Sustainable Energy Systems

- Education
  - Undergraduate programme
    - Courses
      - ENGR 111 – Introduction to Renewable Energy Systems (1)
      - RESE 211 – Renewable Energy Generation (2)
      - RESE 212 – Renewable Energy Conversion and Storage (2)
      - RESE 311 – Energy Economic Analyses (3)
      - RESE 312 – Sustainability Modelling Techniques (3)
      - RESE 323 – Renewable Energy Policy (3)
      - RESE / EEEN 313 – Power Electronics and Electrical Machines (3)
      - RESE 321 – Renewable Energy Generation Engineering (3)
      - RESE 322 – Renewable Energy Storage Engineering (3)
      - RESE 411 – Power Systems Analysis (1)
      - RESE 412 – Advanced Development of Renewable Energy Systems (1)
  - Master programme
    - Courses
    - Research
      - Green hydrogen for the very heavy vehicle fleet of New Zealand (1)
      - Business model for distributed solar systems with storage (3)
  - PhD programme
    - Research
      - Design framework for micro-grids in developing countries (1)
      - Optimisation of the components of micro-grids (1)
      - Understand the socio-economic implications of community energy projects (3)
      - Low-temperature geothermal technology development (3)
- Research projects
  - Land use analysis for energy crops (3)
  - Business models for off-grid micro-grids (1)
  - AI / ML applications for (micro) grid resilience (1)
  - PV / Electrolysis for hydrogen (1)
  - CSP and water resources management (1)
  - Systems analysis for EV uptake (1)
  - Bioenergy technology status quo and forecasting (1)
  - Leapfrogging RE technologies in unmet markets (1)
  - NZ hydrogen industrial application and system analysis (1)
  - NZ EV systems analysis (3)
  - NZ bioenergy technology analysis (2)
  - Battery life cycle analysis (3)
  - Solar atlas for New Zealand (1)
  - Turbine protection (1)
  - Climate influence on future grid technologies (1)
  - Low temperature geothermal cycles (2)
  - RE building integration (2)
  - Component development for the protection of connected nano-grids (2)
  - Hardware development for household DC (1)
  - EV fast charging (1)
  - EV retrofitting (1)
  - Thermal storage in different media (3)
- Research themes
  - Policy
    - Sustainability / Resilience
      - Socio-economic analyses
      - Investment stimulus
      - Business models
      - Climate change impacts
    - Transition facilitation
      - Macro-economic models
      - Planning frameworks
      - Technology transfer models
      - Systems thinking / analyses
  - Strategy
    - Roadmaps
    - Capacity development
  - Technology
    - Resources
      - Solar
      - Wind
      - Hydro
      - Biomass
      - Marine
      - Geothermal
    - Conversion
      - Photovoltaic
      - Thermal cycles
      - Generators
    - Storage
      - Hydrogen
      - Batteries
      - Liquid fuels
      - Thermal
    - Services
      - Light transport
      - Heavy transport
      - Thermal heating / cooling
      - Nano-/Mico-/Macro-grid
- Community engagement
  - Iwi
    - Ngāti Raukawa-ki-te-tonga (near Feilding in the Manawatu District)
    - Ngāti Tūwharetoa and Te Whānau a Apanui (Ōmaio in the Bay of Plenty)
    - Ngāti Rehua Ngātiwai ki Aotea (Great Barrier Island)
  - Industry
    - Meridian
    - Transpower
    - Z-Energy
    - Other sectors
  - NGOs
    - Business Energy Council
    - BANZ
    - HANZ
  - Research Institutes
    - Callaghan
    - BRANZ
    - SCION
    - NERI
  - Government
    - MBIE
    - EECA
    - Wellington City Council
  - Universities
    - Auckland
    - Otago
    - Canterbury
    - European Union
    - Japan
    - Fiji
  - VUW
    - Robinson Research Institute
    - Building Science / Architecture
    - SGEES
    - SCPS