OVERVIEW

In today's competitive and fast pace environment, utilities and industries constantly pursue ways of optimizing Power system and Process performance capabilities, simultaneously ensuring safety and reliability of the system. iEngineering Australia is well-versed in performing design work and consulting studies to optimize power system performance and and investigate system events.

WHY CHOOSE US

- **Energetic flexible and open minded team**
- **Highest quality service and support**
- **We are a trusted company with excellent and fast service**

SERVICES

- Power System Studies & Design
- Energy & Electrical Audit
- ASP L3 Design/ Substation and Industrial Design
- Earthing Studies & EMFI Analysis
- Hosting Studies for EV and Renewables
- Industrial Engineering
- Green & Renewable Energy
- HV Panel Design
- Battery Energy Storage System Design
- Maintenance Excellence & Costing
- Telecom

CONTACT US

+61(0)28860 9645

enquiries@iengaust.com.au

www.ieng.tech

POWER SYSTEM ANALYSIS AND NETWORK STUDIES

iEngineering Australia has quality engineering professionals and is able to satisfy requirements of comprehensive power system analysis and network studies using power system simulation software.

The following studies are carried out for Renewables, Power plants, Oil and gas, Process industries etc.. with the help of powerful software tools and experienced engineering expertise.

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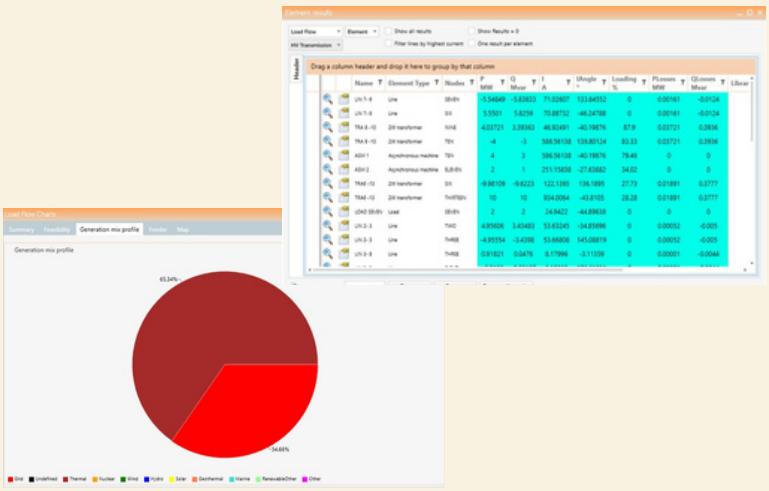
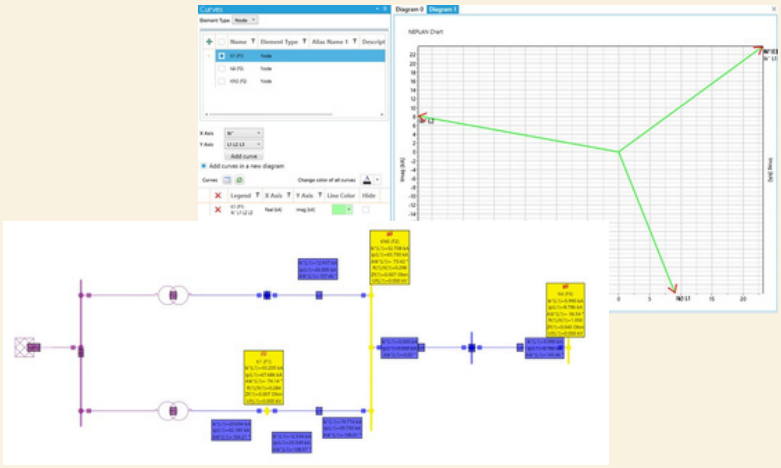


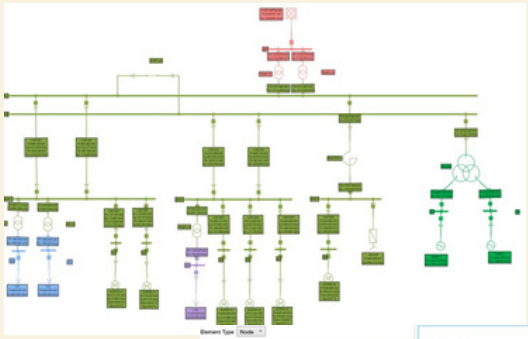
LOAD FLOW ANALYSIS

- Equipment Loading
- Voltage Profile
- Reactive power
- Compensation Voltage Control
- Power Factor Correction
- Contingency Analysis



