



# 2022 Autumn Workshops Tamaki Mākaaurau Auckland

Substations and Electrical  
Installations

Information Systems and  
Telecommunications

Series 2 of 2  
In person and online



University of Auckland,  
Khyber Pass Rd, Newmarket  
[www.cigre.org.nz](http://www.cigre.org.nz)



An interactive workshop  
for power system practitioners

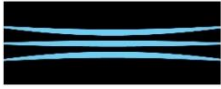
engineers, consultants, contractors, technicians  
generation transmission and distribution owners  
system operators, academics, vendors

to explore current practices and future initiatives for  
implementing end-to-end renewable power systems

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**ENGINEERING**  
DEPARTMENT OF ELECTRICAL,  
COMPUTER, AND SOFTWARE ENGINEERING

# PREVENTION OF COVID-19



Wash your hands  
with soap or use a  
hand sanitizer.



Cover your cough  
or sneeze with  
sleeves or tissues.



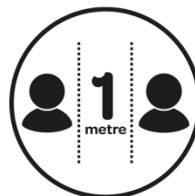
Clean and disinfect  
frequently touched  
surfaces, objects and  
doorknobs.



Do not touch your  
face before your  
hands are cleaned.



Dispose the  
tissues in the bin  
after used.



Keep a distance of  
around 1 meters



Face masks are  
encouraged.

For update and more information on  
keeping yourself safe, visit [Covid19.govt.nz](https://www.covid19.govt.nz)

Unite  
against  
**COVID-19**

## ABOUT CIGRE



CIGRE (International Council on Large Electric Systems) is a permanent, non-governmental and non-profit international association.

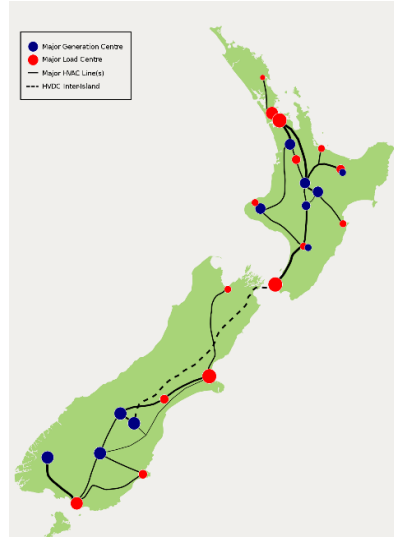
Based in France, CIGRE was founded in 1921 celebrating its Centennial in 2021. CIGRE is an international organization dedicated to the development of the power supply sector through the identification and the development of solutions to industry issues. With members in more than 80 countries, it is the leading worldwide organization on Electric Power Systems, covering their technical, economic, environmental, operational, organisational, and regulatory aspects.

CIGRE counts more than 3,500 experts from all around the world working actively together in structured work programmes coordinated by the CIGRE 16 Study Committees, overseen by the Technical Council. Their main objectives are to design and deploy the end-to-end power system for the future, optimize existing equipment and power systems, respect the environment, and facilitate access to information.

# CIGRE NEW ZEALAND NATIONAL COMMITTEE

The New Zealand National Committee (NZNC) was accepted as a full CIGRE National Committee by the CIGRE Administrative Council at its meeting held during the 2006 Paris Session. Since then we have been active nationally and internationally through engagements of:

- Disseminating CIGRE information and maintain communication with local NZ members regularly
- Providing a platform for presenting NZ expertise and experience to the New Zealand and International power systems community
- An active point of contact for CIGRE Paris, the ANC and other National Committees
- Taking our place on the world stage at CIGRE Paris with the other CIGRE National Committees
- Invitations and hosts to CIGRE Study Committees to hold meetings in NZ
- Participate as a member of the Asia Oceania Regional Council (AORC) of CIGRE
- Participating in, and providing internationally recognised keynote speakers for EEA2018, EEA2019, and EEA2020 annual conferences
- Arranging and hosting Regional/Global Conferences and Symposia such as CIGRE Auckland Symposium 2013, B5 Colloquium 2017, AORC 2017, Administrative Council Meeting 2017, and CIGRE ANZ 2018 in conjunction with AUPEC 2018
- Presenting A2 Power Transformers and Reactors technical webinars (2020)
- Presenting B1 Insulated Cables technical webinars (2019, 2020)
- Hosting AU and NZ online B1 Power Cables web tutorials (2020)
- Presenting CIGRE NZ annual Conferences in alignment with EEA NZ, inaugurally in 2020 featuring venue and online international and local power systems experts inclusive of CIGRE President, Study Committee convenors, CEO EEA NZ
- Providing formal links to other national and international bodies such as IEEE to benefit NZ industry



# ORGANISATIONAL STRUCTURE

The 16 international CIGRE Study Committees are mirrored as three Panels and four Interest Groups within CIGRE NZ.

