

SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE

**Keynote Speaker
& Workshop Presenter:**



GLEN MORRIS
Principal of SolarQuip
Vice President of the
Energy Storage Council

WHAT YOU WILL GAIN FROM ATTENDING THIS CONFERENCE:

- Accelerate your understanding of the basic principles of stand-alone power system design
- Hear how solar-diesel hybrid installations can increase storage capacity, energy efficiency and improve reliability
- Learn about Australian Standard AS/NZS 4509.1 & 2 with emphasis on key areas of sizing and safety
- Gain a comprehensive understanding of how to size, configure, and design solar-diesel and battery systems
- Discuss how renewable energy can help reduce costs and improve profitability and success
- Check out some of the latest battery and inverter models plus battery system selection including voltage and chemistry
- Network with industry experts and your peers
- No sales pitches – non-commercial presentations
- Hear local industry case studies from experienced installers and engineers

WHO SHOULD ATTEND:

- Electrical and mechanical engineers
- Electricians
- Electrical and mechanical technicians and installers
- Battery application engineers
- Project, process and applications engineers
- Technical directors and engineering managers
- Energy storage and solar professionals
- Marketing, BDM and product managers
- Smart grid engineers
- Renewable energy and power electrical systems engineers
- Manufacturing engineers

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Education Partner:



**5th & 6th
September 2017**

**Mercure Hotel
PERTH, AUSTRALIA**

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SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE