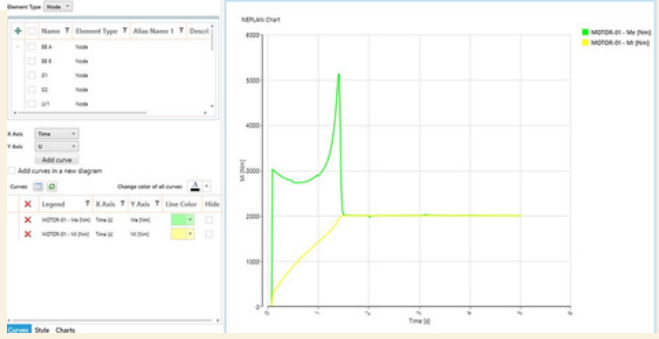
SHORT CIRCUIT STUDIES

- Equipment short circuit rating
- Circuit Breaker Selection
- Insulation withstanding capabilities
- Relay setting calculation
- System condition under fault occurrence
- Optimization of grounding techniques
- Short circuit mitigation technique recommendation



MOTOR ACCELERATION STUDIES

- Static motor acceleration studies
- Dynamic motor acceleration studies
- Starter recommendations



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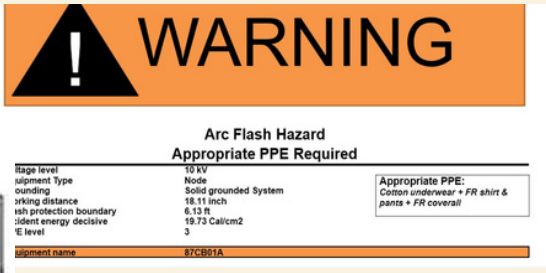
ARC FLASH STUDIES

- Incident energy calculation
- Arc flash boundary level recommendation
- Label Generation

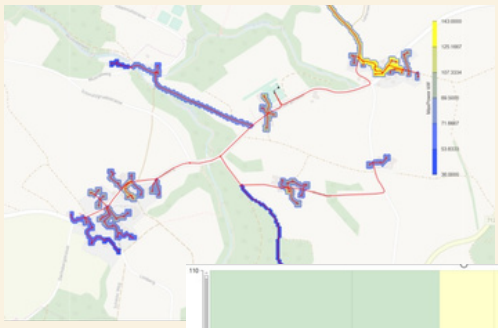


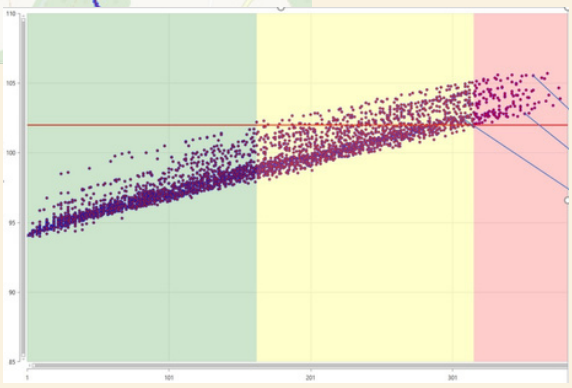
HARMONIC ANALYSIS

- VTHD and ITHD interference
- Filtering design and dimensioning recommendation
- Power quality enhancement

HOSTING CAPACITY

- Integrating dispersed generators
- Target grid planning
- Connection request
- Voltage control in distribution Grid





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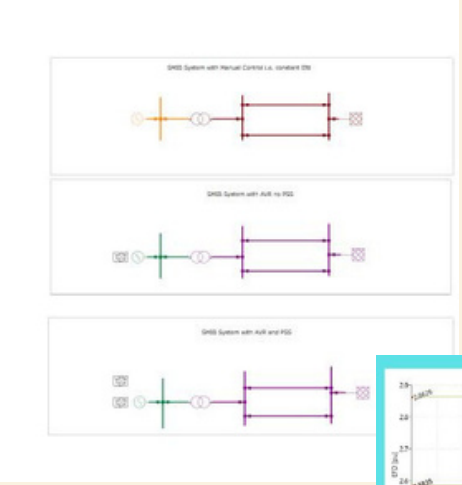
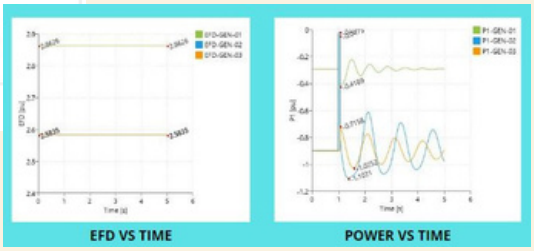


