



cigre
New Zealand

Transitioning NZ to a Low Carbon Energy Future



CIGRE ANZ 2018

CIGRE Australia New Zealand (ANZ) 2018 Programme

- ❖ Executive Plenary on 'Risk, Resilience and Sustainability'
- ❖ Executive Plenary on 'Low-Carbon Technologies & Workforce'
- ❖ Technical Presentations from CIGRE Industry Practitioners
- ❖ CIGRE Industry Forum with Innovation Leaders of NZ
- ❖ How to join and engage with CIGRE activities

**Science Centre (Building 302), City Campus
23 Symonds St, University of Auckland
Thursday 29 November 2018**

CIGRE INTERNATIONAL

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. CIGRE is an international organization dedicated to the development of the power supply sector through the identification and the development of customer and community centric 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 power system for the future, optimise existing equipment and power systems, respect our environment and people, and facilitate access to information.

CIGRE NZ

The NZNC was accepted as a full CIGRE National Committee by the CIGRE Administrative Council at its meeting held during the 2006 Paris Session. And since then we have been very active nationally and internationally through the following engagements:

- Disseminating CIGRE information and maintaining communication with NZ members
- Providing a platform for presenting NZ expertise and experience to international community
- Providing point of contact for CIGRE Paris, the ANC and other National Committees
- Taking our place on world stage with the other CIGRE National Committees
- Issuing invitations to the main CIGRE Study Committees to hold meetings in NZ
- Able to arrange and host Regional/Global Conferences and Symposia
 - CIGRE Auckland Symposium 2013
 - B5 Colloquium 2017, AORC 2017
 - Administrative Council Meeting 2017
- Participation as a member of the Biennial CIGRE Paris International Conference
- Participation as a member of the Asia Oceania Regional Council (AORC) of CIGRE
- Providing formal links to other national and international bodies to benefit NZ industry

CIGRE ANZ 2018

CIGRE ANZ 2018 brings together experts and key players to address the current challenges in delivering NZ's transition to a low-carbon future. This one-day event offers an effective platform for young engineers, power system engineers/consultants, generation, transmission and distribution asset owners, system operators, policy makers, regulators and academic researchers to share and discuss the current challenges and future directions available to achieve this not only in NZ but across the globe.

CIGRE NZ INTEREST GROUPS

The 16 international Study Committees have been grouped into 6 NZNC Interest Groups:

IG	TOPIC	Associated Study Committee
IG1	Transformers	A2: Transformers D1: Materials and Emerging Technologies
IG2	Cables	B1: Insulated Cables D1: Materials and Emerging Technologies
IG3	Overhead Lines	B2: Overhead Lines D1: Materials and Emerging Technologies
IG4	Substations	A3: High Voltage Equipment B3: Substations B5: Protection and Automation D1: Materials and Emerging Technologies
IG5	System Performance	D2: Information Systems and Telecommunication B4: HVDC and Power Electronics C2: System operation and Control C3: System Environmental Performance C4: System Technical Performance
IG6	Generation and Distribution	C5: Electricity Markets and Regulation A1: Rotating Electrical Machines C1: System Development and Economics C6: Distribution Systems and Dispersed Generation

CIGRE NZ NATIONAL COMMITTEE COMPOSITION

Member	Position	Collective Membership Organisation
Doug Ray	Chair	Vector
Dr Waqar Qureshi	Secretary	Horizon Networks
Dr Nirmal Nair	Event Manager / AORC Member	University of Auckland
Rebecca Marx	Membership Manager	Mitton ElectroNet
Robert Deller	Interest Group 4 Lead	Transpower
Moonis Vegdani	NGN Chair	Vector
Nasser Farooqui	NGN Secretary	University of Auckland
Brent Rees	Executive Member	ABB NZ
Trevor Lord	Executive Member	Individual, Lord Consulting
Stephen Jay	Executive Member	Individual, Transpower
Gavrilo Kovacevic	Executive Member	Electrix
Rebecca Shaw	SC B5 NZ Member / WIE Lead	AECOM
Safa Al-Sachit	Student Member / Secretary CIGRE ANZ 2018 Conference	University of Auckland
Ebad Rehman	Student Member / Webmaster CIGRE ANZ 2018 Conference	University of Auckland

Kia ora koutou katoa

Welcome to CIGRE Australia New Zealand 2018



As platinum sponsor of AUPEC 2018, CIGRE NZ is very pleased to present in association with AUPEC 2018 this plenary conference day of recognised industry leaders passionate in sharing their experiences and vision for a transition to a low-carbon energy future and a more liveable community.

You'll hear from transformational pan-industry CEOs, Executives, and decision makers recognised as innovation leaders. They are participating as session panellists within an interactive audience space.

Leading the conference are our young professionals from Next Generation Network (NGN) and Women in Power (WiP) within CIGRE and AUPEC.

We're excited to lead this inspiring conference experience presented to us by exemplar industry leaders who are demonstrably delivering innovation and agile change in transitioning us to a low-carbon NZ future.

