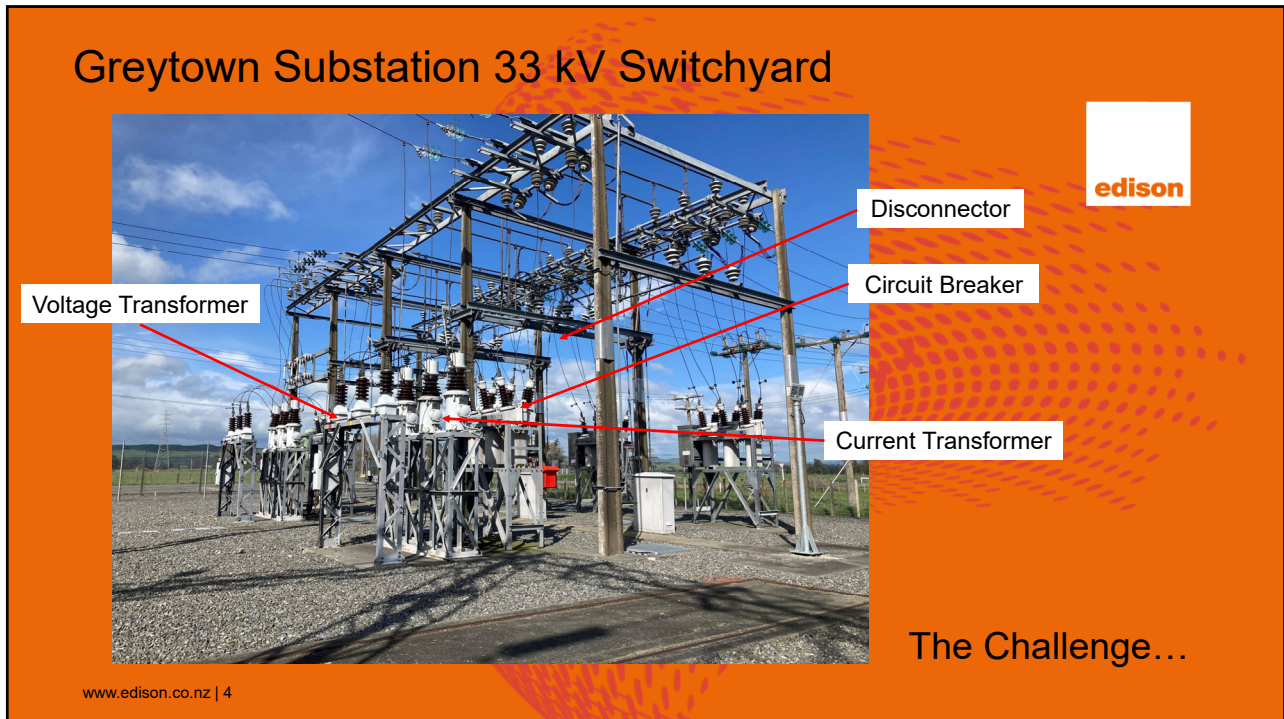
Martin Araez  
Power Systems Design Engineer

6<sup>th</sup> October 2022

A Quick Survey



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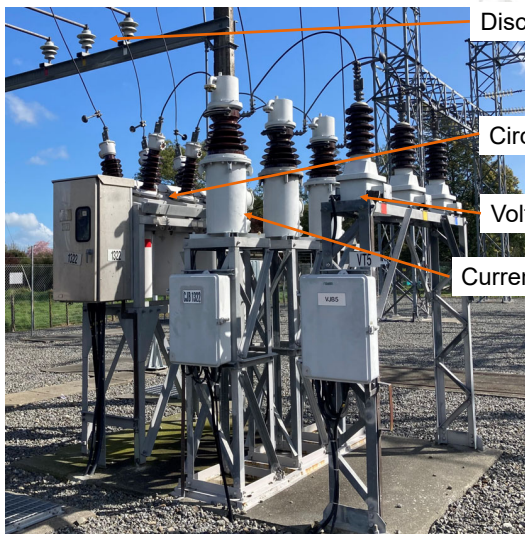


