

WHY ARE ENGINEERS INTEGRATING NEW TECHNOLOGY INTO SOLAR ARRAY DESIGNS?

Presented by Emma Lloyd



 **CONNETICS**

 **THE ORION GROUP**

 **CCHL AND THE COMMUNITY**



NEW ZEALAND / ENERGY

People should be prepared for power outages - Consumer NZ

The real power crisis may well be looming.

SUSTAINABLE FUTURE

Who's to blame for the energy crisis?




ELECTRIFICATION







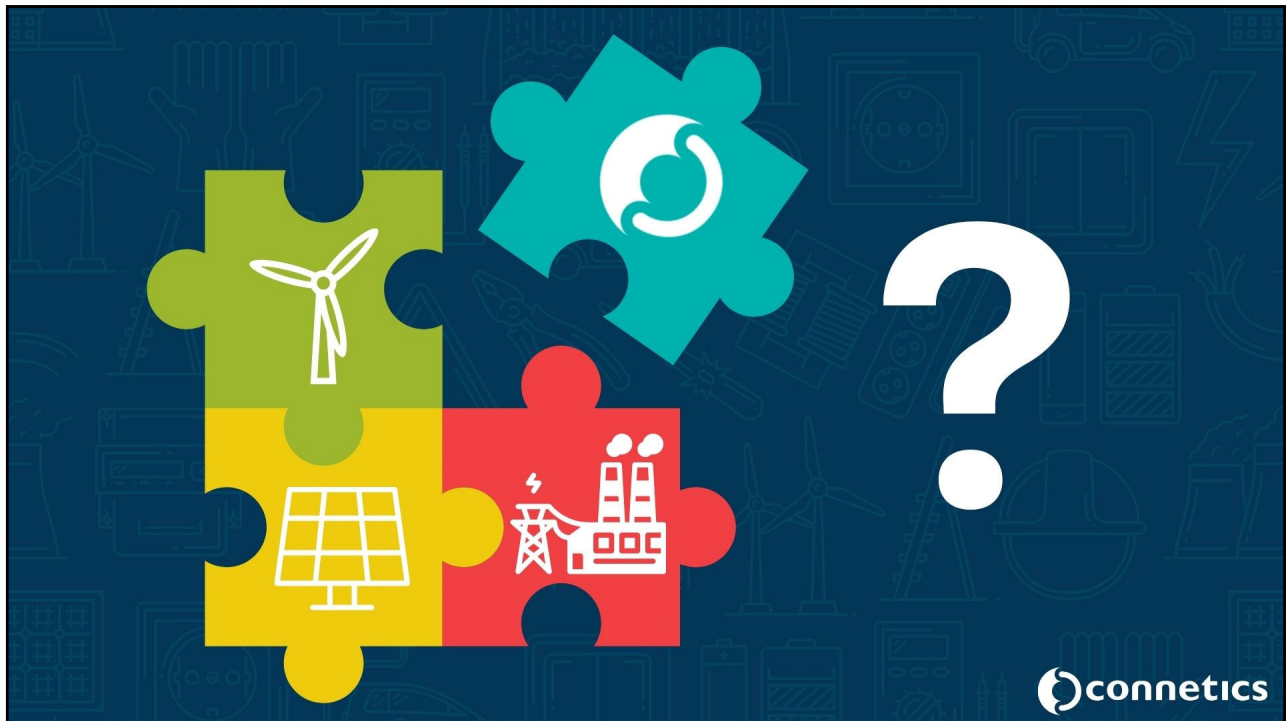
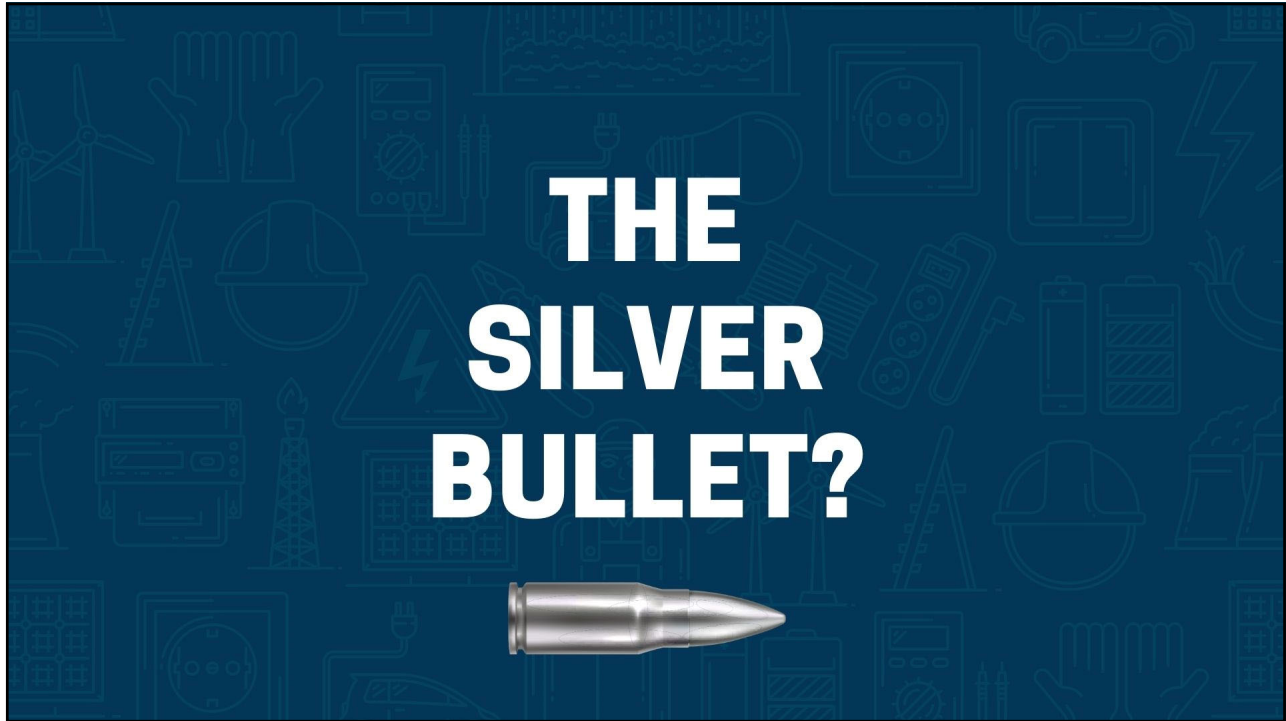
**INCREASE
GENERATION ?**