Nga Mihi,

Moonis Vegdani
CIGRE NZ NGN Chair

Nasser Faarooqui
CIGRE NZ NGN Secretary



Welcome to our inaugural CIGRE ANZ 2018 Conference

Congratulations to our young professional's leadership in creating a high calibre programme of speakers to advance our transitioning to a low-carbon energy future. Thank you, to our speakers, attendees and moderators, we're looking forward to an engaging and rewarding conference day.

Nga Mihi,

Doug Ray
CIGRE NZNC Chair

Dr Nirmal Nair
AUPEC 2018 Chair



Moonis Vegdani
Organising Chair
CIGRE NZ NGN Chair
New Technology
Manager, Vector NZ



Nasser Faarooqui
Organising Co-Chair
CIGRE NZ NGN Secretary
PhD Scholar
University of Auckland



Doug Ray
CIGRE NZNC Chair
Senior Capital Investment
Engineer, Vector



Dr Nirmal Nair
CIGRE NZ Event Manager
Associate Professor,
University of Auckland



Dr Waqar Qureshi
Publicity Chair
Asset Manager
Horizon Networks



Brent Rees
Industry Outreach Chair
Marketing and Sales Manager
ABB NZ



Safa Al-Sachit
Organising Secretary
PhD Scholar
University of Auckland



Ebad Rehman
Webmaster/Handbook
PhD Scholar
University of Auckland

CIGRE ANZ 2018 PROGRAM

7:30 – 08:30 Registration Desk Opens / Breakfast with CTO's and Executives

Opening Remarks

Nirmal Nair, University of Auckland, AUPEC 2018 Chair

Doug Ray, Vector, CIGRE NZNC Chair

AUPEC/CIGRE ANZ 2018 Executive Plenary 'Risk, Resilience and Sustainability in a Low-Carbon future'

Our role in transitioning NZ to the future

Kate Beddoe, Vector Limited

Martin McMullan, NZ Transport Agency

Derek Caudwell, Horizon Networks

Rod Sheridan, Auckland Council

08:30 - 10:00

10:00 – 10:45

Coffee Break

AUPEC/CIGRE ANZ 2018 Plenary Session with NZ Technology Leaders

'Future Low-Carbon Technologies and Workforce'

How do we get ready for a Low-Carbon future?

Shailesh Manga, Vector

James Muir, Callaghan Innovation

Roxanne Salton, Mercury

David Jenkinson, Yoogo

Thomas Kirk, OPAL – RT Technologies

10:45 – 12:45

12:45 – 14:00

Lunch

CIGRE ANZ Technical Presentations with NZ Industry CIGRE Practitioners

'Contributing to Working Groups and Technical Brochures' Duncan Kaniaru, UoA

'Committee and Interest Groups' Nirmal Nair, UoA

'Biennial CIGRE 2018 Paris 'Session' Doug Ray, Vector

'Organizing CIGRE NZ Local Events' Samad Shirzadi, UoA

'Industry Experience and Engagement with CIGRE' Brent Rees, ABB NZ

'CIGRE NZ Membership' Waqar Qureshi, Horizon Networks & CIGRE NZNC Secretary

14:00 – 15:30

15:30 – 15:45

Coffee Break

CIGRE ANZ Industry Forum with Innovation Leaders of NZ

Ralf Huebner, Vector

Cameron Chapman, WEL Networks

Kristian Jensen, WSP-OPUS

Abhinav Rakesh Chopra, UoA

15:45 – 17:15

17:15

Closing and Continuing Professional Development (CPD) Awards

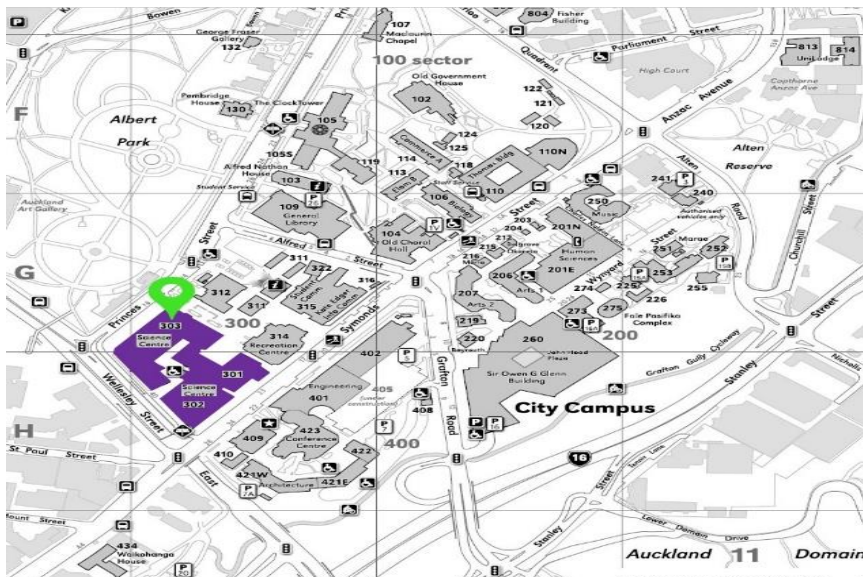
19:00 -

AUPEC 2018 Conference Dinner (requires separate Registration)