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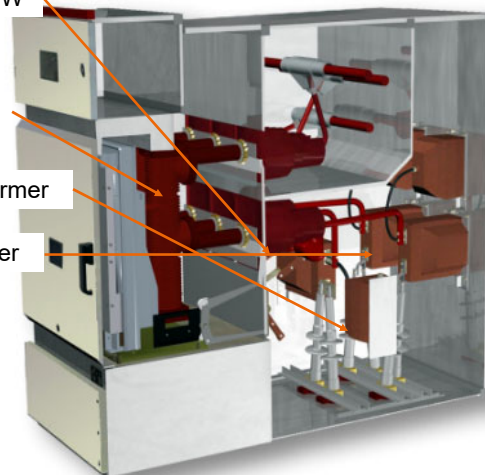
### ...The Solution



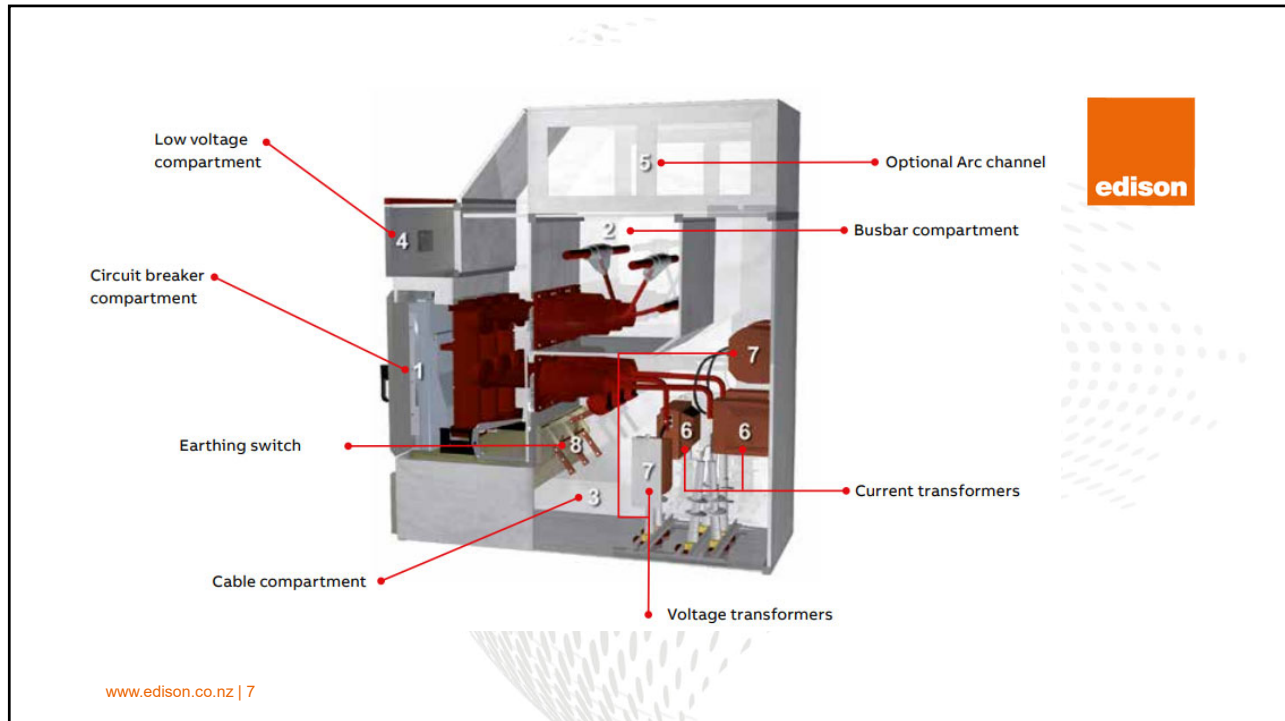
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Disconnector/ESW  
Circuit Breaker  
Voltage Transformer  
Current Transformer



