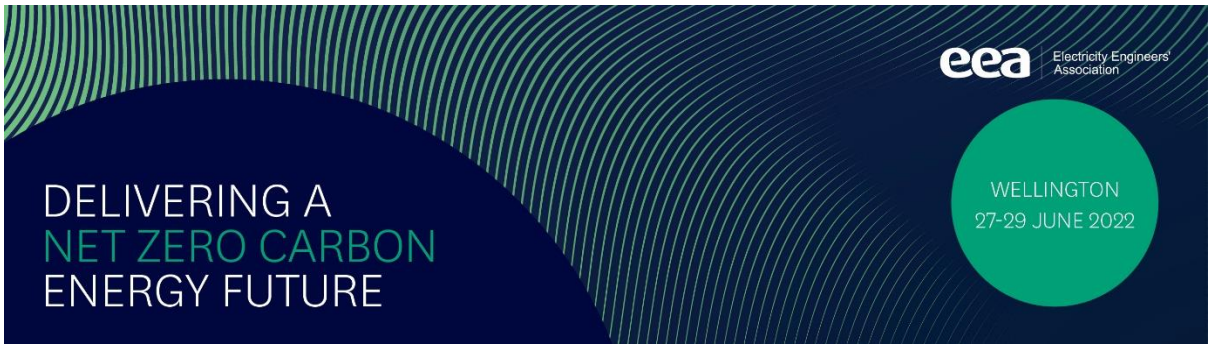

Paper Themes and Context

"Delivering a Net Zero Carbon Energy Future".

The EEA2022 Conference is 'Delivering a Net Zero Carbon Energy Future' so we are looking for papers on the challenges and opportunities for our industry as we prepare to play a key part in climate change mitigation and the transformation to a low carbon economy by 2050.

Theme areas include:

- Net zero carbon
- Demand side
- Automation, digitisation, and data-driven future
- Customer-driven change and market engagement
- Sustainability engineering
- Assets management, climate change resilience, and future asset planning
- Enabling distributed energy resources (DER)
- Emerging technology and innovation – artificial intelligence
- Security and reliability of supply
- Open networks transformation
- Transport energy options
- Future capability requirements
- Safety - critical risks, essential controls and continual improvement
- Smart systems
- Sustainability and environmental

The following are some paper "topic areas" to consider. (Note: Topics below are NOT in any priority order nor is it an exhaustive list of topics that could be offered).

Emerging Technologies - Opportunities, Integration, and Impacts

- Open networks
- Renewable distributed generation (e.g., solar, wind, micro generation etc)
- Battery storage
- Emerging technology - trials and outcomes
- Electric transport infrastructure
- Demand response and pricing frameworks
- Hydrogen - a future power and energy storage source
- 'Smart opportunities' - cities, homes and appliances
- Micro-grids
- Network stability
- Customer’s technologies and smart multi energy solutions
- Artificial intelligence, robotics, and customer technologies

- Pilot projects
- Pump storage

Data and Communications - Challenges and Impacts

- Asset data – frameworks, condition assessment, health indicators, planning and performance metrics
- Automated Demand Response (ADR)
- Machine learning
- LV and HV data for asset and system management
- System modelling and simulation
- Asset forecasting and planning
- Cyber security/data protection
- Unmanned aerial vehicles
- Data visualisation
- Artificial General Intelligence (AGI) , data science and machine learning - operational aspect of the grid.
- Peer-to-peer trading, Blockchain, Big Data, Edge intelligence and The Internet of Things
- SCADA & ADMS

Sustainability Engineering - Management, Optimisation, and Integration

- Asset management - priorities and planning in uncertain times,
- Life cycle engineering
- Interoperability - common platforms, interactions and integrating new technologies and existing assets
- Managing asset risks (e.g. transformers, poles, conductors, switchgear, earthing and substations)
- Ageing Infrastructure - lifecycle and reliability - maintain, refurbish, upgrade or replace?
- Infrastructure design for new technologies and safety
- LV networks - monitoring, modelling and management
- Climate resilience
- Earthing
- Integration of distributed renewables - solar, battery and wind
- Maintenance strategies, standards and issues- poles, conductors, cables and other key assets
- Automation/SCADA/Fault resolution
- Power quality, security and stability
- Projects /case studies
- Work method selection - Live or de-energised

Future Capability

- Future Work
- Delivering on engineering, technical, IT and analytic capability
- Developing/maintaining core skills, capability, and engagement with our people
- Workforce diversity and inclusion - attracting and retaining talent
- Workforce gaps - trends and challenges
- Occupational licencing
- Digitised learning
- Common Competency - opportunities and challenges
- Innovation contracting/service delivery

Net Zero - Drivers for Change

- Climate change
- Regulatory frameworks - economic security and reliability - impacts on customer service, investment, technology,
- Transmission - grid connection, technology, markets, and priorities
- Electrifying transport and the impact on the power system
- Resilience
- International standardisation for NZ adoption of technology, systems and products
- Regional challenges

Consumer/Community Focus & Market Models

- Behind the meter - Impact of smart consumer technology
- Customer/community demand response - aggregators, pricing, demand and resilience
- Distributed energy resource management systems (DeRMS)
- Unlocking customer data for insights on future directions
- Prosumers and future electricity markets

Safety, Health and Environment

- Mental health and wellbeing
- Covid
- Safety Impacts of decarbonization and emerging technologies
- Critical risks - essential control strategies
- LV work management
- Risk frameworks for work method selection
- Monitoring and auditing workplace and public safety
- Shared learnings for better safety performance
- Hazardous substances – Asbestos, SF6