EASY! 



SOLAR! 





PROJECT BASICS

SITE 1

304 panels
19 x 16 arrays
2 inverters
166 kWp
5° on roof tilt

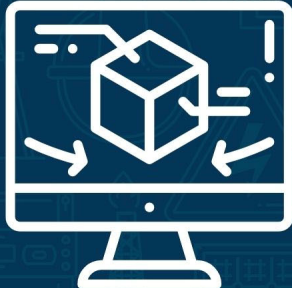
SITE 2

224 panels
16 x 14 arrays
1 inverter
122 kWp
29° hardware tilt

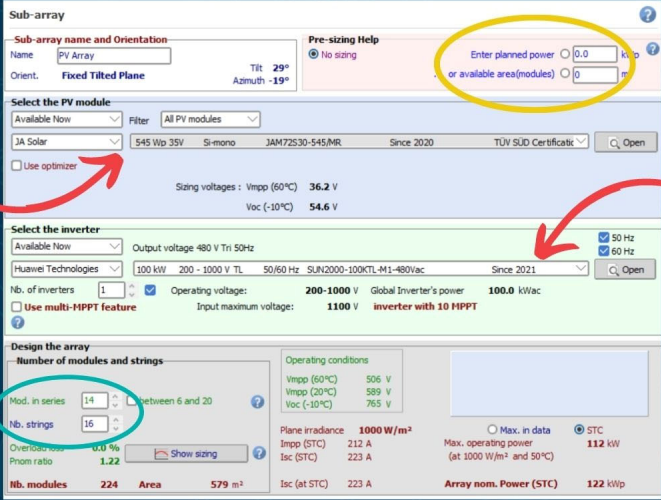



3D SCANNING

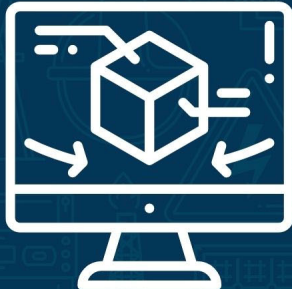




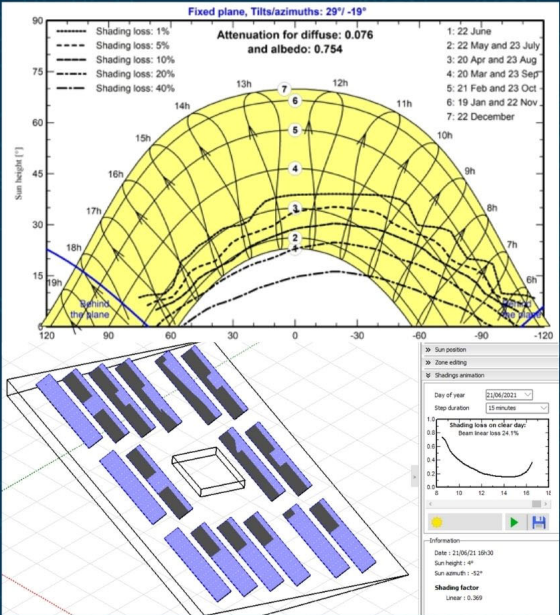
MODELLING








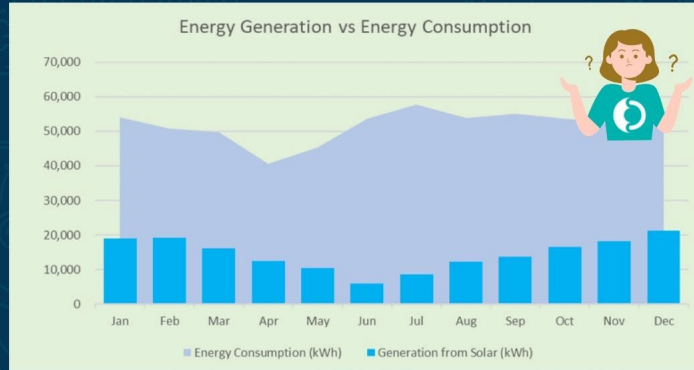
MODELLING







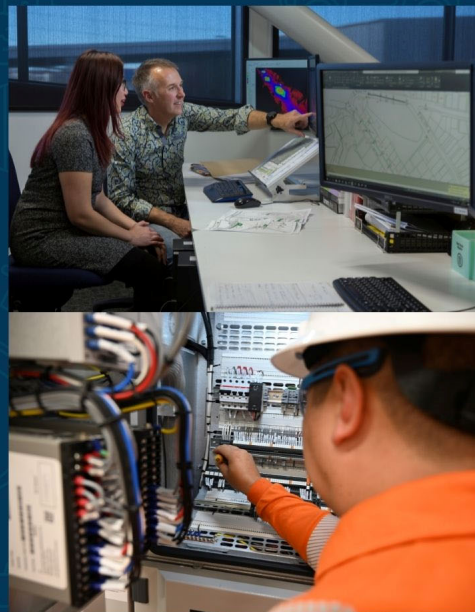
FINANCE




Scenario	DC Capacity (kWp)	No. Panels	Produced Energy (MWhr/year)	Approximate Additional Cost*	Payback Period (years)
Base Case Option A – 30 degrees, 5.5m pitch	99.2	182	143.6	\$0	8.02
Base Case Option B – 27 degrees, 4.5m pitch	99.2	182	141.3	\$0	8.18
Option B + 1 set (14 panels)	107	196	152.0	\$6,942	7.84
Option B + 2 set (28 panels)	114	210	162.6	\$13,884	7.55
Option B + 3 set (42 panels)	122	224	173.1	\$20,826	7.31