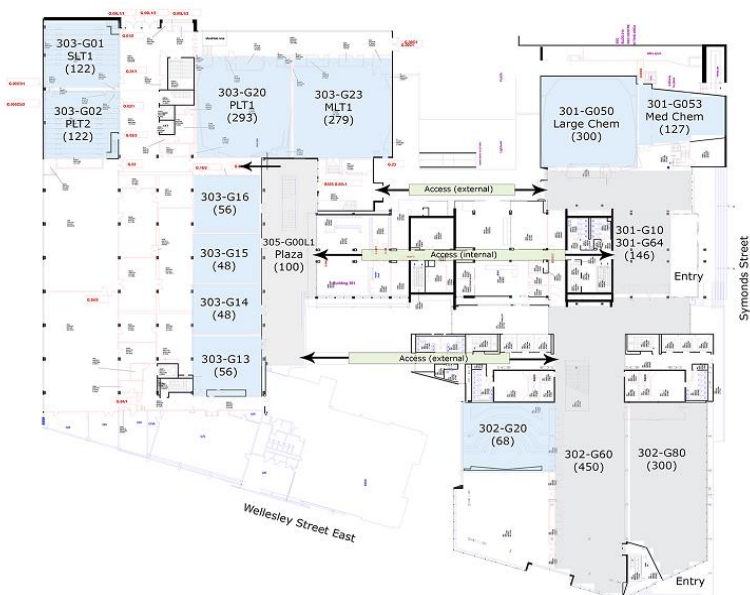
Venue: Science Centre (Building 302), City Campus

23 Symonds St. University of Auckland, Auckland

The Science Centre, University of Auckland is ideally situated in the heart of the Auckland CBD and is recognised as one of the premier event destinations for both international and local multi-day events, banquets, cocktail parties, day meetings and functions



Floor Plan



Breakfast with Innovation Industry Executives

7:30 am - 8:30 am, Thursday 29 November, Science Centre Foyer, 23 Symonds St

An informal stand-up breakfast will be served from 7:30 am providing an opportunity for Women in Engineering, Young Professionals, and students to network with industry executives leading innovation and change toward a low-carbon future

AUPEC 2018 / CIGRE ANZ 2018 Plenary's

8:30 am to 12:30 pm

CIGRE ANZ 2018 Technical Session

2:00 pm to 3:30 pm

CIGRE ANZ 2018 Leaders in Innovation Session

3:45 pm to 5:45 pm

Conference Dinner

7:00pm - 10:30 pm, Thursday 29 November – The Wharf, Quay St

The Conference Dinner will take place at The Wharf, Quay St, Downtown Auckland. This function is included with all full 3-day registrations. A bus will be provided from the Conference Centre, Alfred Street, departing at 6:15 pm and leaving at 11:00 pm to return to the Conference venue.



Time/Date	DAY 3-THURSDAY 29 NOVEMBER 2018		
07:30 - 08:30	REGISTRATION	BREAKFAST WITH CTO'S/EXECUTIVES	
08:30 - 10:00	AUPEC/CIGRE ANZ 2018 EXECUTIVE PLENARY 'RISK, RESILIENCE AND SUSTAINABILITY IN A LOW-CARBON FUTURE' OUR ROLE IN TRANSITIONING NZ TO THE FUTURE VENUE: 301-G050		
10:00 - 10:45	COFFEE BREAK		
10:45 - 12:45	'FUTURE LOW-CARBON TECHNOLOGIES & WORKFORCE' HOW DO WE GET READY FOR A LOW CARBON FUTURE? VENUE: 301-G050		
12:45 - 14:00	LUNCH		
14:00 - 15:30	TS05* EMERGING TRANSACTIVE FRAMEWORK IN LOW-CARBON SYSTEMS	TS06* COMMUNICATION ENABLED FUTURE SERVICES	CIGRE ANZ TECHNICAL PRESENTATIONS VENUE: 302-G20
15:30 - 15:45	COFFEE BREAK		
15:45- 17:45	TS07* FUTURE DISTRIBUTION NETWORKS	TS08* INTEGRATION OF LOW CARBON GENERATION TECHNOLOGIES	CIGRE ANZ INDUSTRY FORUM VENUE: 302-G20
19:00	AUPEC CONFERENCE DINNER (7:00 PM)		
*SESSION DETAILS			
Session No	Session title	Location	Chair
TS05	EMERGING TRANSACTIVE FRAMEWORK IN LOW-CARBON SYSTEMS	303-G13	Akshay Sahay
TS06	COMMUNICATION ENABLED FUTURE SERVICES	303-G14	TBC
TS07	FUTURE DISTRIBUTION NETWORKS	303-G15	Samad Shirzadi
TS08	INTEGRATION OF LOW CARBON GENERATION TECHNOLOGIES	303-G16	Daming Zhang

AUPEC 2018 / CIGRE ANZ 2018 Executive Plenary
“Risk, Resilience and Sustainability in a Low Carbon Future”
Venue: 301-G050

The NZ Industry Executives Plenary Session *Risk, Resilience and Sustainability in a Low-Carbon Future* underpins our “Transitioning NZ to a Low-Carbon Energy Future”.