CIGRE NZ Mirror Panel / Group		
	Dr Nirmal Nair	Technical Chair
Panel	Convenor	Associated Study Committee
<b>NZ.A2</b>	Dr Dan Martin, ETEL	A2: Power Transformers and Reactors
<b>NZ.B1</b>	Andre Cuppen, Powerco	B1: Insulated Cables
<b>NZ.B2</b>	Helen Gilbert, Beca	B2: Overhead Lines
<b>NZ.B3</b>	Doug Ray, Vector	B3: Substations and Electrical Installations
<b>NZ.B4</b>	Geethma Dissanayake, Transpower	B4: HVDC and Power Electronics
<b>NZ.B5</b>	Stephen Chiu, Powerco	B5: Protection and Automation
<b>NZ.C6</b>	Nasser Farooqui, Amplitude Consultants	C6: Distribution Systems and Dispersed Generation
<b>NZ.D2</b>	Abhinav Chopra, Counties Energy	D2: Information Systems and Telecommunication
<b>NZ.IG5</b>	System Performance	C1: System Development and Economics C2: System operation and Control C3: System Environmental Performance C4: System Technical Performance C5: Electricity Markets and Regulation
<b>NZ.IG6</b>	Generation, Transmission and Distribution	A1: Rotating Electrical Machines A3: High Voltage Equipment D1: Materials and Emerging Technologies

Since 2019 Study Committee Mirror Panels are being formed from our Interest Groups to best develop and reflect our CIGRE aims and objectives.

## CIGRE NZ NATIONAL COMMITTEE (NZNC)

Member	Position	Collective Organisation
Doug Ray	Chair / AORC Member	Vector
Nick Lee	Secretary	Transpower
Dr Dan Martin	Treasurer	ETEL
Dr Nirmal Nair	Technical Chair / Events Manager / AORC Member	University of Auckland
Rebecca Marx	Membership Manager	Mitton ElectroNet
Vaughan Evans	Publicity and Media	Preformed Line Products
Sanjib Mishra	Next Generation Network Chair	Aurecon
Leonie Bule	Women in Energy Chair	Transpower
André Cuppen	Executive Member	Powerco
Andrew Renton	Executive Member	Transpower
Brent Rees	Executive Member	Hitachi Energy
Trevor Lord	Executive Member	Individual
Waqar Qureshi	Executive Member	Horizon Networks



# WELCOME FROM CIGRE NZ TECHNICAL CHAIR



**Dr Nirmal Nair**

CIGRE New Zealand Technical Chair  
Events Manager

On behalf of our CIGRE NZ Technical Panels and our Organising Committee, it is a privilege and pleasure to welcome you as Technical Chair to our inaugural Autumn Technical Workshops series 2022 and the second leg in **Tāmaki Makaurau**.

We began planning this twin-cities venue and online based events, following approval during our 2021 AGM held in December. The Omicron COVID challenges were factored to pivot from a Summer 2022 workshop into Autumn in April 8 in Christchurch and 6 May in Auckland.

Our Workshop Convenors and Technical Panel committees from **NZ.B1: Insulated Cables**, **NZ.B5: Protection and Automation** for our Christchurch leg hosted by Meridian Energy, and **NZ.B3: Substation and Electrical installations**, **NZ.D1: Information Systems and Telecommunications** for this second leg hosted by University of Auckland, have been agile and effective to deliver this to power system professionals.

These four Technical panel groups have established a deep-dive program to give us an informative, collegiate experience for all. Our experience in Christchurch was well appreciated based on the very positive feedback received both from venue attendees and those who participated online. This session to be held in Auckland will help jumpstart deep-dive Panel interests to establish workgroups and activities for the coming years for our NZ.B3 and NZ.D1 groups.

Our Panel forums are bringing together proven power systems and industry expertise from across New Zealand. We are indebted to these, our hosts, and sponsors: thank you for enabling our knowledge sharing.

Personally, I look forward to engaging you in person and online on the 6th May. For those of who are attending in person, our Chair Doug Ray and I look forward to interacting with you during our early dinner at 4:30 pm and share with you the organisational plans to host our CIGRE NZ 2022 Conference in November.

Ngā mihi,

Nirmal

# WELCOME FROM CIGRE NZ CHAIR



**Doug Ray**

CIGRE New Zealand Chair

Kia ora koutou katoa

On behalf of our CIGRE NZ Executive and members, I thank you for joining our inaugural Technical Workshops series.

Our Technical Chair and Events Manager Dr Nirmal Nair has established a topical program to give us an informative, collegiate experience for all.

As we build our new energy future, we believe the importance of building successful partnerships within the energy sector, commerce and customers is paramount. Our customers drive our business direction.

Collaboratively these cross-sector power systems discipline workshops aim to develop techniques and drive efficacy in considering how new technology can efficiently improve existing often legacy systems and develop new approaches that these no longer effectively deliver for our sustainable investment and operational outcomes. This is also set within the context of seeking equitable energy access and resilience of supply toward a net zero carbon end game. Insights and action, we all are working towards now for our customers and industry.

We are looking forward to your valuable participation in this series of technical workshops to better resolve these opportunities and gain insights for increasingly reliable, resilient, diversified energy connection and supply. From this we assure continued success for the wellbeing of our electricity sector infrastructure and our customers.

From here we are looking forward to our next major event, our annual CIGRE NZ 2022 Conference, tentatively scheduled from 9-11 November.