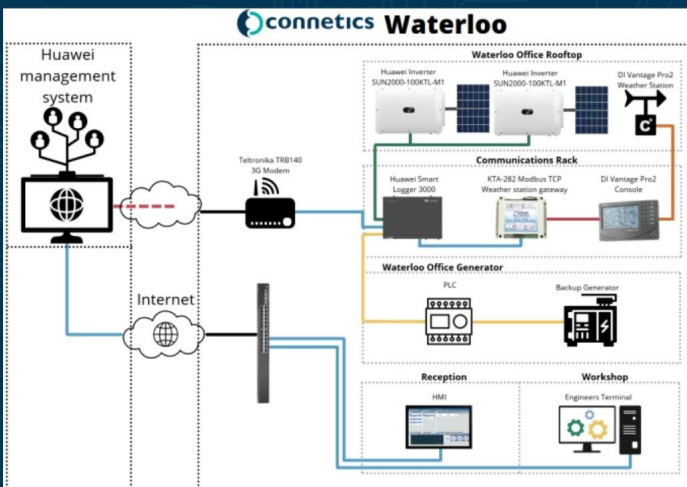


CONTRACTING





INTEGRATION



connetics Waterloo

Huawei management system

Internet

3G Modem

Waterloo Office Rooftop

- Huawei Inverter SUN2000-100KTL-M1
- Huawei Inverter SUN2000-100KTL-M1
- DI Vantage Pro2 Weather Station

Communications Rack

- Huawei Smart Logger 3000
- KTA-282 Modbus TCP Weather station gateway
- DI Vantage Pro2 Console

