

LITHIUM BATTERIES CONFERENCE

Keynote Speakers Include:



DAVID BRENNAN
Assistant Director of Cargo Safety & Standards
International Air Transport Association (IATA)
Geneva, Switzerland



SIMON CHAN
Chief Engineer at Radlink Communications
Energy Storage Design Specialist

WHAT YOU WILL GAIN FROM ATTENDING THIS CONFERENCE:

- Learn about different lithium battery types and appropriate applications of the technology
- Understand the benefits of replacing lead acid batteries with lithium batteries
- Find out about lithium battery storage for electric and recreational vehicles
- Hear about the growth of lithium mining in Australia and how the supply chain works
- Update your knowledge on the latest regulations and how to safely transport lithium batteries via air
- Learn more about renewable energy and smart energy management
- Get acquainted with battery management system (BMS) design and what to do if your BMS fails
- Acquire effective end of life strategies for lithium battery recycling
- Learn about the dangers of lithium batteries and how to keep your workers safe
- Grasp the key principles of designing a scalable energy storage solution
- Learn how to increase efficiency in your plant and reduce greenhouse emissions
- Network with experienced experts and your industry peers
- Listen to local and global case studies from industry
- No sales pitches - non commercial presentations

Continuing Professional
Development

12
hours

TWO DAY EVENT =

WHO SHOULD ATTEND:

- Mining engineers and workers
 - Battery application engineers
 - Dangerous goods professionals in the aviation industry
 - Managing and executive directors
 - Project, process and applications engineers
 - Technical directors, senior engineers and chief executive officers
 - Health and safety officers
 - Energy storage and solar professionals
 - Head of engineering and engineering managers
 - Marketing, BDM and product managers
 - Smart grid engineers
 - Renewable energy and power electrical systems engineers
 - Manufacturing engineers
 - Electrical engineers
- And anyone with an interest in solar, electric vehicles, distributed energy storage, dangerous goods safety, battery recycling and technology advancements in relation to lithium batteries.

24th & 25th
May 2016

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INTRODUCTION TO LITHIUM BATTERIES






Lithium ion (or similar) batteries are batteries where ions move from the negative electrode to the positive electrode during discharge and back when charging. These batteries are commonly used in electronics but the global interest in lithium batteries of late has generated state-of-the-art breakthroughs in Li and lithium battery technology opening up new markets and applications. The trend seems to be moving away from traditional lead acid batteries in favour of lightweight lithium based batteries. The technology is developing so quickly that Standards Australia has recently announced it is forming working

groups to update the current standards in relation to energy storage.

The aim of this conference is to explore industry issues and the future of lithium mining and technology advancement in Australia. Lithium industry experts will share their technical knowledge and discuss how the upsurge of lithium battery demand will affect the mining, technology, manufacturing, solar, recycling, electric vehicles and dangerous goods industries. The event will also cover recent research developments and how these can be applied in the real world to benefit industry and the Australian consumer.

CONFERENCE DAY ONE – 24th May 2016

8.00am	Registration	
8.20am	Opening Address	
8.30am	Lithium Batteries – Past, Present and Future David Brennan – Assistant Director of Cargo Safety & Standards, IATA	
Session 1	The uses and demand for lithium batteries continues to grow, which places ongoing pressure on the regulations and regulators to manage and mitigate the associated hazards. This session will look at how the transport regulations have developed and evolved over the years to try to mitigate the risks. We will then look forward to explore possible opportunities to develop a more coordinated and cohesive approach that provides industry with a more stable set of transport regulations.	KEY NOTE
9.30am	The Lithium Rechargeable Battery Supply Chain Michael Tamlin – Chief Operating Officer, Neometals	
Session 2	Australia produces more lithium than any other country. It has the single largest lithium mine and will have one and possibly two more operating lithium mines by the middle of 2016. Lithium is a fundamental material for lithium rechargeable batteries. Demand is increasing strongly due to the increasing use of lithium ion batteries for transport and grid storage applications and the growth is expected to be long term. Once lithium ion batteries are superseded, it will probably be by alternative chemistry and higher performance rechargeable lithium batteries. Consequently, a strong and reliable lithium supply chain is of vital importance to the battery industry.	
Morning Tea – 10.15am		
10.45am	90 Minute Workshop: Lithium Ferro Phosphate (LFP) Batteries – The “Safe Lithium” Simon Chan – Chief Engineer, Radlink Communications	
Session 3	Lithium Ferro Phosphate (LFP) batteries are also known as the “safe lithium” in industry, because of their low risk of combustion and explosion when operated in harsh, high temperature environments. LFP also ticks all the boxes when it comes to long life, size, weight and cost per kWh per cycle. In this workshop you will learn more about this technology, and grasp the key principles of designing scalable energy storage solutions using LFP batteries. You will also learn how to charge these batteries with conventional lead acid chargers as well as PV technologies. Recent industry case studies will be covered.	
Lunch – 12.15pm		
1.15pm	Lithium Battery Management Systems (BMS) – Electric Vehicles vs Recreational Vehicles Greg MacDonald – Chief Technical Officer, Lithium Battery Systems	
Session 4	Unlike lead acid batteries, lithium batteries require a battery management system (BMS) to ensure the cells remain within safe operating limits and take action as soon as any one of the cells start going outside those limits. This presentation will give an overview of the functions of a BMS and the differences between those used in electric vehicles for high voltage battery packs vs those used in recreational vehicles for 12V batteries. This will then lead into what can happen if the BMS fails and why it is vital to control quality in the design and manufacture of battery management systems.	