Nga mihi, thank you for being with us

Doug

# WELCOME FROM AUTUMN WORKSHOPS CHAIR



**Abhinav Chopra**

CIGRE NZ 2022 Autumn Workshops Chair

Kia ora everyone,

On behalf of the CIGRE NZ 2022 Autumn Workshops Organising Committee, it is my great pleasure to extend a warm welcome to all our online delegates, invited keynotes and guests, and our sponsors Transpower, HV Power and SGS ECL.

Our attendees come from throughout New Zealand with diverse life-long experiences within the end-to-end power sector as well as online attendees from abroad. A special welcome to all our invited presenters.

Our Study Committee mirror CIGRE NZ Technical Panel convenors, their Panel members and the Workshop convenors chosen from the Panels are spearheading the delivery of a diverse and topical mix of technical sessions throughout the programme for you.

To all our attendees, I thank you sincerely for also sharing your knowledge and expertise with us all.

Thank you to the exceptional performance of our organising team to successfully bring these inaugural Workshops together, including as a venue and online event to allow personal choice of attendance wellbeing within the current virus-induced situation.

Our Autumn Workshops bring us together to again share our knowledge and immense experience to continue our journey of achieving sustainable, resilient, and equitable end-to-end renewable power systems for the wellbeing of our people, communities, and economy.

Welcome to our CIGRE NZ 2022 Autumn Workshops series.

Abhinav

## WORKSHOP ORGANISING COMMITTEE



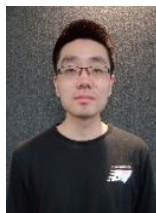
**Doug Ray**  
CIGRE NZ Chair  
Workshop Finance  
Chair  
B3 Workshop  
Convenor



**Dr. Nirmal Nair**  
Event Manager  
Workshop Finance  
Committee member  
Mentor



**Abhinav Chopra**  
Workshop Chair  
Digital Delivery  
Coordinator  
D2 Workshop  
Convenor



**Xin Liu**  
E-booklet  
Coordinator



**Mohanad Al-Hasani**  
B1 Workshop  
Convenor



**James Qian**  
B5 Workshop  
Convenor



**André Cuppen**  
B1 Panel Convenor  
Workshop Finance  
Committee member



**Stephen Chiu**  
B5 Panel Convenor



**Vaughan Evans**  
Publicity Manager

## AUCKLAND WORKSHOP OPENING WELCOME



**Dr Nirmal Nair**

CIGRE NZ Technical Chair  
CIGRE NZ Event Manager

Nirmal received his BE in Electrical Engineering from Maharaja Sayajirao University (MSU), Baroda, India. He completed his ME in Electrical Engineering with specialisation in High Voltage Engineering from Indian Institute of Science (IISc), Bangalore, India. After a decade of professional engineering and lecturing in India he moved to United States where he completed his PhD in Electrical Engineering at Texas A&M University. During this period, he also taught undergraduate papers in Computer Architecture and Foundation Course in Electrical Engineering. Thereafter in late 2004 he moved to New Zealand.

His research interests span power systems in the context of protective relaying, electricity markets, voltage security, blackouts, and resilience. His current focus is towards integration of distributed/renewable energy sources to electricity system with emphasis on protection (IEC 61850, SPS, WAPS), electricity markets (block-chain), innovations (Micro-grid, Storage, EV & PV integration, cyber-resilience, digital twins, machine learning and AI), low-carbon transitions and energy policy.

Nirmal is our Auckland Workshops facilitator.

## WORKSHOP FORMAT

Morning Sessions:	Common B3 and D2 synergy and Interoperability
Early afternoon sessions:	B3 and D2 specific work streams
Mid afternoon session:	Common B3 and D2 work stream

### CIGRE NZ B3 PANEL CONVENOR



#### **Doug Ray**

Asset Performance Specialist, Substations, Vector

Doug Ray is currently working at Vector as an asset performance engineer for power systems substations. His role includes the lifecycle from design to disposal including concepts, specification, business cases, engineering, and faults investigation. Doug is responsible for asset performance of substation ancillaries, infrastructure, and facilities. Besides CIGRE NZ Chair and inaugural NZ.B3 Panel Convener, he is also a member of the CIGRE AU.B3 Substations and Electrical Installations Panel and the Construction Clients Group Safety in Design Auckland Chair. Doug has 40+ years of customer-centric leadership of end-to-end power systems engineering, procurement, project management and commissioning for transmission and distribution new and replacement assets.

### CIGRE NZ D2 PANEL CONVENOR



#### **Abhinav Chopra**

CIGRE NZ D2 Panel Convenor

GM- Architecture and Data, Counties Energy

Abhinav heads the Future and Advanced Technology Security and Architecture portfolio working with Cyber Security, Big Data, AI, Blockchain, Distributed Systems, Cloud, ISA99, IoT. He has also worked within Europe, the United States, Australia, and New Zealand to uplift their security posture.

Abhinav is CISSP, TOGAF, Prince 2, ITIL, Six Sigma certified. He holds advanced degree qualifications in Software, Power Systems, Electrical, Electronics and Telecommunications Engineering and Business Management, and is an active member of AEA, IEEE, ISO, ITPNZ, CIGRE NZ, Engineering NZ and Institution of Engineers India.