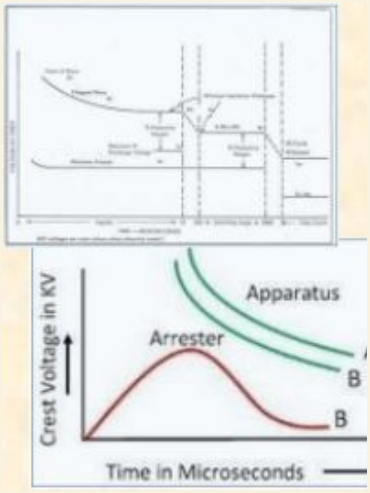


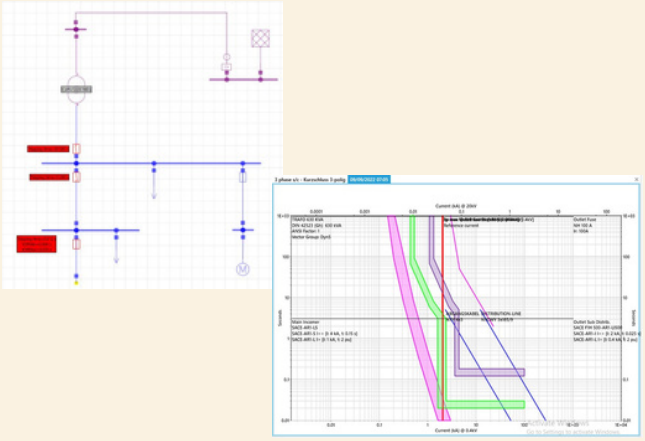
TRANSIENT STABILITY ANALYSIS

- Angular and voltage stability analysis
- Critical clearing time
- Mitigation technique recommendation

INSULATION COORDINATION

- Insulation level selection coordination
- Surge arrester placing suggestion
- Investigation of overvoltage in case of switching actions
- Transient modelling of power system components
- Study on lightning impulse overvoltage condition





OVERCURRENT PROTECTION

- All types of protective devices with a current- time characteristic can be entered
- Several protective functions can be assigned to each protective device
- Exact modelling of setting ranges
- Transferring Current Values
- Simulation of fault clearing procedure in meshed networks, involves also distance protection

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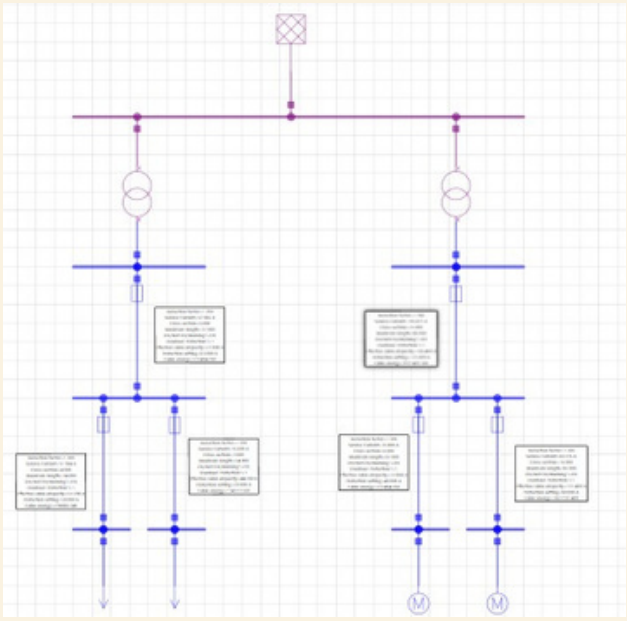
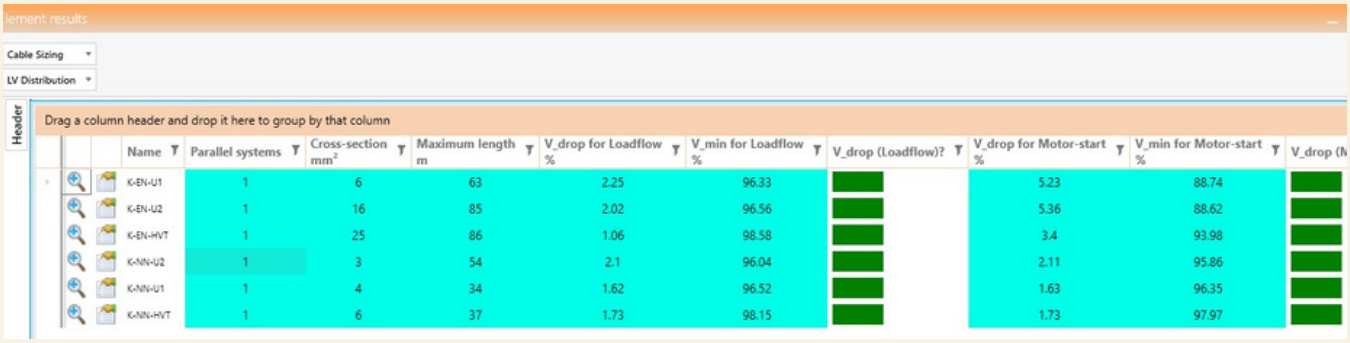
CABLE SIZING