CONFERENCE PROGRAM – DAY ONE – 5th September 2017

8.00am	Registration	
8.20am	Opening Address	
8.30am Session 1 KEY NOTE	Building the Autonomous Grid Glen Morris – Principal of SolarQuip & Vice President of the Energy Storage Council  Combining multiple energy generation and storage systems, alongside smart load management makes for a resilient and extendable electricity network decoupled from traditional utility grids. Australian Standards and smart energy systems have made embedded control of generation and storage assets easier and safer. Glen Morris will draw on his experience in building small solar/diesel/battery microgrids and the associated standards and topology that underpin good network design, product selection and feature sets.	
9.30am Session 2 CASE STUDY	Tipperary Station Case Study – Solar-Diesel Generator System in the Northern Territory Thomas Wearne – Solar PV Design Engineer, Country Solar NT  In 2016, the iconic Tipperary Station contacted Country Solar to discuss options for reducing their annual fuel bill of several hundred thousand dollars. Their largest generator (390 kVA) implied that the site's power requirements vastly exceeded the capability of off-the-shelf battery inverters and back of the envelope calculations suggested the investment should be several million dollars which didn't suit the station's cautious investment approach. As an alternative, the station has opted for 100 kW of solar to be directly integrated with their three generators which presents greater technical challenge than a solar/diesel/battery solution. The custom solution requires a master controller, dynamic solar ramping set-points and extensive load analysis. Thomas will discuss the project and the lessons learnt.	
	Morning Tea – 10.15am	
10.45am Session 3 CASE STUDY	Hybrid System Using Innovative Variable Speed Drive (VSD) Technology for Pumping Water Nick Hughes – Country Manager, Power Electronics Australia  Here Nick will discuss new Variable Speed Drive (VSD) technology that has a hybrid design and is raising a lot of interest with remote sites especially in pumping water. Essentially the VSD is connected to a solar array which is sized accordingly to provide energy to a pump while the sun is out. If and when a cloud rolls in, the pump automatically slows down to match the amount of energy available. Alternatively, if the pump is needed to provide a constant pressure and run at the desired speed to maintain a set point, the VSD can call for a generator to start in cloudy conditions and turn off the generator when sunny again. This all happens automatically and can go up to some seriously large pumps e.g. 400kW. This presentation will include a case study from Europe on the pumping application plus Nick will discuss how this technology could be applied to any type of electrically driven load in Australia.	
11.30am Session 4 CASE STUDY	Stand Alone Power Systems Incorporating Solar, Diesel and Vanadium Flow Batteries Vincent Agar – Managing Director, VSUN Energy  Providing power in remote locations is a challenge which has historically been dealt with using diesel generators. With the highly variable cost of diesel, high maintenance costs and the effect of noise and emissions from these generators, alternative solutions are becoming more attractive. Solar-storage-diesel can provide a stable, cost effective solution to lower the cost of energy in remote settings. Taking the energy from the sun and storing to use when the sun goes down, but having the security of a diesel generator for back up, can be the most effective solution. Vanadium flow battery technology provides long duration power	
		supply and long asset life allowing a stable energy supply which reduces the amount of diesel required. This presentation will include local WA case studies including the recent Busselton tree-nursery vanadium battery and solar installation.
	Lunch – 12.15pm	
1.15pm Session 5 CASE STUDY	Innovative Solar/Wind-Diesel Hybrid Energy Systems Professor Chem Nayar – Director (Technology & Innovation), Regen Power Pty Ltd  This presentation will explore an innovative renewable hybrid power pack to replace conventional diesel generators. The technology combines solar photovoltaic panels and wind generators with a variable speed generator. The engine runs at optimum speed, keeping the frequency and voltage constant which reduces diesel fuel consumption, extends engine lifetime and allows high penetration of solar power with reduced battery storage. The new hybrid power system finds applications in: solar hybrid remote area power supplies; remote mobile telecom towers; and solar hybrid drinking water treatment plants. The paper presents a few case studies from field installations in Australia and overseas.	
2.00pm Session 6 CASE STUDY	Hybrid Systems: The Future of Energy Stability John Davidson – Managing Director, Carnegie Clean Energy  Diversification of energy source and supply is key to building resilience during this time of disruption in the energy sector. Hybrid systems combining wave, solar, wind, battery storage and diesel via microgrids are the future of energy stability. Here John will discuss the chain of design, development, finance, construction, operation and maintenance when supporting innovation and the importance of adaptability to keep up with the pace of change. He will take an in depth look at key microgrid projects being delivered in Australia to provide examples of unprecedented energy stability.	
	Afternoon Tea – 2.45pm	
3.15pm Session 7 CASE STUDY	Remote Battery Based Power Systems Lindsay Hart – Manager Aust/NZ, Selectronic  Australia has been at the forefront of battery based power systems since the early 1980's. Our unique and harsh conditions have forced the Australian market to ensure systems are robust and reliable. Lindsay will share his experiences from industry, outline lessons he has learnt and cover where the future may lie for remote systems, including what new battery technologies may mean to this sector.	
4.00pm Session 8 CASE STUDY	Single Wire Earth Return, Electric Cars, Clouds and Solar Generation Masoud Abshar – Managing Director and Founder, Magellan Power  Masoud is a local manufacturer of back-up power and for the past seven years has been at the forefront of the Australian energy storage revolution locally producing equipment for residential, commercial and utility scale applications. Here Masoud will outline some of the most innovative case studies he has worked on, ranging from equipment to correct Single Wire Earth Return (SWER) transmission problems, to electric car charging stations, and developing cloud recognition software (in collaboration with WA universities) which aids in the smoothing of cloud shading from solar generation on weak grids.	
	Closing – 4.45pm	
	 NETWORKING SESSION: Cocktail Hour – 4.45pm to 5.45pm An hour dedicated for all attendees to meet and socialise with experts and industry peers at the Solar-Diesel Hybrid & Battery Systems Conference Cocktail Hour.	

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CONFERENCE PROGRAM – DAY TWO – 6th September 2017

8.30am

Session
1

WORK
SHOP

FULL DAY WORKSHOP

(including morning tea, lunch and afternoon tea)

Designing Stand-Alone Power Systems

Glen Morris – Principal of SolarQuip & Vice President of the Energy Storage Council



Attend this one day workshop to accelerate your understanding of the basic principles of stand-alone power system design. The workshop will focus on the Australian Standard AS/NZS 4509.1 & 2 with emphasis on key areas of sizing and safety.

Topics covered will include: understanding the opportunities of demand side reduction and smart energy management; battery system selection including voltage and chemistry; sub-system efficiency considerations for storage, conversion and distribution; PV system sizing to meet load energy requirement, generation losses and environmental derating factors; battery sizing for days of autonomy, balance of backup resilience and choice of secondary generation priorities.

At the completion of this workshop, participants will have the necessary design knowledge to configure and size a stand-alone power system to meet an installation's energy needs. The workshop will be highly interactive and be led by the participants' skills requirements.

WORKSHOP PRESENTER



GLEN MORRIS

Principal of SolarQuip & Vice President of the Energy Storage Council

Glen Morris has more than 20 years experience in the renewable sector and has personally lived off the electricity grid for most of that time!