## B3 PANEL PROGRAMME

### 2022 Autumn Workshops



**cigre**  
New Zealand

**Tāmaki Makaurau Auckland**  
**6 May**

## B3 Panel Workshop

Convenor Doug Ray, Vector



### Substations and Electrical Installations

10:00	Opening welcome by NZNC Technical Chair	Dr Nirmal Nair
	Participants' self-introductions	All
	<i>B3 and D2 synergy – common morning sessions</i>	<i>All B3 and D2 attendees</i>
10:20 (30)	EV charging orchestration	Astad Kapadia, Counties Energy
10:50 (30)	Distribution substation EV hosting capability	Russell Watson, Northpower
11:20 (30)	CIM integration mechanisms	Sameer Phadnis, Unison
11:50 (10)	Session summary: key findings by participants	All
12:00	<i>Lunch</i>	
12:30 (50)	Earthing: test practices and interpretation	Patrick Coombe, Mitton ElectroNet
13:20 (50)	Digital substations: experiences and practices	Andrew Renton, Transpower
14:10 (50)	Grid scale BESS installation considerations	Kiran Nanu, Contact Energy
15:00	<i>Break</i>	
15:10 (45)	Cyber Security hands-on Workshop	Peter Jackson, SGS ECL
15:55	B3 summary	Doug Ray, Convenor
16:00	Autumn Technical Workshops closure	All, Dr Nirmal Nair
16:15	In-person attendees departure for 4:30 pm local dinner	

*\* All sessions have an all-attendees discussion within the session*

Join us by registering at [www.cigre.org.nz](http://www.cigre.org.nz)



# 2022 Autumn Workshops Tāmaki Makaurau Auckland 6 May



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[www.cigre.org.nz](http://www.cigre.org.nz)

## meet the workshop conveners



**Doug Ray**  
**Vector**



### **Substations and Electrical Installations**

CIGRE NZ B3 Panel was inaugurated in early 2022. Its aim is to promote the learning and sharing of best industry practice and developments within substations and electrical installations. Each year we arrange panel meetings, webinars, symposiums and workshops on topics such as facility infrastructure, distributed energy resources (in conjunction with SC C6), switchgear, earthing, ac/dc supplies, fire systems. We form Working Groups with International B3 Panels to study topics of common interest to gain power system advances for New Zealand practitioners and customers

Doug Ray is our B3 Panel Workshop convener for our Auckland in-person and online session, 9:45 to 15:30 NZST 6 May

Doug is responsible for asset performance of substation ancillaries, infrastructure and facilities. Besides CIGRE NZ, he is also a member of CIGRE AU.B3 Substations and Electrical Installations Panel. Doug has 40+ years of customer-centric leadership of end-to-end power systems engineering, procurement, project management and commissioning for transmission and distribution new and replacement assets

Join us at CIGRE NZ 2022 Friday 6 May  
Autumn Workshops by registering at  
[www.cigre.org.nz](http://www.cigre.org.nz)

Our single registration fee provides you entry to this event as it did for the recent 8 April Christchurch Workshops for B1 Insulated Cables and B5 Protection and Automation



## D2 PANEL PROGRAMME

### 2022 Autumn Workshops



**Tāmaki Makaurau Auckland  
6 May**

## D2 Panel Workshop

Convenor Abhinav Chopra, Counties Energy



### Information Systems and Telecommunications

10:00	Opening welcome by NZNC Technical Chair	Dr Nirmal Nair
	Participants' self-introductions	All
	<i>B3 and D2 synergy – common morning sessions</i>	<i>All B3 and D2 attendees</i>
10:20 (30)	EV charging orchestration	Astad Kapadia, Counties Energy
10:50 (30)	Distribution substation EV hosting capability	Russell Watson, Northpower
11:20 (30)	CIM integration mechanisms	Sameer Phadnis, Unison
11:50 (10)	Session summary: key findings by participants	All
12:00	<i>Lunch</i>	
12:30 (50)	IT, OT and Telecommunications – Introduction and Design Principles	Group discussion Abhinav (facilitator)
13:20 (50)	High Volume Asset Inspections in the field	Richard Swain, Counties Energy
14:10 (50)	Telecommunication for Remote Monitoring and Disaster Risk Reduction	Eric Sauvage, University of Auckland
15:00	<i>Break</i>	
15:10 (45)	Cyber Security hands-on Workshop	Peter Jackson, SGS ECL
15:55	D2 summary	Abhinav Chopra, Convenor
16:00	Autumn Technical Workshops closure	All, Dr Nirmal Nair
16:15	In-person attendees departure for 4:30 pm local dinner	

*\* All sessions have an all-attendees discussion within the session*

Join us by registering at [www.cigre.org.nz](http://www.cigre.org.nz)

# 2022 Autumn Workshops Tāmaki Makaurau Auckland 6 May



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## meet the workshop conveners



**Abhinav Chopra**  
Counties Energy



### Information Systems and Telecommunications

CIGRE NZ D2 Panel was inaugurated in early 2022. Its aim is to promote learning and sharing of best industry practice and developments. Each year we arrange panel meetings, webinars, symposiums and workshops on topics such as Information 4.0 and Society 5.0 innovations within Telecommunications critical infrastructure and Operational Technology environments, including cybersecurity. We form Working Groups with International D2 Panels to study topics of common interest to gain power system advances for our New Zealand practitioners and customers

