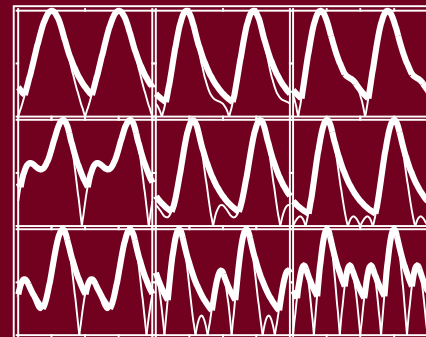
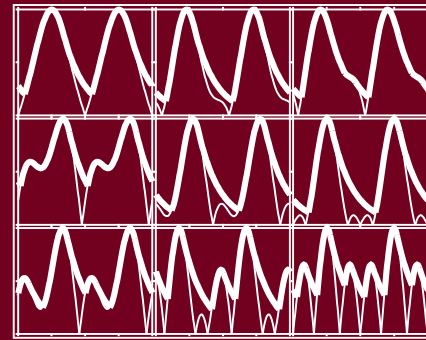


A very Warm Welcome to this FAN Workshop

Neville Watson and Hamish Avery
12 February 2024



Outline

1. House-keeping
2. Summary and objectives of Workshop

House-keeping

- Procedure in an Emergency
- Location of toilets

Programme – Day 1

12.00 – 13.00	Lunch break – ReCharge Lounge, Rātā building	
13.00 – 13.05	Neville Watson Hamish Avery	Welcome and Health & Safety Introduction
13.05 – 13.50	Nirmal Nair	Workstream 2 update
13.50 – 14.35	Jeremy Watson	Workstream 3 update
14.35 – 15.20	Andrew Laphorn	Workstream 4 update
15.20 – 15.40	Afternoon tea	
15.40 – 16.25	Ramesh Rayudu	Workstream 5/VM update
16.25 – 17.10	Josh Schipper	Workstream 1 update
17.10 – 17.45	Refreshments	
17.45 – 18.00	Prof. Rajendra Singh, Clemson University, Canada	The Next Frontier in Sustainable Green Energy: Phasing out AC Electricity Infrastructure by End to End DC Power Networks
18.00 – 18.30	Veerabrahmam Bathini	Presentation of case studies: 1. New Zealand Power System for Renewable Energy Development 2. CIGRE Benchmark system for Hybrid AC-DC Power System
19.00 –	Dinner	Venue TBC

Programme – Day 2

From 8.45	Coffee available	
9.00 – 10.00	Nirmal Nair	Poster session
10.00 – 11.30	Neville Watson	Industry Engagement Workshop
11.30 – 12.00	Neville Watson / Andrew Lapthorn	Lab tour
12.00 – 13.00	Lunch break / Networking	



Full Research programme name:

Architecture of the Future Low-Carbon, Resilient, Electrical Power System

Short-form name of the programme:

