

Grid-connected Battery Storage Systems: Design only

Intakes
15/02/2027 (New Plymouth)
22/03/2027 (New Plymouth)
19/04/2027 (New Plymouth)

Duration
3 days

Domestic Fees
$1,310.00 (+ $250.00 e-textbook or hardcopy)
All fees GST inclusive
This course is not eligible for Studylink

International Fees
$1,310.00 (+$250.00 e-textbook or hardcopy)
All fees GST inclusive
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Grid-connected Battery Storage Systems: Design only

Grid-Connected Battery Storage Systems, particularly those integrated with Grid-Connected Photovoltaic Systems, provide many valuable options to home and business owners.

However, it is essential that electrical workers involved with these systems fully understand the operating theory and safety requirements in order to design safe and effective systems, as well as adequately manage customer expectations.

This is a recommended pre-requisite course for those wanting to design complete standalone (off-grid) systems and builds upon the basic design knowledge provided in Grid- Connected Photovoltaic Systems: Design Only.

Course structure

The delivery of this course is designed for busy professionals who do not have the time to attend lengthy face-to-face courses. The online component is fully flexible to allow students to complete the theory in their own time. Estimated learning times below.

- Pre-course learning: Online self-directed learning at your own pace, withtutor support (100 hrs)
- Three day course at the WITT Campus, New Plymouth (24 hrs)
- Post-course assignment (16 hrs)

At the end of the course, participants will have the knowledge to:

- Assess a site's suitability for a Grid-Connected Battery Storage system and calculate an estimated energy yield for the client.
- Assess a client's energy consumption, create a load vs PV profile and recommend options to improve self-consumption of PV energy.
- Determine best battery technology for a given scenario based on a variety of factors.
- Select appropriate components and assess their suitability.
- Design a Grid-Connected Battery Storage system for installation by a licenced electrician.
- Commission and Fault-Find Grid-Connected Battery Storage systems in conjunction with a licenced electrician.
- Optimise Grid-Connected Battery Storage systems for non-typical usages.

Topics include:

- Commonly used battery chemistries and their characteristics
- Battery charging
- Multimode (hybrid) battery inverters
- AC and DC coupled battery inverter architectures
- Cable sizing, fault level calculations and selection of protective devices.
- Balance of System components
- Site suitablility and Load assessment
- System Design and Yield calculations
- Applicable Regulations, Standards – in particular AS/NZS5033, AS/ NZS4777.1, various battery standards including a look at the new AS/ NZS5139 (not yet cited in Regs) and examples of lines company connection requirements in New Zealand
- Installation, testing, commissioning and fault-finding of Grid-Connected Battery Storage systems (in conjunction with a licenced electrician)
- Hazards associated with batteries and Grid-Connected Battery Storage Systems
- Energy consumption assessment, detailed load profiling and optimisation strategies.
- Multiple scenarios where Grid-Connected Battery Storage systems can be of use for:
  - Maximising self-consumption of renewable energy
  - Short-medium duration backup power
  - Load shifting
  - Tariff optimisation
  - Grid support

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Last updated: 30 September 2026

- Avoidance of need to upgrade mains for some high-power loads
- Single to three-phase conversion for some loads

Entry Requirements

Applicants must meet the following entry criteria:

- **Professional or Educational Background:**

  Hold a qualification in the electrical/electrical engineering field, or have equivalent industry experience in electrical, renewable energy, or related technical environment (eg. an Electrical Engineer, Electrical Technician, or Technical Solar Salesperson with an electrical background).
- **Electrical Knowledge:**

  Possess a strong understanding of electrical theory.
- **Exclusions:**

  This course is not suitable for beginners or those with little to no electrical knowledge. Applicants are expected to have a foundational understanding of electrical systems – therefore this course is not suitable for those with little to no prior knowledge in this area.

Pre-requisite:

- Completion of the Grid-Connected PV Systems: Design Only or Grid-Connected PV Systems: Design and Installation is a pre-requisite for this course.

(Note: live testing etc will only be carried out by a licenced electrician and participants will interpret those results)

A WITT certificate of completion is issued on successful completion of the Design only course. It is not a NZQA registered course.

Cancellation policy:

Participant withdrawals must be notified in writing. Any withdrawals after 15 working days of receiving the online login details will be charged the full course fee, including text book fee. If a participant requests to be transferred to a practical course on a different date, or fails to complete the required online modules and WITT is required to transfer the participant to a different date, the participant will be charged an additional fee of $300. Non-attendance of participants on the course date will be charged the full course fee. These cancellation fees are non-transferrable.

Additional information

(Minimum numbers apply before a course is confirmed)
* Applicants must supply a verified copy of either their NZ Passport, NZ Birth Certificate or Residency Visa

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