Abhinav Chopra is our D2 Panel Workshop convener for our Auckland in-person and online session, 9:45 to 15:30 NZST 6 May

Abhinav heads the Future and Advanced Technology Security and Architecture portfolio working with Cyber Security, Big Data, AI, Blockchain, Distributed Systems, Cloud, ISA99, IoT. He has also worked within Europe, the United States, Australia and New Zealand to uplift their security posture

Abhinav is CISSP, TOGAF, Prince 2, ITIL, Six Sigma certified. He holds advanced degree qualifications in Software, Power Systems, Electrical, Electronics and Telecommunications Engineering and Business Management, and is an active member of AEA, IEEE, ISO, ITPNZ, CIGRE NZ, Engineering NZ and Institution of Engineers India

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# WORKSHOP PRESENTATIONS - B3 AND D2 SYNERGY

## SUBSTATIONS AND ELECTRICAL INSTALLATIONS

## INFORMATION SYSTEMS AND TELECOMMUNICATIONS

### EV charging orchestration demonstration



#### Astad Kapadia

Head of DSO Strategy + OpenLoop Product Manager, Counties Energy

Astad is an experienced electrical engineer specialising in new energy technologies and product management with over 9 years of experience in the electricity industry. He is a Chartered Professional Engineer, his recent work has been focused on Hot Water Load Control, DERMS, E-Mobility, LV Strategy, DSO Strategy, Solar PV, Batteries and enabling Energy Orchestration. Astad has a Masters in Engineering, where his thesis focused on solutions to high proliferation to residential solar in NZ. He has recently completed his Masters of Business Administration, where his final year project focused on the DSO Strategy for Counties Energy.

### Distribution EV charging hosting capability

#### Russell Watson

Principal Engineer, Northpower



Russell Watson is currently the Principal Engineer at Northpower. Russell has had 38 years of experience with Northpower and has had a number of engineering and engineering management roles covering most aspects of electrical distribution, (design, maintenance, and operation). A key aspect of his current role involves the potential impact and application of new and emerging technologies on the electrical distribution network, including electric vehicles, photo voltaic and battery storage. Russell has been an active member of the Northland Lifeline group and involved with Northland CDEM for many years.

## CIM integration mechanisms



### Sameer Phadnis

Software Development Practise Lead, Unison Networks

I am an experienced software engineer and now work at Unison Networks leading the development of software for enterprise integration and web applications based on cloud-first, distributed architectures.

I am working towards my master's degree in software engineering on the development of a network-model centric query platform.

## *Parallel streams for B3 and D2*

## SUBSTATIONS AND ELECTRICAL INSTALLATIONS

### Earthing test practices and interpretation



### Patrick Coombe

Senior Engineer (Electrical Safety), Mitton ElectroNet

Patrick's core work lies in the electrical safety space, undertaking projects involving power system earthing, arc flash studies, protection design and lightning protection. He has wide range of earthing experience, having carried numerous designs and investigations across New Zealand and Australia, including off-frequency current injection testing at over 60 sites. Patrick has also recently completed further studies in the field of applied data science and is currently focused on improving the value gained from testing via better use of data.

## Digital substations: experiences and practices

### Andrew Renton

Senior Principle Engineer, Transpower



A Qualified Electrical Engineer with more than 28 years of technical and managerial experience in the New Zealand and Australian Oil, Gas and Transmission & Distribution (T&D) sectors. Andrew has worked for utilities, consultants and government agencies dealing with technical, financial, and regulatory issues including advisory roles to regulators, New Zealand's Treasury infrastructure unit. Presently, employed as Transpower's Senior Principal Engineer, Andrew is involved working across the business in future focused roles relating to new customer connections, Grid options and new technologies.

## BESS installation and connection practices



### Kiran Nanu

Technical Authority (Electrical), Contact Energy

Kiran's role as Technical Authority (Electrical) includes responsibilities for oversight of Contact Energy's generation fleet electrical asset condition and lifecycle management. He also has responsibilities for managing electrical engineering capability and ensuring the effective use of the management processes and systems which support the safe operation of Contact's assets. Kiran has 30 years' experience working in the New Zealand generation sector.

## INFORMATION SYSTEMS AND TELECOMMUNICATIONS

### IT, OT, and Telecommunications - Design Principles group discussion



### Abhinav Chopra (facilitator)

GM Architecture and Data, Counties Energy

Abhinav heads the Future and Advanced Technology Security and Architecture portfolio working with Cyber Security, Big Data, AI, Blockchain, Distributed Systems,



Cloud, ISA99, IoT. He has also worked within Europe, the United States, Australia, and New Zealand to uplift their security posture.

Abhinav is CISSP, TOGAF, Prince 2, ITIL, Six Sigma certified. He holds advanced degree qualifications in Software, Power Systems, Electrical, Electronics and Telecommunications Engineering and Business Management, and is an active member of AEA, IEEE, ISO, ITPNZ, CIGRE NZ, Engineering NZ and Institution of Engineers India.