*Future **A**rchitecture of the **N**etwork (**FAN**)
or *Te Whatunga Hiko**

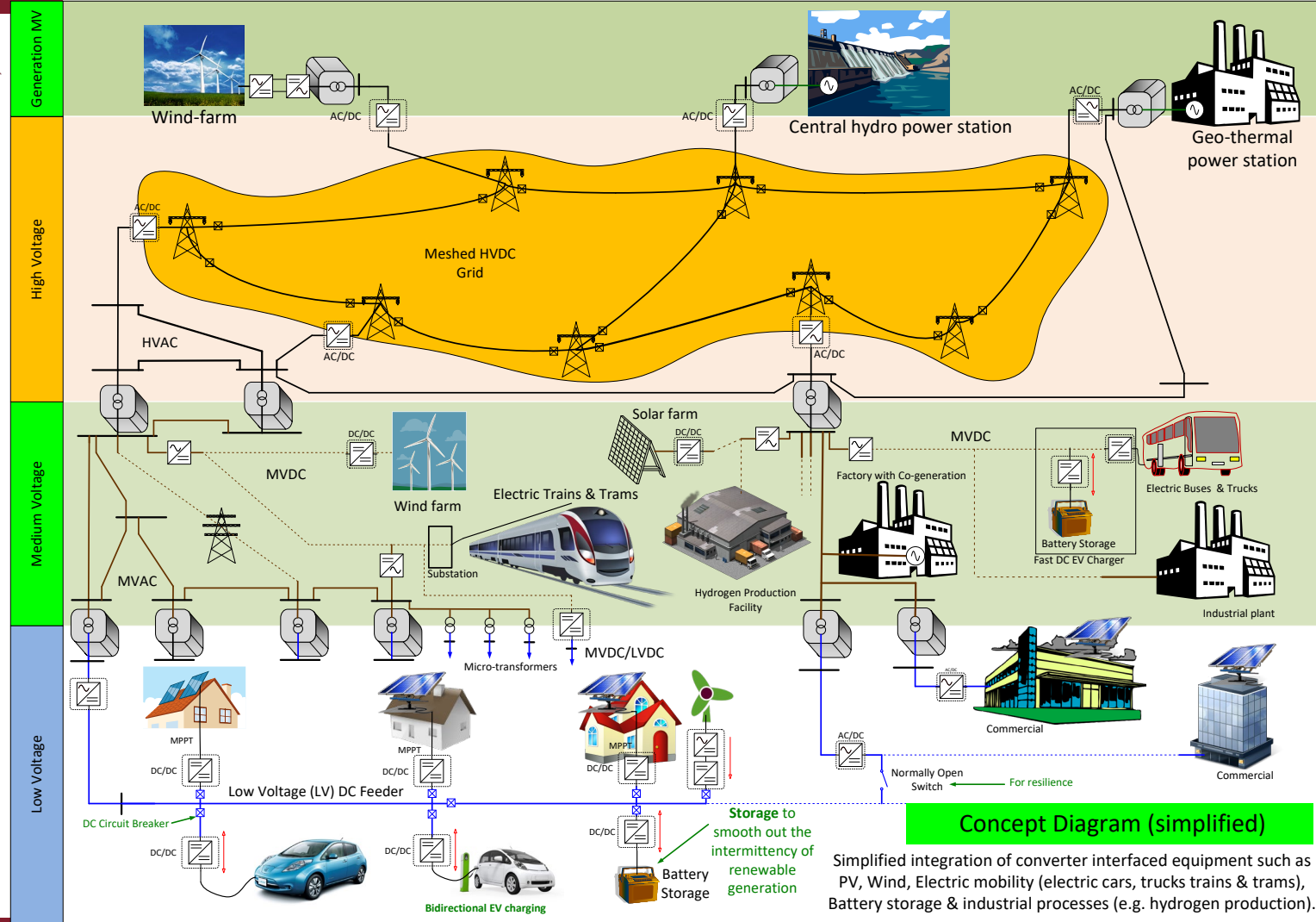
7-year project (started in the latter part of 2020)

Science Leader: Professor Neville Watson (University of Canterbury)

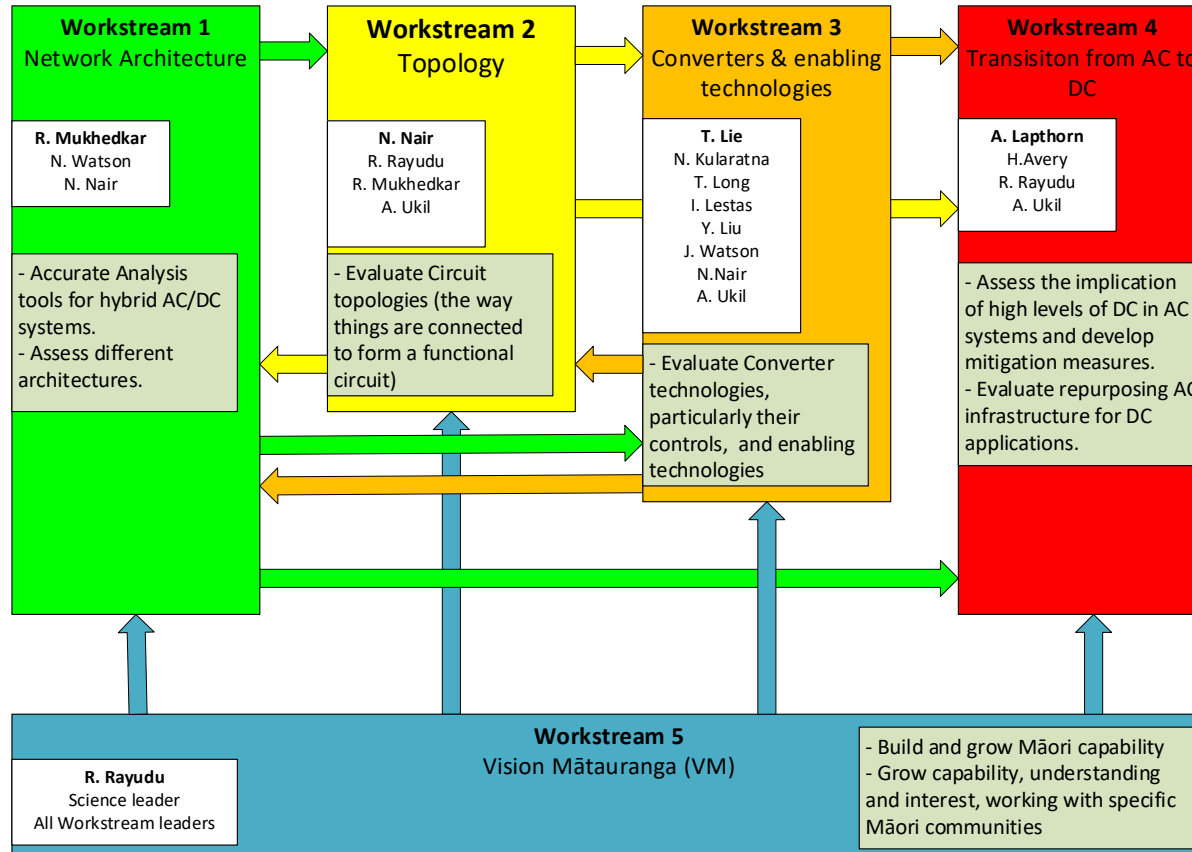
Contact: futurearchitecturenetwork@canterbury.ac.nz