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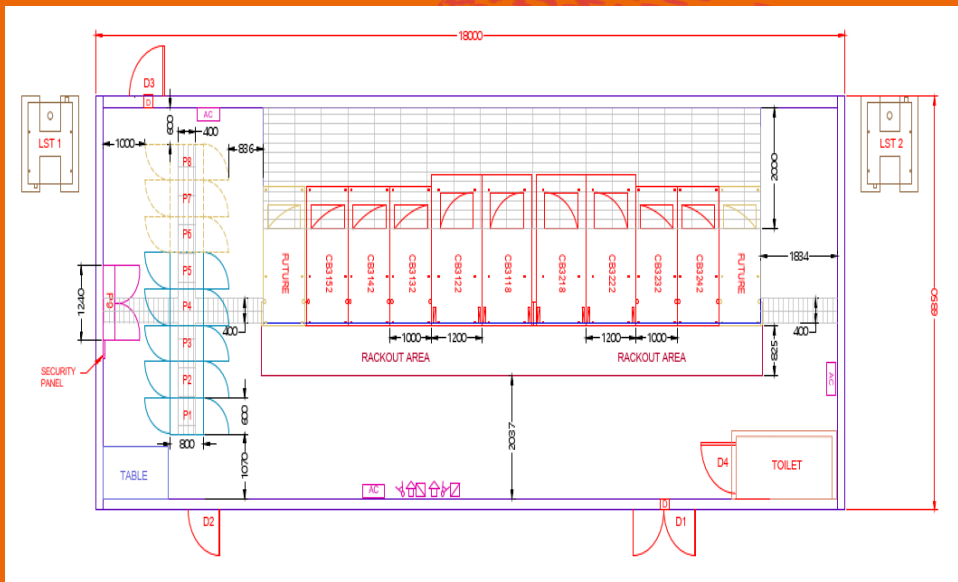
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### ...The Solution – Powerco Greytown 33 kV ODID Conversion

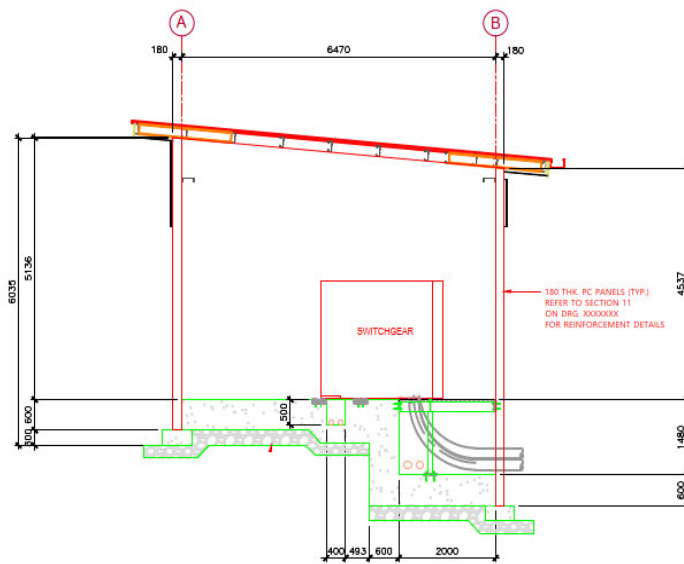


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# ...The Design Solution - 33kV Indoor Switchroom



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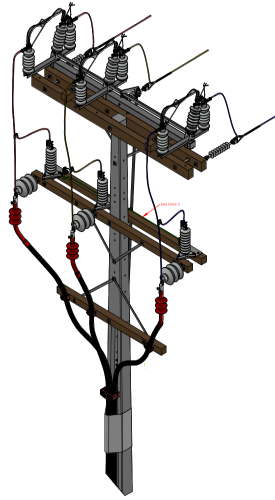