Glen is passionate about the benefits of clean energy, teaching widely on renewable energy across Australia, China and New Zealand. Glen sits on Standards Australia's EL-042 committee, which writes the industry standards for the renewable energy sector. As Vice President of the Australian Solar Energy Society (AuSES), Glen also helps develop industry training and certification which is delivered across Australia.

Closing – 4.30pm

ABOUT THE CONFERENCE

Renewable energy is not common place or part of a mass market in Australia yet, but its time is coming. We are looking forward to a new era of clean energy where we can start to cut our carbon emissions by introducing solar-diesel hybrid and battery systems into our industrial plants and settings.

Solar-diesel hybrid and battery installations reduce diesel power generation reliance and improve the reliability of power systems. During the day the systems collect as much solar power as possible and when the sun goes down; the diesel power generation kicks in to take over the night shift. It's a beautiful relationship and prices for solar and batteries are quickly dropping making these systems more attractive. The benefits of installing solar-diesel hybrid plants are numerous; one installation can reduce carbon dioxide emissions by thousands of tonnes a year which is an example of renewables providing substantial and reliable results for Australian industries.

This conference will have a technical focus, covering key design, implementation, and operational considerations for solar/diesel hybrid and battery systems including installation and maintenance. It will explore the differences between battery storage and inverter products, and how to design appropriate systems according to different installation and customer requirements. Also covered will be the hurdles encountered when introducing solar to an existing diesel power system, retrofitting, and the importance of maintaining consistent electricity.

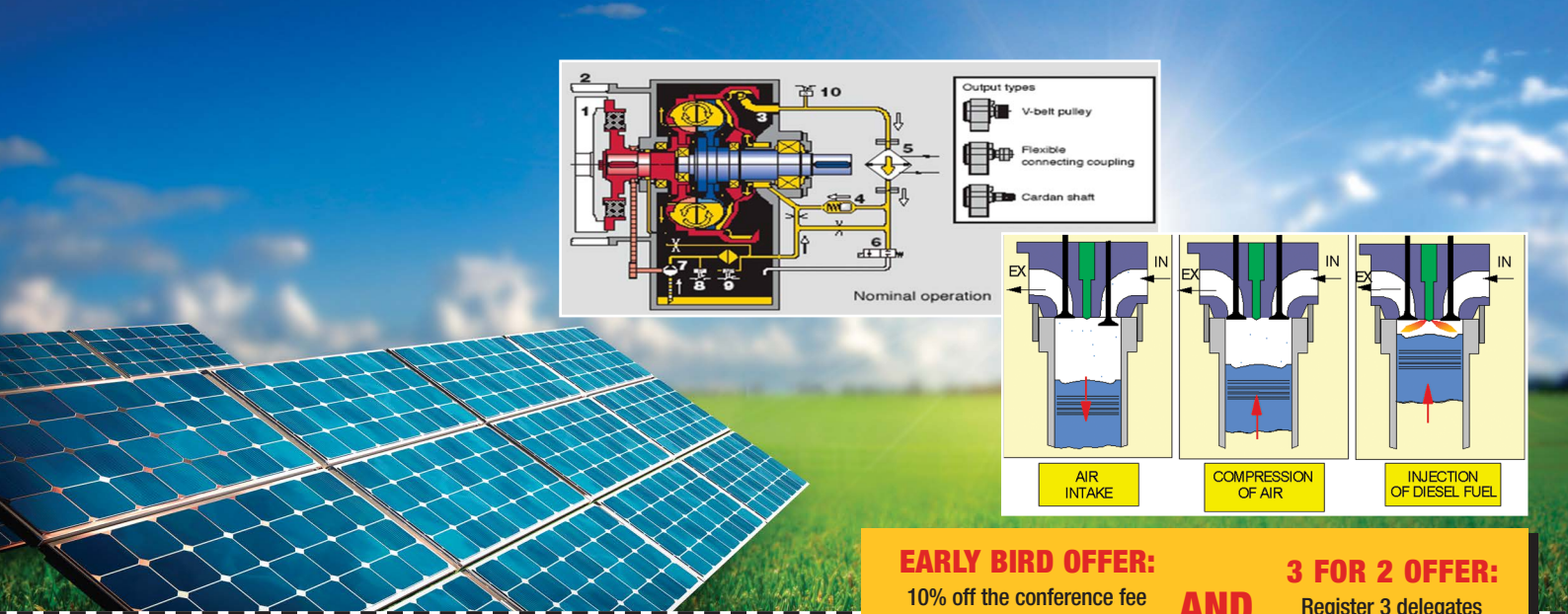
This event has been developed to build and accelerate the knowledge of industry employees and business owners on best practice when it comes to the design, installation and maintenance of renewable hybrid systems. The main goal of this conference is to help businesses take advantage of cleaner energy through improving the quality of power generation systems using innovative solar-diesel hybrid and battery installations.