## High Volume Asset Inspections in the field

### Richard Swain

Senior GIS Consultant / Data Integrator at Counties Energ

A versatile senior GE Smallworld GIS Consultant and Data specialist (over 20 years of experience in Smallworld as well as data operations, including data management, data integration and data quality). Bachelor's Honours degree in Electrical and Electronic Engineering and proven abilities in managing data flows and processes. Extensive industry knowledge and experience in Utilities, Telecoms and Property.



## Telecommunication for Remote Monitoring and Disaster Risk Reduction



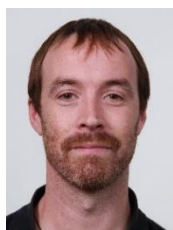
### Eric Sauvage

PhD Scholar, University of Auckland

Eric Sauvage holds an Engineering Degree from Télécom SudParis, France and Master of Science in Information and Communications Technologies (ICT) from Asian Institute of Technology, Thailand. He served for two years as a systems engineer for the national seismological centre in the Department of Mines and Geology in Nepal. He worked on the acquisition system and seismic stations installation/maintenance, and he dealt with crisis situations in the aftermath of the Gorkha-Nepal Earthquake. He has recently started his PhD programme at the University of Auckland, and his research will focus on telecommunications in a context of natural hazards and resilience.

## B3 AND D2 SYNERGY SESSION

### TD4 Cyber Security - OT Security Maturity Levels



**Peter Jackson**

Engineering Manager - Cyber, SGS ECL

Peter is an experienced ICS/OT security practitioner. He leads the ECL Cyber team of industrial cyber specialists (engineers/consultants) in support of various NZ industrial organisations across Oil & Gas, Energy/Electricity, Water/Wastewater, Manufacturing, Pharmaceutical, and Rail. His background includes control/safety systems experience as a TUV-certified Functional Safety Engineer. He holds the GIAC GICSP, GRID and GCTI certifications. When he's not leading the SGS ECL team, he teaches as the APAC instructor for SANS ICS515 (ICS Visibility, Detection, and Response) and facilitates the NZ ICS Cyber Technical Network Group

## AUTUMN WORKSHOPS CLOSING



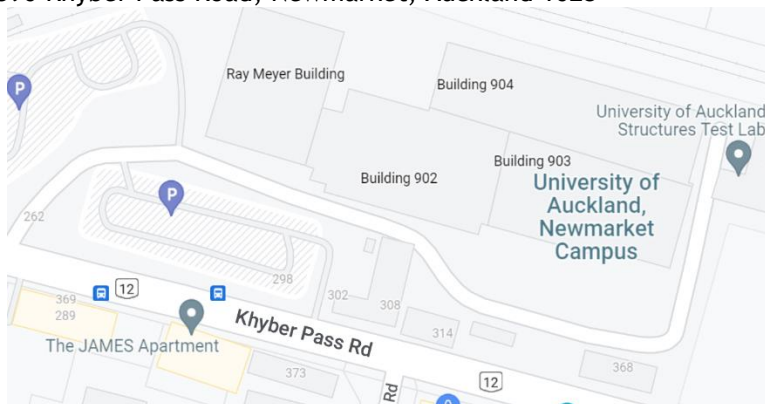
**Dr Nirmal Nair**

CIGRE NZ Technical Chair  
CIGRE NZ Event Manager

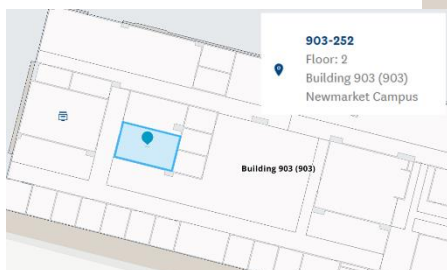
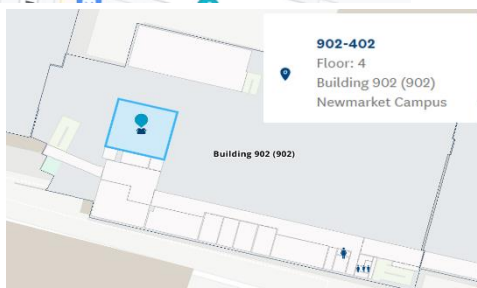
## VENUE LOCATION