Waterloo Office Generator


- PLC
- Backup Generator

Reception

- HMI

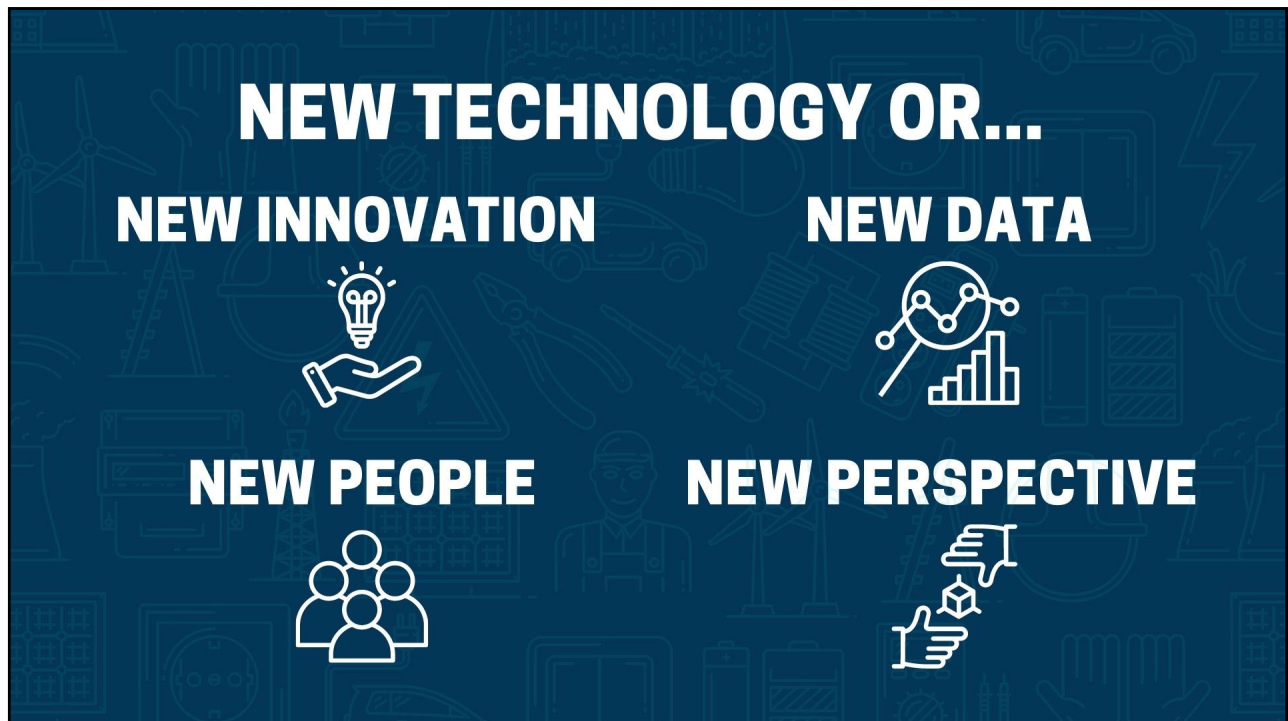
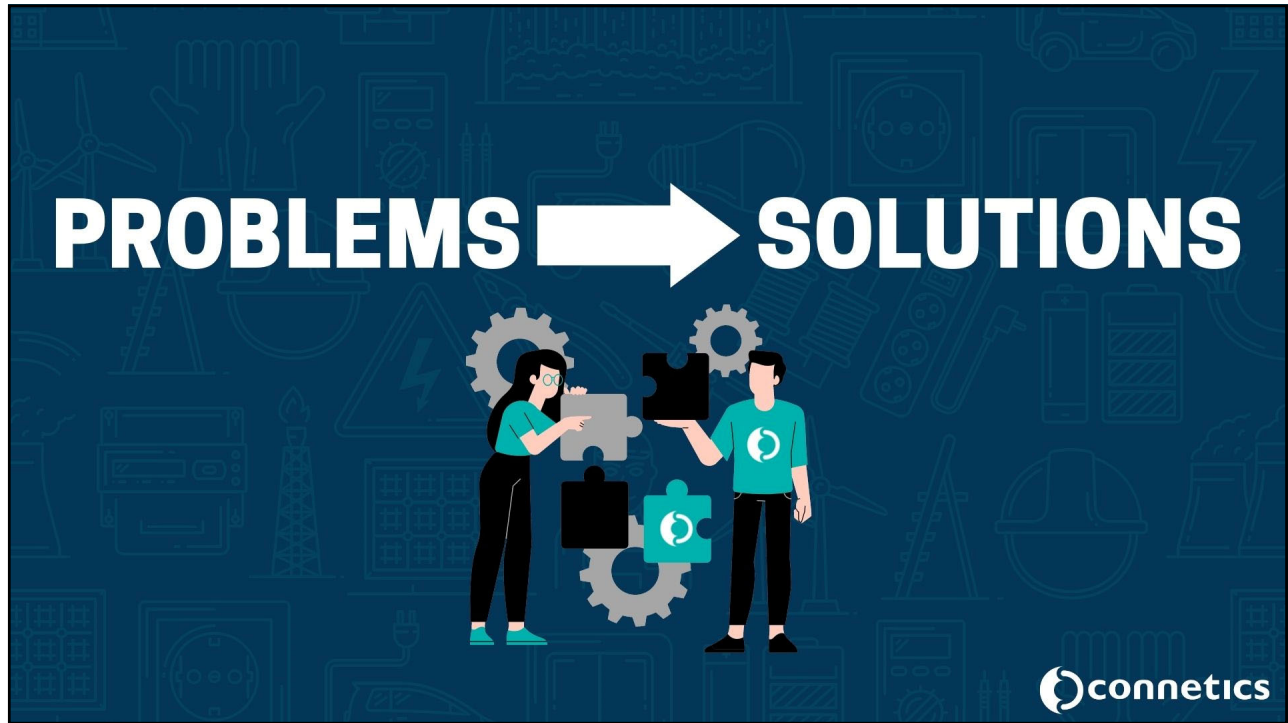
Workshop