All conference papers are reviewed and selected for their high quality and technical value by our panel of specialists experienced in the theory and practice of hybrid systems.

Sponsorship Opportunities

Representing your business at the Solar-Diesel Hybrid & Battery Systems Conference in 2017 will provide you the opportunity to reach key decision makers from a multitude of industries.

For more information on sponsorship and exhibition opportunities please contact Sarah Montgomery via email: conferences@idc-online.com



REGISTRATION FORM:
SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE
 5th & 6th September 2017, Mercure Hotel, Perth

Simply complete this registration form online or return by email

1. DELEGATE DETAILS

Contact:	Company Name:		
Company Address:			
Suburb:	State:	Post Code:	Phone:
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ATTENDEES:	1	Mr/Ms:	Job Title:
		Email:	
	2	Mr/Ms:	Job Title:
		Email:	
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2. HOW DID YOU HEAR ABOUT THIS EVENT?

<input type="checkbox"/> Received an email from IDC	<input type="checkbox"/> Received a brochure in the mail	<input type="checkbox"/> Searched online (Google, Yahoo etc)
<input type="checkbox"/> Recommended by a friend/colleague	<input type="checkbox"/> Magazine advertisement/insert (please specify which magazine below)	
<input type="checkbox"/> Other (please specify) _____		

3. REGISTRATION & PAYMENT DETAILS

Prices shown are inclusive of GST

SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE – 5th & 6th September 2017

<input type="checkbox"/> OPTION 1: Early Bird Discount 10% OFF – Book before 8 th August (SAVE \$179.50)	$\$1615.50 \times \text{_____ delegates} = \$$
<input type="checkbox"/> OPTION 2: Standard Rate (NO Early Bird Discount) – Book after 8 th August	$\$1795.00 \times \text{_____ delegates} = \$$
<input type="checkbox"/> OPTION 3: 3 for 2 Offer AND Early Bird 10% OFF – Book before 8 th August (SAVE \$2154)	$3 \text{ delegates: } 2 \times \$1615.50 = \$3231.00 = \$$
<input type="checkbox"/> OPTION 4: 3 for 2 Offer AND Standard Rate (NO Early Bird) – Book after 8 th August (SAVE \$1795)	$3 \text{ delegates: } 2 \times \$1795 = \$3590 = \$$

PLEASE NOTE: Full payment is required prior to the commencement of the conference.

TOTAL DUE = \$ _____

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Please charge my: ☐ Mastercard ☐ VISA _____

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EARLY BIRD OFFER:

10% off the conference fee
 for registrations received
 by 8th August 2017
 – **SAVE \$179.50**

**AND
/OR**

3 FOR 2 OFFER:

Register 3 delegates
 and only pay for 2
 – **SAVE UP TO \$1795**

GENERAL INFORMATION

Confirmation Details

A confirmation email and invoice will be sent to delegates within 3 days of receiving the registration.

Cancellation Policy

A fee of 20% cancellation will apply for cancellations received 7 – 14 days prior to the start date of the conference. Cancellations received less than 7 days prior to the start date of the conference are not refundable, however substitutes are welcome.

Venue

Mercure Hotel Perth
 10 Irwin St, Perth WA 6000, AUSTRALIA
 Phone: (08) 9326 7000

Accommodation

The conference venue has accommodation available and are offering a special accommodation conference rate of \$178.00 (room only) for a standard room. Please quote the conference reference number IDC050917 to receive the discount. Please note this rate will be based on availability.

Please book through the reservations team on 08 9326 7000 or h1754@accor.com.

Food and Beverages

Lunch plus morning and afternoon refreshments are included.

Unable to Attend

If you are unable to attend the full conference program, contact us for details to attend individual sessions or to purchase the Conference Resource Kit.

Enquiries

1300 138 522 or conferences@idc-online.com

REGISTRATIONS



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