### Newmarket Campus, University of Auckland

314-390 Khyber Pass Road, Newmarket, Auckland 1023

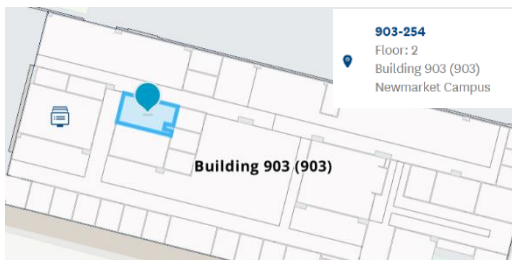


Building 902, 4<sup>th</sup> floor










Building 903, 2<sup>nd</sup> floor

Building 903, 2<sup>nd</sup> floor





## LOCAL INFORMATION

Local Information		Useful Information	
	<b>Time Zone</b> UTC/GMT+13		<b>Registration desk</b>  Registration and information support are at: UoA Newmarket Campus Khyber Pass Rd Thursday, 19 November From 8:00 am onwards
	<b>Telephone Code</b>  New Zealand is +64		
	<b>Climate</b>  In May the average temperature ranges between min 11°C [52°F] and max 17°C [63°F]. Some rain may occur		<b>Parking</b>  The UoA does not provide free car parking. Paid car parking are widely available around the Newmarket Campus. <ul style="list-style-type: none"> <li>• Secure Parking - Old Brewery Car Park</li> <li>• Khyber Pass Parking</li> <li>• Wilson Khyber Pass Parking</li> </ul>
	<b>Emergency Line</b>  Emergency [Ambulance, Fire and Police] Dial 111		
	<b>Public Transportation</b>  Auckland Transportation Planner <a href="https://at.govt.nz/">https://at.govt.nz/</a>		

**2022 Autumn Workshops**  
**Ōtautahi Christchurch**  
**8 April**  
**Tāmaki Makaurau Auckland**  
**6 May**



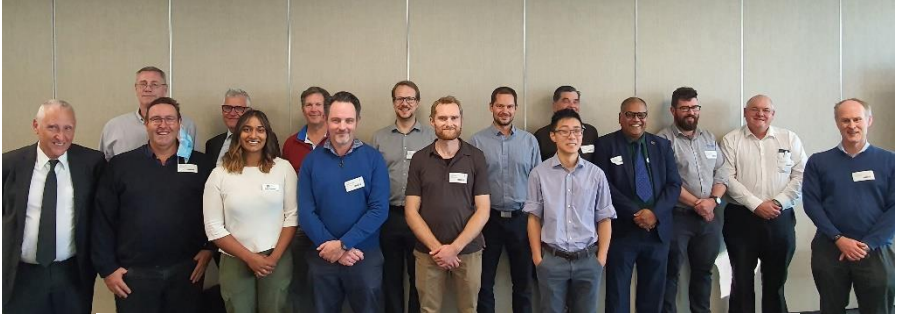
## Collective members

Celebrating our Individual and Collective members



Join us by registering at [www.cigre.org.nz](http://www.cigre.org.nz)

## CIGRE PREVIOUS EVENTS



### 2022 Autumn Workshops Ōtautahi Christchurch

Insulated Cables  
Protection and Automation



Series 1 of 2  
In person and online

 Meridian, 287-293 Durham Street  
CBD, Ōtautahi Christchurch  
[www.cigre.org.nz](http://www.cigre.org.nz)

An interactive workshop  
for power system practitioners  
engineers, consultants, contractors, technicians  
generation transmission and distribution owners  
system operators, academics, vendors  
to explore current practices and future initiatives for  
implementing end-to-end renewable power systems



INTERNATIONAL COUNCIL  
ON LARGE ELECTRIC SYSTEMS  
NEW ZEALAND NATIONAL COMMITTEE INC.

## CIGRÉ AUCKLAND 2017 11-15 September



Conference Includes: CIGRÉ Women in Engineering Forum  
CIGRÉ Next Generation Forum  
Technical Tours  
Paper Sessions  
Trade Exhibits  
Tutorials

HV  
Equipment  
and  
Substations

Distribution  
Systems  
Dispersed  
Generation

Information  
Systems  
and  
Communications

Materials  
and  
Emerging Test  
Techniques

Protection  
Automation  
and  
Control

### Your Invitation to a Major International CIGRÉ Event in Auckland, New Zealand

With Thanks to Our Sponsor



Visit [www.cigreaukland2017.org.nz](http://www.cigreaukland2017.org.nz) for more information

Sponsorship and Trade Exhibit opportunities are available and welcome

## CIGRÉ AUCKLAND 2017

University of Auckland, New Zealand

10<sup>th</sup> – 15<sup>th</sup> September 2017

### Secure and Efficient Delivery of Energy: Enabled by World Forum for Power Systems



### CIGRÉ Programme

- Study Committee B5 Colloquium and Annual Meeting
- Asia-Oceania Regional Council Technical Meeting
- Administrative Council Meeting



INTERNATIONAL COUNCIL  
ON LARGE ELECTRIC SYSTEMS  
NEW ZEALAND NATIONAL COMMITTEE INC.

Plenary & Paper  
Sessions

Tutorial & Poster  
Sessions

Administrative &  
Working Group  
Meetings

Women in Engineering  
& Next Generation  
Network Forums

Trade Exhibits, Tours  
& Networking



## CIGRE NEW ZEALAND 2018

Tuesday 19 June 2018



*Cigré New Zealand 2018 – One day event*

Venue: SkyCity Convention Centre, Auckland

### **“Secure and efficient delivery of energy”**

CIGRE New Zealand 2018 brings together experts and key players from the power system industry across New Zealand. The key events are:

- Keynote Speech by Rob Stephen, President of CIGRE
- Discussion on planned participation by NZ delegates for BIENNIAL CIGRE 2018 PARIS SESSION.
- Workshop / tutorial on emerging technology
- Meeting of CIGRE NZ's six interest groups (encompassing all the 16 CIGRE study committees)
- Women In Engineering (WIE) and Next Generation Network (NGN) meeting

This one day event is wholly sponsored by CIGRE NZ. This event is free subject to registration. A certificate of attendance will be given to participants to use as a Continuing Professional Development (CPD) benefit.