- Automatic selection of protection device rating and setting
- Sizing of one cable or any number of cables together (distributed radial network)
- Maximum length of selected cable type and section for which the criteria is still fulfilled
- Cable cross-section area and the maximum cable
- Length including voltage drop condition for normal and motor start operation
- Criteria for overload and short-circuit protection, tripping times etc.





Name	Parallel systems	Cross-section mm²	Maximum length m	V_drop for Loadflow %	V_min for Loadflow %	V_drop (Loadflow)?	V_drop for Motor-start %	V_min for Motor-start %	V_drop (M
K-EN-U1	1	6	63	2.25	96.33		5.23	88.74	
K-EN-U2	1	16	85	2.02	96.56		5.36	88.62	
K-EN-HVT	1	25	86	1.06	98.58		3.4	93.98	
K-NN-U2	1	3	54	2.1	96.04		2.11	95.86	
K-NN-U1	1	4	34	1.62	96.52		1.63	96.35	
K-NN-HVT	1	6	37	1.73	98.15		1.73	97.97	

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STANDARD EXPERTISE

Load Flow Analysis

- IEEE 399-1997-IEEE Renewables Practice for Industrial and Commercial Power System Analysis

short Circuit Analysis

- IEC 60909 -2016-short circuit current in three-phase AC system
- IEC 61363-1998-Electrical installation of ships, mobile and fixed offshore unit ANSI C37

Motor Acceleration Studies

- IEEE-399-1997-IEEE recommended practice for Industrial and Commercial Power System Analysis
- NEMA-2016- National Electrical Manufactures Association

Overcurrent Protection

- IEEE-242-2001-IEEE recommended practice for Protection and Coordination of Industrial and Commercial Power System Analysis
- IEC-60255-2018-International Standard for Measuring Relays and Protection Equipment

Arc Flash studies

- IEEE-1584-2018-Guide for performing Arc-Flash Hazard Calculation
- NEPA-70E-2018-Standard for Electrical safety in the workplace
- OSHA-Occupational Safety and Health Administration

Harmonic Analysis

- IEEE 519-2014-IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power system
- IEC 61400-Standad for testing and accessing power quality characteristics of grid connected wind energy converter

Insulation Coordination

- IEC-60071-2018-Standard for Insulation Coordination
- IEEE C62.82.1-IEEE Standard For Insulation Coordination-Definitions, Principles and Rules

Cable Sizing

- AS/NZS-3008.1 and AS/NZS-3000
- IEC-60287

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KEY PROJECTS EXECUTED

Power System Studies (Load Flow, Short Circuit, Relay Coordination and Arc Flash studies)

- Cockatoo Mine Power System Project
- Gencom-Mt Sugar SWER including protection setting
- Three 7 MW Mildura solar Generator in VIC
- Abu Hamour Mall and Doha Mall, Qatar
- FRA 54.4 Data Centre, Ireland
- BUWAIB Water treatment, Riyadh, Kingdom of Saudi
- Arabia Hero R&D and Production, India
- Tasek Cement Plant, Malaysia
- 660 MW Thermal Power Plant TPCIL, India.

Contigency Analysis and Power Evacution Studies

- Uniten 50 MW Solar Power Plant, Malaysia
- Interconnection of 30 MWAC PV Power Plant,
- Malaysia 98 MW Hydro Power Plant, Kandi Malaysia
- Senvion Wind Farm, India.

Transformer Energization Studies

- Dubin Gas Plant, Ireland.