The executive panellists are from across the NZ industry. Mercury and Vector for power systems, New Zealand Transport Agency for transportation and the Auckland City Council for livelihood of the population residing within the city. All of whom play leadership roles driving our Low-Carbon Future.

Speakers will present approaches to evaluating and managing risk, while securing infrastructure business and community resilience and sustainability within a low-carbon future context. A moderated interactive session between audience and panellists will follow.

How important is climate change and our transition to zero-carbon?

How is clean affordable energy connected to a customer focus?

What kind of initiatives should we collectively aim for as an industry to enable sustainable cities and communities with resilience?

How can we optimise our respective Supply Chain elements and their connection to a circular economy?

The executive participants are Kate Beddoe (Chief Risk Officer, Vector), Dr Derek Caudwell (General Manager Network, Horizon Energy), Martin McMullan (Connected Journey Solutions Director, NZTA), Rod Sheridan (General Manager Community Facilities, Auckland City)

Introducing this joint AUPEC/CIGRE opening session is Dr Nirmal Nair, Chair of AUPEC 2018, and Doug Ray, Chair, CIGRE NZ and Industrial Chair, AUPEC 2018. The session moderators are Moonis Vegdani, Chair of New Generation Network. CIGRE NZ, and Safa Al-Sachit, Women-in-Power Chair, AUPEC 2018.



Kate Beddoe, *Vector Limited*

Kate leads Vector's people, safety and risk teams to ensure these areas are aligned and support Vector's strategy and culture. Areas of responsibility include risk management, business continuity management, internal audit, cyber security, HSE, human resources and sustainability. Kate's background includes strategic and operational risk management, business continuity, OHSE, insurance, sustainability and commercial law. Prior to joining Vector in July 2012, Kate was with Amcor Limited where she held the global position of Vice-President, Risk and Sustainability and has held management roles with Toyota and Bonlac Foods (Fonterra). Kate is also a director and Vice President of RIMS (Risk Management Society) Australasia and a contributor to the Cambridge Institute for Sustainability Leadership – Business and Sustainability Executive Leadership Program (Melbourne).



Rod Sheridan, *Auckland Council*

After a career of strong achievements within facilities management across Australasia, Rod joined Auckland Council in late 2015 to lead the formation and development of the Community Facilities Department. The team manages \$11 billion (2000 buildings, 4000 parks) of council's assets across Auckland and provide a lifecycle approach to asset solutions. They also manage and deliver all capital work relating to these assets: build, maintain, and renew. Rod has set the vision of Community Facilities as being the leading local government provider of asset management solutions. Auckland Council has a strong focus on sustainability. Within Community Facilities, Rod and his team are working hard to meet Auckland Council's Low Carbon action plan targets and achieve their Auckland Plan social outcome directives.



Dr Derek Caudwell, *GM Network, Horizon Networks*

Derek joined Horizon Energy as its Operations Manager in 2011, and subsequently worked as an Asset Manager before being appointed as the General Manager Network in 2014. Before joining Horizon Energy, Derek worked and lived overseas with a career spanning over 10 years in the Oil and Gas industry. During his career Derek has worked in operations, strategy, change management and financial management roles. In his roles with Horizon Energy Derek has led the businesses innovation, operations and asset/risk management strategies and had hands on experience in managing business continuity, major event responses, planning and resilience.



Martin McMullan, *New Zealand Transport Agency*

Martin is the Director for Connected Journeys at the NZ Transport Agency. He is accountable for Transport Technology which includes future transport, intelligent transport systems, mobility as a service, national transport payments and innovation. He is a self-taught software developer and is focused on using software solutions to make the NZ transport system safer, more sustainable and optimise the network using computer vision, ML and AI. Martin is an Executive of the Australian Driverless Vehicle initiative and the NZ Transport Agency.

**Moderator - Moonis Vegdani, Vector**

Moonis received his Bachelor of Electrical and Electronic Engineering (First Class honours) from University of Auckland in 2011. Since then, he has worked with organisations such as AECOM Australia, Transpower and Mercury; partaking in large scale Australian Defence, infrastructure, renewable energy and new technology projects. Within these roles Moonis has been able to deliver his strong interest in the application of emerging new technologies, engineering and design, new product development and product commercialisation. He also has experience in bringing eMobility and new energy solutions to market through corporate venture building and start-up activities. Moonis is currently the Customer Resilience and New Technology Manager and heads the eMobility Programme at Vector.