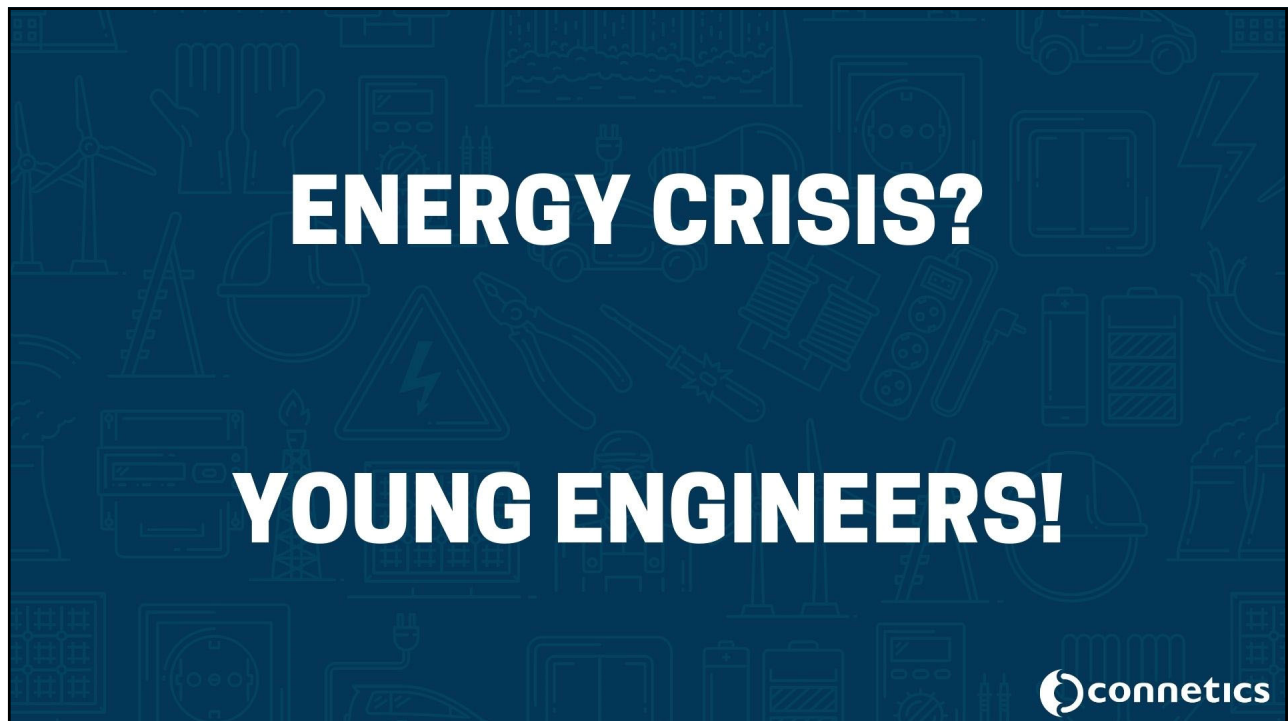
- Engineers Terminal



WHY?







ACKNOWLEDGEMENTS

Solar Project:

James Craib, Vincent Ho, and Hels Lopez

APEX presentation sounding board:

Irene Clausee

Management:

Nathan Rich and James Rouse



**THANK YOU FOR YOUR TIME AND
ATTENTION**