For registration and more information

## CIGRE ANZ 2018



Presented by  
Platinum Sponsor  
of AUPEC 2018

29 November 2018  
07:00 - 17:30

Science Centre, 23 Symonds St  
University of Auckland



### **Transitioning New Zealand to a Low-Carbon Energy Future**



Meet industry and academia professionals, practitioners, colleagues

Hear from and work with:

- Industry Executives
- Industry Operatives
- Innovation Leaders
- CIGRE Practitioners

Develop your expertise from their progressive experiences in moving towards a low carbon future

In association with AUPEC 2018  
(Australasian Universities Power Engineering Conference)





# CIGRE 2019 FORUM



## Asset Resilience within Electricity Networks

Hear from and network with

- ◆ Industry Executives
- ◆ Industry Operatives
- ◆ Innovation Leaders
- ◆ CIGRE Practitioners

Meet industry and  
academia professionals,  
practitioners, colleagues

Develop your expertise  
from their progressive  
experiences in moving  
towards a more integrated  
asset resilient future

📍 SkyCity Convention Centre  
Auckland

📅 24 June 2019  
9:00 – 17:00

🔗 CIGREANZ 2018 exemplar

## CIGRE NZ Webinar Series 2019, 2020

### 2019

1. Remote indicating overhead line sensors for fault indication, Kate Murphy
2. The Electricity Distribution Sector for Tomorrow, Thahirah Jalal

### 2020

1. Cable Diagnostics to support Asset Management, Andre Cuppen
2. Enhancing your transformer asset safety and resilience, Dan Martin
3. Transmission Protection With Increased Penetration of Renewables and Distributed Generation, Sheila Matthews

## CIGRE NZ 2020 SPECIAL EDITION – PANEL & PODCAST

COVID-19 Power Systems Resilience Response  
CIGRE NZ Conversations - April 2020



## **CIGRE NZ 2020 Conference**

**CIGRE centennial 2021**

**Shaping the power sector  
beyond 2020**

5th-6th August 2020

Auckland, New Zealand, and online

CIGRE NZ B1 Symposium

CIGRE NZ A2 Symposium

CIGRE NZ Study Committee updates

CIGRE International selected Study Committee  
updates

Presentations on Industry experiences

CIGRE NZ New Generation Network /  
Women in Engineering program

Tutorial and Panel Session  
on selective topics

Tours and  
networking



**cigre**  
New Zealand

## **2021 Conference**

**November  
24-26**

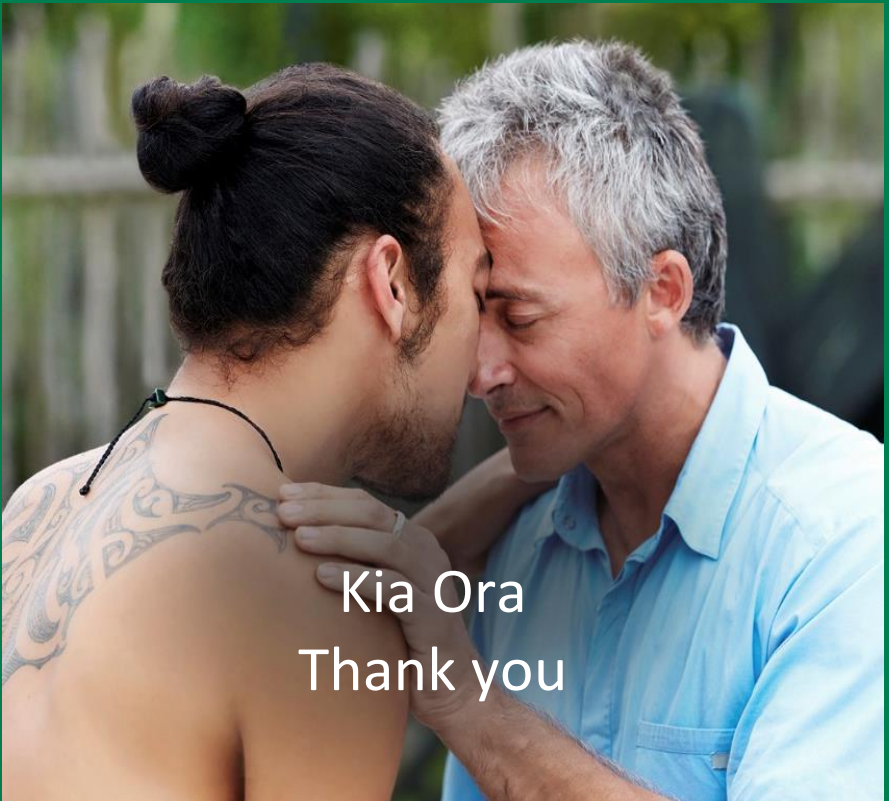
**Building partnerships for  
end to end renewable  
power systems**





**cigre**

**New Zealand**



Kia Ora  
Thank you