**Moderator - Safa Al-Sachit, University of Auckland**

Safa Al-Sachit received her BSc with first class honours in Electrical Engineering from Babylon University, Iraq in 2008, and her Master's in Electrical Energy Systems from Cardiff University, UK, in 2016. She is recipient of the Northpower Energy challenge award for the best Masters project. She is currently a Doctoral researcher in the Electrical and Computer Engineering Department at the University of Auckland. Safa was a power system consultant to Babylon investment Commission, Iraq, and a lecturer for Al-Qasim Green University in Iraq.

AUPEC 2018 / CIGRE ANZ 2018 Executive Plenary
“Future Low Carbon Technologies & Workforce”
Venue: 301-G050

Technology and Workforce are symbiotic partners for the delivery of a low-carbon future. This panellist session of NZ technology leaders explores that interaction driven by current, emerging, and likely displaced technologies and practices.

Panellists are innovative leaders within NZ industry, ranging from smart digital technology, innovative engineering solutions and tools, and the empowerment of the workforce in delivering a Low-Carbon Future: Vector, OPAL-RT, and Callaghan Innovation respectively. Speakers are forward thinkers and pragmatic innovators, passionate about recognising how NZ is contributing to and delivering change.

The executive roundtable panellists are Roxanne Salton (Mercury), James Muir (Business Innovation Advisor, Callaghan Innovation), Shailesh Manga (Group Manager Digital Transformation, Vector), Thomas Kirk (Solutions Lead, OPAL-RT, Canada), and David Jenkinson (Yoogo). A moderated interactive session between audience and panellists will follow.

This executive roundtable will discuss new digital and low carbon technologies, some customer led such as EVs, PVs, battery storage and others digital technologies of Artificial Intelligence, the Internet of Things, and Blockchain.

- What new digital technologies are looking relevant for our energy future?
- What low carbon technologies are looking relevant for our energy future?
- What impact is there likely from new distributed / decentralized technologies?
- How is regulation likely to affect penetration of the new technologies?
- What is a future workforce going to look like? Are we getting ready?

The session will be moderated by Waqar Qureshi, Secretary of CIGRE NZ and Industrial Co-chair of AUPEC 2018, and Leonie Bule, Women-in-Power, AUPEC 2018.



Roxanne Salton, Mercury

At Mercury, we are on a mission to inspire New Zealanders to enjoy energy in more wonderful ways. Roxanne is leading the digital evolution of Mercury's next generation energy services, to define and create rewarding and inspiring experiences that customers and staff alike rave about. Roxanne is a passionate leader and a strong customer advocate who believes in leaving a lasting legacy. Before joining Mercury, Roxanne gained wide ranging experience in the digital world, in banking (ASB), telecommunications (Spark) and publishing industries. A common theme throughout these roles has been her strong interest and involvement in new technologies, new market opportunities and disruptive innovations.



James Muir, Callaghan Innovation

James Muir is a Business innovation advisor-Energy and Environment with Callaghan Innovation. James has worked with government and business in Asia Pacific, Europe and East Africa to address key energy and environmental issues. Career highlights include renewable energy strategies for BP Scotland and Ayala in the Philippines, Laos and Cambodia, improving the environmental transparency of companies listed on the Hang Seng index, leading a large consultancy firm in New Zealand, and increasing Callaghan Innovation's engagement with businesses investing in clean water, climate change and the circular economy. He has a Master of Engineering Science, Ecosystems Analysis & Governance and Creative Writing and is a Certified Energy Risk Professional (CERP).



Shailesh Manga, Vector

Shailesh Manga is a Group manager for Digital Transformation, Vector. Shailesh's background is incredibly diverse. His career has included roles as a physicist, product manager, and a consulting and software company owner. Over the past 13 years he has taken on senior leadership roles in global and New Zealand companies. His broad consulting experience with the world's most well-known technology brands has given a unique and informed perspective on Innovation, Product Design and transforming businesses. In his current role, Shailesh is focused Vector creating a new energy future through a cultural and operational transformation in how it designs and delivers innovative solutions.



Thomas Kirk, OPAL-RT Technologies

Thomas Kirk is a senior solution engineer with OPAL-RT Technologies based out of Vancouver, BC, Canada. Since 2015, he has worked closely with world leaders within the energy, aerospace, defence and academic sectors in selecting real-time testing solutions for R&D, production and certification purposes. Also, he is OPAL-RT's specialist in creating test setups for cybersecurity and vulnerability of grid operational technology, as well as Power Hardware-in-the-Loop. Prior to OPAL-RT, he worked at Bechtel Corporation's Aluminium Centre of Excellence (ACE) in Montreal, simulating the performance and safety of mining facilities during the design phase. He has a Master's in Applied Science, University of Waterloo (2014) and a Bachelor of Engineering, McGill University (2010).