Concept Diagram



FAN Workstreams



Goals

1. Technical development

- Primarily through postgraduate and Post-Doct. Research.
- From Collaborators

2. Capability growing in New Zealand

- Research undertaken by researchers here
- Exchange of researchers with collaborations both overseas and within NZ.
- Bringing expertise to New Zealand.



Overseas Collaboration



1. Co-supervision of research students
2. Exchange of Ph.D. students and Post-doctoral fellows
3. Exchange of ideas and critical feedback on the work being performed
4. Visit to New Zealand of Overseas collaborators and vice versa
5. Give Ph.D. courses
6. Joint publications
7. Joint seminars
8. Help connect us to other relevant people/organisations to make this project successful.

Institution	Workstream	Name	Level	Project/ role
UoA	2	Eric Sierra Jimenez	Masters	publication scholar
UoA	2	Michael Gibson	Masters	WS2 UoA ME “Protection of LVDC Networks”
UoA	2	Mufid Altorok	Masters	WS2 UoA Master’s Project “Optimal Power Flow in Hybrid AC/DC Distribution Network”
UoA	2	Wayne Huynh	Masters	WS2 UoA ME “Design options for Future hybrid low voltage AC-DC AC-DC Distribution system”
UoW	3	Charles Themiya Sirimanne (Sr)	Masters	ME Topic : Supercapacitor Assisted DC Refrigerator
VUW	4	Sumair Ahmed	Masters	Part-time Masters Student, Potential of Low Voltage Direct Current in New Zealand
AUT	3	Zaid Hamid Abdulabbas Al-Tameemi	PhD	Development of Hierarchical Control Strategies for DC Microgrids Clusters
AUT	3	Aphrodis Nduwamungu	PhD	PhD with topic “Control Strategies and Stabilization Techniques for Converter”
UoW	3	Chamara T Dassanayake	PhD	Supercapacitor Assisted DC Circuit Breaker
UC	4	Soren Subritzky	PhD	DC/GIC in Transformers
UoA	2	Andre Cuppen	PhD	WS2 UoA PhD “Topology options for future hybrid medium voltage ac-dc distribution system” Supported by Powerco (Industry)
UC	3	Hailong Wang	PhD	Control of grid-side converter for Type-IV Wind Turbine Connected to AC Systems
UoW	3	Nirashi R Polwaththa-Gallage	PhD	Supercapacitor Assisted DC Refrigerator
UC	1	Choidorj Adiyabazar	PhD	Started PhD studies in August in the area of dynamic performance
UoW	3	Chamila Naligama	PhD	PhD: Supercapacitor assisted inverter project
UoW	3	Charles U Sirimanne (Charles Jr)	PhD	High power SCALDO basd DC-DC converter
UC	1	Christian Yap	PhD	Steady state fault analysis of hybrid AC/DC networks using generalized converter models.
UC	3	Emmanuel Amaefule	PhD	PhD with topic ‘Control of Interlinking converters for hybrid AC/DC networks’.
AUT	3	Mehdi Moradian	PhD	PhD with topic “Analysis of DC breaking phenomenon in DC Microgrids”
UC	4	Nalindi Pabasara Herath	PhD	New PhD at UC Starting Dec 2022 with the topic: (WS4) MVAC Cables for MVDC networks
UC	4	Hossein Eisapour	PhD	New PhD at UC Starting 2023 with the topic: (WS4) Multi-Physics Power Transformer Model for Digital Twin
UoA	2	Leyla Zafari	PhD	Digital Substations: Emerging Digital Substation principles and applications
AUT	3	Rasool Peykarporsan	PhD	Application of machine learning and big data in converter control strategy- an effort towards stability enhancement
VUW	5	Priya Singh	PhD	Interaction of offshore windfarm with AC-DC corridors.
UoA	2	Saad Khan	PhD	Formulate MTDC (Multiterminal DC) or P2P (Point-to-Point) DC links using the VSC converters as part of the existing Experimental Testbed to carry out fault analysis
UC	1	Shushan Qiu	PhD	
UC		Dilshani Maheepala	PhD	



FAN Research Partners

New Zealand



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Overseas – University of Cambridge (UK) and
Aalborg University (Denmark)
Technische Universität Dresden (Germany)
RWTH Aachen University (Germany)