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### ...Enabling Works

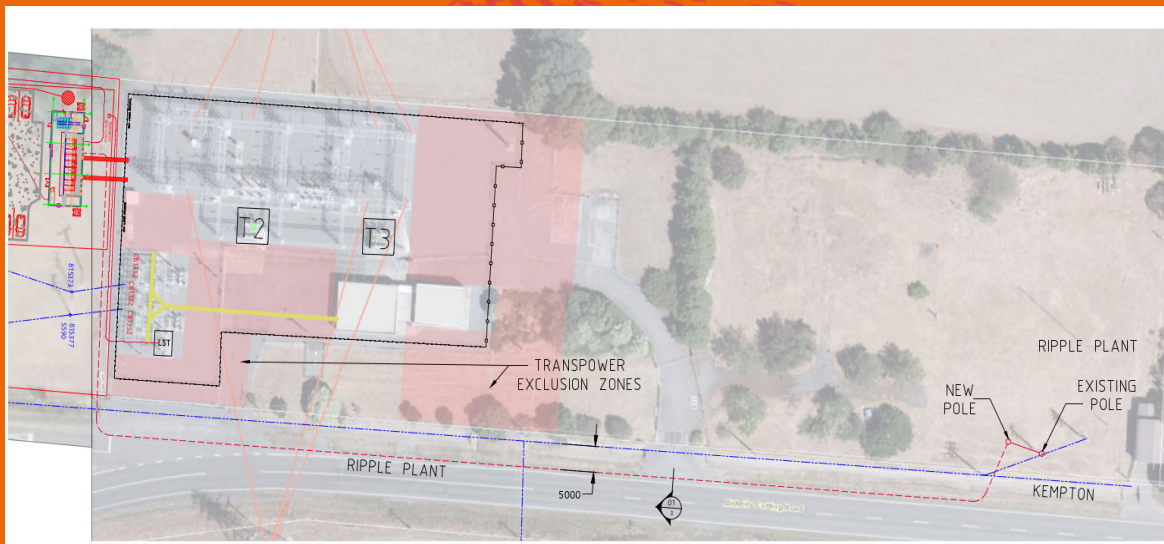


Example of Termination Pole

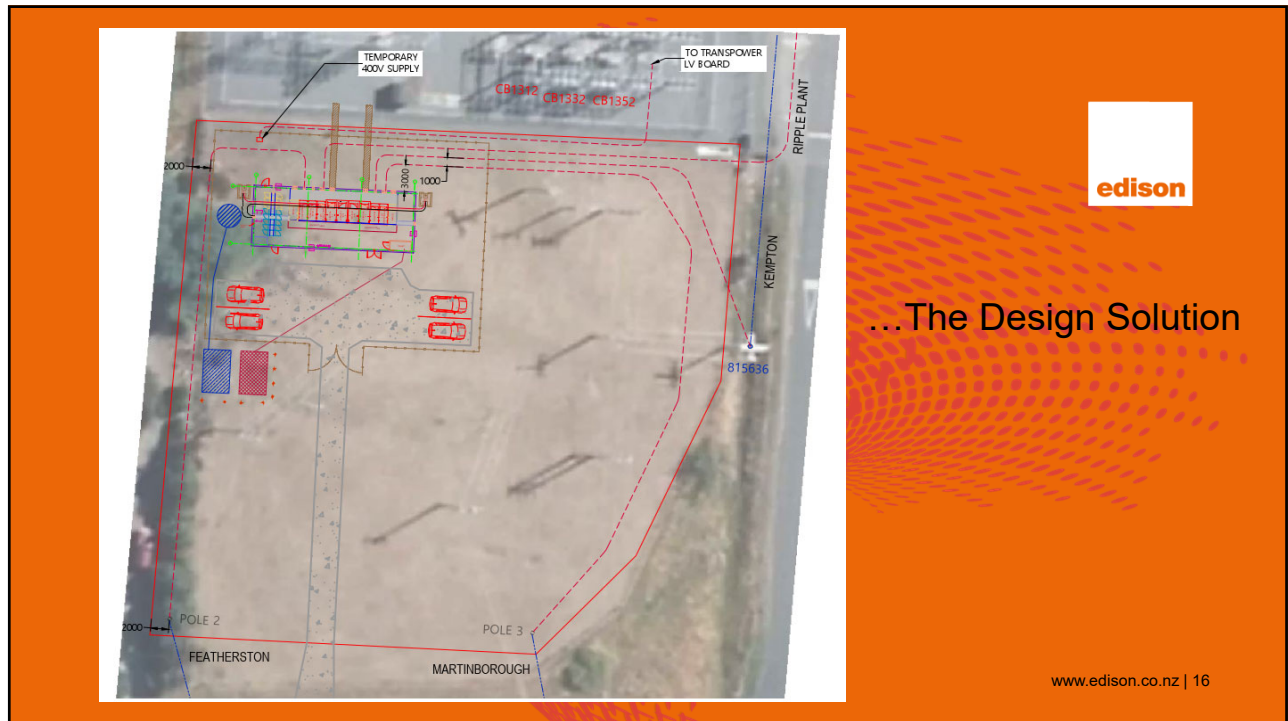
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### ...Ripple Plant Feeder