David Jenkinson, Yoogo

David Jenkinson is a Co-Founder and CEO of Yoogo. David has invested his career in creating and building start-ups. Having co-founded an investment firm in 1997 specialising in business turn-arounds David built his first start-up to annual revenues of \$120m. Next came a technology business harnessing big data analytics to deliver performance improvements to sports people followed by forays into asset management and asset finance. With an avid interest in mobility and technology David started Yoogo in 2014 as co-founder and CEO to build a tech driven Fleet Management and Asset Funding business. Yoogo exceeded revenues of \$50m in FY18. Yoogo is unique in that it helps companies reduce fleet size and optimise how their assets are managed. Yoogo Share was originally an adjunct to Yoogo following on what David believed was the future of mobility. In 2016 it took on a life of its own as it was spun out of the Yoogo group to begin its own start-up venture. Yoogo Share is a NZ based pure electric car share business on a mission to solve urban traffic congestion.



Moderator - Dr Waqar Qureshi, Horizon Networks

Dr. Waqar Qureshi is the Asset Manager, Horizon Networks, responsible for ensuring a sustainable electricity supply to Eastern Bay of Plenty electricity customers. He is past Senior Transmission Advisor for Mercury New Zealand where he focused on transmission planning and engineering project management in electricity the market environment. He is the Secretary for CIGRE New Zealand National Committee, and Chair for IEEE PES New Zealand North Chapter and Industry Co-Chair for AUPEC 2018. He has over 13 years of experience in the energy sector in various capacities. He holds a PhD in transmission and large-scale wind integration from the University of Auckland. He is also a certified Project Management Professional (PMP) with the Project Management Institute, a Chartered Professional Engineer (CPEng), International Professional Engineer (IntPE-NZ), and Chartered Member with Engineering NZ.



Moderator - Leonie Bule, University of Auckland

Leonie Bule is currently a PhD student researcher at the University of Auckland. She has been active in the power distribution industry for more than seven years holding roles in project management, electrical distribution design (mechanical and electrical) and strategy planning for operations in Unelco Engie. During her years at Unelco Engie she has supported the production and distribution operators and both accounts and commercial departments. She is interested in microgrid and power distribution active and accurate monitoring for power quality issues, using intelligent and effortless mitigation methods.

CIGRE ANZ 2018
“Technical Session with CIGRE NZ Practitioners”
Venue: 302-G20

Welcome to our CIGRE Technical Presentation session with NZ Industry CIGRE Practitioners.

We have experts active in working groups of CIGRE NZ and the IEEE Power and Energy Society (PES), two major global technical organisations whose work directly feeds into IEEE and IEC smart energy development and standards globally.

We'll hear how these groups work in bringing to, and advancing, the ANZ engineering community through these organisation's international research and developments that aid local industry initiatives to deliver solutions and change.

Presentations are within the context of existing and new technology solutions.

The panellists are Dr Nirmal Nair (AUPEC, IEEE PES, CIGRE NZ), Doug Ray (CIGRE NZ Chair, CCG NZ Safety in Design), Duncan Kaniaru (University of Auckland, CIGRE WG B5), Samad Shirzadi (University of Auckland), and Brent Rees (CIGRE NZ, ABB NZ). A moderated interactive session between the audience and panellists will follow.

What contributions are these organisations bringing to our energy future?

How do they link to low carbon transition technologies?

What impact do they see for new distributed / decentralised systems?

How my technical outcomes benefit by participation in these organisations?

The session will be moderated by Nasser Faarooqui, CIGRE NZ NGN Secretary, Jacobs, and Ebad Rehman, University of Auckland.



Dr. Nirmal Nair, *University of Auckland, IEEE PES, CIGRE NZ*

Nirmal Nair has a BE from MS University, Baroda, an ME in High Voltage from IISC, and PhD from Texas A&M. He has held industry, research & academic posts in India, USA and NZ. Currently, Nirmal is an Associate Professor in Electrical & Computer Engineering at the University of Auckland. He works on protection, renewable grid integration, electricity markets, blackouts, restoration & resilience and engages on industry projects through consultancy. He is passionate about life-long-learning, energy policy, innovation and media outreach. He is actively involved with IEEE Power & Energy Society (PES) and NZ Electricity Engineers Association (EEA). He is a CIGRE NZNC Executive Committee member and its AORC representative since 2008, was Secretary (2014-17), and an Observer Member for CIGRE B5 (Protection and Automation) since 2010 participating and leading working groups He was the General Organizing Chair of CIGRE 2017 Auckland. Nirmal is currently the General Chair for AUPEC 2018.



Doug Ray, *Vector, CIGRE NZ Chair*

Doug is currently serving as the CIGRE NZ National Committee Chair. Doug delivers Vector's Capital Investment customer and business-centric business cases, asset strategies, asset management planning and capital expenditure justifications, and engineering scoping for power system and new technology solutions and maintenance standards. He is a strong advocate of risk-based safety in design and customer-centric energy solutions. Working as a senior consultant for Parsons Brinkerhoff he won and delivered fast-track design projects for Transpower, and as Vector's Network Projects Manager, and then Engineering Manager, delivered \$100M p.a. performance-based Capex and Opex programmes. Doug is also active within the CIGRE Australia Substations B3 Panel, and the NZ Construction Clients Group and its Safety in Design WG.



Duncan Kaniaru, *University of Auckland, CIGRE WG B5*

Duncan Kaniaru Maina is a PhD researcher in the Electrical and Computer Engineering Department at the University of Auckland. He received his MSc in Electrical Power System Engineering from the University of Manchester, UK. His research is focussing on the use of non-conventional generation plants in the re-energisation of a black-start network. Duncan is currently a member of WG B5:54 looking into 'Protection and Automation Issues of Islanded Systems during System Restoration/Black Start'. He is also actively participating in CIGRE NZ activities.



Samad Shirzadi, *University of Auckland*

Samad Shirzadi Deh Kohneh gained his degree at the Islamic Azad University in Iran. He worked as an electrical design engineer and a project manager in electricity distribution systems before gaining his Masters in Electrical Engineering at the University Putra, Malaysia. He is currently conducting research on '*Electricity distribution system resilience*' for fulfilment of his PhD at the University of Auckland.



Brent Rees, ABB NZ, CIGRE NZ

Brent is the Sales and Marketing Manager of the Power Grids division at ABB NZ in Auckland. He is responsible for the power grids portfolio including transformers, high voltage (greater than 33kV) equipment, grid automation technologies (relays, microgrids, enterprise software, and network control), HVDC, reactive power systems, grid services and system integration. Brent joined ABB in 2005 following a strong background in the large-scale manufacturing sector from several industries including steel, pulp and paper, oil and gas and petrochemicals. Brent has a Master of Business Administration and a Bachelor of Engineering from the University of Auckland.



Moderator – Nasser Faarooqui, Jacobs

Nasser Usman Faarooqui is a protection engineer at Jacobs, with a specialisation in protection for grids with a high penetration of inverter-based energy systems. He is also completing PhD research in power system engineering at the University of Auckland. His research includes '*Efficient design of extended reserve (AUFLS) schemes with new technologies and associated markets*'. He completed his Masters in Energy at the University of Auckland in 2016. He is the recipient of an Alumni Endowment award for best final year project for his Bachelor of Engineering degree (EEE) received from Anna University, India.



Moderator – Ebad Rehman, University of Auckland

Ebad Rehman is currently a PhD researcher at the University of Auckland. His research is focused on Asset Management with IoT devices. Ebad worked as an electrical sales engineer in Pakistan before gaining his Masters in Electrical Engineering and Power Electronics from the University of Bradford, UK. He is also working on a project under He is currently conducting a research project on '*Resilience to Nature's Challenges*' for fulfilment of his PhD at the University of Auckland.

CIGRE ANZ 2018

“Industry Forum with Innovation Leaders in NZ”

Venue: 302-G20

Our final CIGRE ANZ session sees current energy industry innovation presented within an *Industry Forum of New Zealand Innovation Leaders*.

The panellists look at innovation within customer led technologies such as EVs, PVs, battery storage, facilitated by digital technologies relevant in the energy space: DERMS, the Internet of Things, and Artificial Intelligence.

These innovation leaders will frame their implementation experiences of delivering change within the commercial context of the energy industry’s transition to a low-carbon future.

The roundtable panellists are Ralf Huebner (Vector), Kristian Jensen (WSP Opus NZ), Abhinav Chopra (University of Auckland), Cameron Chapman (WEL Networks), and Brent Rees (ABB NZ). A moderated interactive session between the audience and panellists will follow.

What new digital technologies are current and emerging?

How are new technologies contributing toward a low carbon future?

What low carbon technologies are looking relevant for our energy future?

What impact are you seeing with new technology implementation?

The session will be moderated by Moonis Vegdani, NGN Chair CIGRE NZ, Vector, and Kate Murphy, Engineer - Network Solutions, Vector.



Ralf Huebner, Vector

Ralf is the Manager Technology Integration as part of the Engineering team at Vector. Ralf is an experienced engineering leader with an extensive background in SCADA, Communications and substation Automation Systems, developed through his work within the German and NZ utility industry. As the Energy IoT platform owner at Vector, Ralf is heavily involved in the development of mDERMS together with Vector's partner mPrest. mDRMS will ensure DER's can be actively used to benefit customers and develop Vector's electricity network towards a low-carbon future. Ralf has achieved this through solid relationship, people management, and effective communication skills, with an agile ability to work within changing developmental environments. Ralf has a Bachelor of Electrical Engineering and is also active in authoring CIGRE Paris Session papers and engaging in CIGRE NZ activities.