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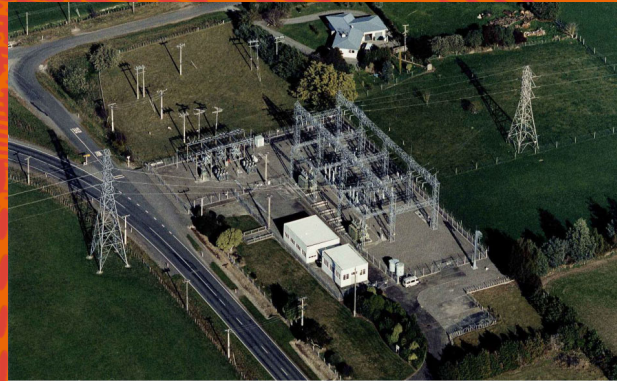




## Technology Led Changes



- Smaller footprint
- Exposed Primary assets to metal clad switchgear
- Enabling works –Overhead conductors
- Mitigating risk of potential difference



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## The Future...



SUBSTATIONS

### SP Group Builds First Large-Scale Underground Substation in Southeast Asia

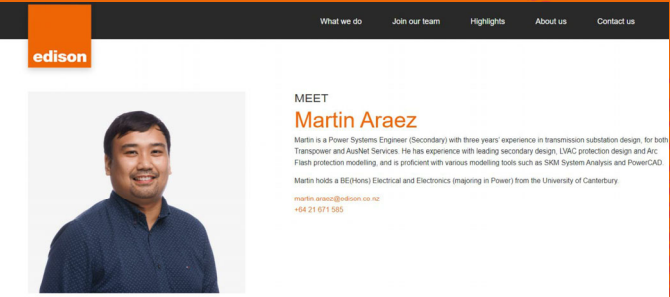
April 13, 2021

230-kV underground substation to optimize space in land-scarce Singapore for urban growth and development.



Artist impression only

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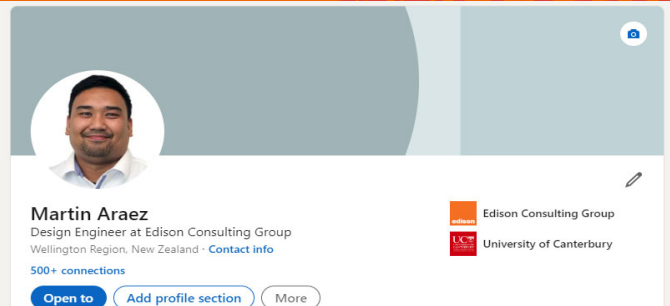
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MEET  
**Martin Araez**

Martin is a Power Systems Engineer (Secondary) with three years' experience in transmission substation design, for both Transpower and Asset Services. He has experience with leading secondary design, IASC protection design and Air Flash protection modelling, and is proficient with various modelling tools such as SIMU System Analysis and PowerCAD. Martin holds a BE(Eng) (Electrical and Electronics (majoring in Power)) from the University of Canterbury.

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## Thank you and let's keep in touch!

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