Kristian Jensen, WSP Opus NZ

Kristian has spent over 30 years in hard rock mining, heavy industrial, commercial buildings and MV projects in roles ranging from Chief Engineer to Managing Director. He has a BSc Electrical Engineering and a Master of Business Administration. As well as being a CIGRE NZ executive member, he is a Chartered Engineer in both UK and NZ. Kristian is also a Certified Asset Management Advisor (to ISO55001) and works with several large public and private clients spread across NZ and the Pacific Islands, as well as Department of Defence, Corrections and Ministry of Foreign Affairs. Kristian has operated in research environments (including HVDC instruments and fibre optic pits) and dealt with the difficult transition from legacy products to IEC arc fault rated products. He has dealt with several projects related to explosive, toxic and flammable products and the consequence when things go wrong. He gets involved in "awkward" projects, such as re-cladding a building, 32 stories up over public walkways, with high power RF and satellite transmitters requiring helicopter access; or running a 0.75MW motor at a short term 150% of rated power driving a 2-meter circular saw cutting aircraft frame aluminium billets.



Abhinav Chopra, University of Auckland

Abhinav is the Technology Manager for the Department of Statistics, University of Auckland. He heads the Future and Advanced Technologies portfolio working with Big Data, AI, Blockchain, Distributed Systems, Cloud and IoT. He is involved in creating data as a service platform for the green grid and actively working with machine learning algorithms driving AI development forward in the energy sector. Abhinav has also provided technology consulting services in insurance, healthcare, life sciences, public policy, energy and high education domain within Europe, the United States, Australia and New Zealand. He is currently pursuing a PhD in Power Systems Engineering along with his current full-time role. He is TOGAF, Prince 2, ITIL, Six Sigma certified. He holds a Master in Software Engineering, and degrees in Electronics and Telecommunications Engineering and Small Business Management. He is Vice Chair for the Association of Enterprise Architect Auckland Chapter. Abhinav is also an Enterprise Architect with the prestigious *The Helen Clark Foundation* and is an active member of IEEE, ITPNZ, Engineering New Zealand, and Institution of Engineers, India.



Cameron Chapman, WEL Networks

Cameron Chapman is the Network Innovation Engineer at WEL Networks, Hamilton. He is responsible for integrating emerging technologies into the existing distribution business including solar, battery, EVs and micro-grid automation. Cameron joined WEL Networks in 2017 from a strong background in design, construction and asset management across the power generation sector. He has championed WEL Networks EV charger programme and is leading their micro-grid development. While at Genesis, Cameron led the development of the asset management system using the Bowtie risk management framework. Cameron has a Master of Engineering Management and Bachelor of Engineering from the University of Canterbury.



Moderator - Moonis Vegdani, NGN Chair, CIGRE NZ

Moonis received his Bachelor of Electrical and Electronic Engineering (First Class honours) from University of Auckland in 2011. Since then, he has worked with organisations such as AECOM Australia, Transpower and Mercury; partaking in large scale Australian Defence, infrastructure, renewable energy and new technology projects. Within these roles Moonis has been able to deliver his strong interest in the application of emerging new technologies, engineering and design, new product development and product commercialisation. He also has experience in bringing eMobility and new energy solutions to market through corporate venture building and start-up activities. Moonis is currently Vector's Customer Resilience and New Technology Manager and also heads the eMobility Programme at Vector.



Moderator – Kate Murphy, Vector

Kate Murphy has a passion for Renewable Energy and Technology. Kate moved to New Zealand after completing a Bachelor of Engineering at UCC, Cork, and working with "MaREI", Marine and Renewable Energy Ireland. She obtained her Masters of Energy at the University of Auckland, with a focus on GREEN Grid voltage control in distribution networks with increasing solar PV and battery storage systems. Kate's role as Engineer – Network Solutions at Vector has her working closely with diverse teams to provide alternative new solutions for Vector's network and its customer's.

CONTINUING PROFESSIONAL DEVELOPMENT CERTIFICATES / CLOSING 17:15–17:30

CPD certificates will be issued to conference participants and CIGRE ANZ 2018 Chair, Moonis Vegdani, and Co-Chair, Nasser Faarooqui, will close event.

Attendees who have separately registered for the AUPEC 2018 Conference Dinner are invited to arrive at 7 pm at The Wharf, Viaduct Harbour, Downtown Auckland.

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Student membership is free for your first two years. To be eligible please email a copy of your student enrolment and student ID to our CIGRE NZNC Secretary (email address above).

FUTURE EVENTS



AGM
20 December 2019
Video Teleconference



CIGRE 2019 Conference
24 June 2019
Collocated with and supported by EEA NZ

A banner for the EEA 2019 conference. The background is a dark blue and black gradient with horizontal streaks of light blue and yellow. The text 'ENGINEERING, TECHNOLOGY & INNOVATION' is written in large, bold, white and blue letters. In the bottom left corner, the 'eea' logo is shown next to the text 'Electricity Engineers' Association'. In the bottom right corner, a blue box contains the text 'EEA19' and '25-27 JUNE 19 AUCKLAND'.

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