2.00pm	Lithium Technology: Overview and as a Replacement for Sealed Lead Acid Ryan Hammond – Director, SPB - Sealed Performance Batteries	
Session 5	There are a number of different types of Lithium Ion battery chemistries on the market each with their own set of characteristics. This presentation will give an overview of the different Lithium Ion types along with some of the benefits of each and applications. This will then lead into using Lithium Ion batteries (specifically LiFePO4) as a replacement for standard Sealed Lead Acid (SLA), and will cover the benefits of LiFePO4 vs SLA, what you need to be careful of and those applications where lithium is best suited.	
Afternoon Tea – 2.45pm		
3.15pm	Not all Lithium Batteries are the Same! Faruk Deveci – Smart Grid Manager, Toshiba International Corporation Kim Leangki – Smart Grid Engineer, Toshiba International Corporation	 
Session 6	The purpose of this paper is to provide information on Lithium Titanate Oxide (LTO) batteries; highlighting the safety and performance characteristics. The battery market is a fledgling industry and stakeholders are inundated with lithium products that seemingly share similar technical characteristics. The paper will highlight: the safety of the LTO batteries (no thermal runaway, no explosion), high charge and discharge rates (4C or more), wide temperature band and long life (10,000+ cycle life). It will also showcase the versatile applications of the LTO modules and examine Australian and global case studies.	
4.00pm	Battery Recycling – End of Life and End of First Use Wil LeMessurier – Director, MRI e-cycle solutions	
Session 7	Lithium batteries are becoming more common due to their improved cycle life and energy density over lead-acid batteries and as the market grows so will the need for safe and reliable end of life solutions. This presentation will look at battery recycling in Australia, including a brief overview of; battery recycling markets in Australia and New Zealand (ANZ), current legislation, extended life of batteries issues and pitfalls, recycling of respective chemistries, current technologies, and thresholds for the ANZ market place, collection, transport, storage and sorting issues for EOL batteries, recycling challenges for emerging battery technologies and uses and safety issues for used lithium batteries in transport, storage and recycling.	
4.45pm	Advanced Materials for Lithium-ion Batteries Phillip Aitchison – Chief Operating Officer, Imagine Intelligent Materials	
Session 8	Lithium ion batteries come in many shapes, sizes and chemistries. Each has its own benefits and challenges. Advanced carbons such as graphene, improved substrates and new electrolytes, such as ionic liquids are helping address those challenges. Complimentary technologies, such as supercapacitors alleviate or remove the demands on the battery. How do these combinations fit together and help address the key choke-points in lithium-ion battery development. This presentation will give a wide-ranging view based on Phillip's 25 years of experience in lithium-ion battery development from research to industrialisation.	
Closing – 5.30pm		

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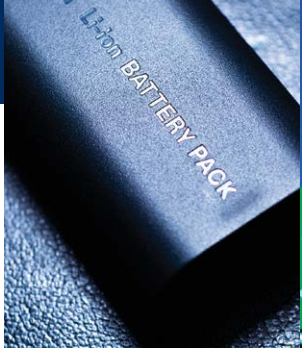
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NETWORKING SESSION: Cocktail Hour – 5.30 to 6.30pm

An hour dedicated for all attendees to meet and socialise with experts and industry peers at the Lithium Batteries Conference Cocktail Hour.



Sponsorship Opportunities

Representing your business at the Lithium Batteries Conference in 2016 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

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 lithium batteries.


CONFERENCE DAY TWO – 25th May 2016

8.30am
Session 9

Smart Energy Management Opportunities Utilising Li-ion Battery Technology

Rachel Hogan – Application Engineer – Solar, ABB

Li-ion battery technological advancements have created exciting opportunities in residential, utility and DC traction network markets. Residential energy storage systems allow home owners and landlords to store excess energy, produced by their PV installations, to maximise renewable energy use. Larger utility scale energy storage systems include intelligent automation and control solutions which perform grid-stabilisation functions on either remote or main grids, enabling increased renewable energy penetration and end-user reliability. Additionally, DC traction network energy storage systems can recuperate regenerative braking energy from traction vehicles, provide voltage support between adjacent traction substations and reduce the peak network power demand.




9.30am
Session 10

Ultra High Power Lithium Opens the way to Increase Efficiency of Power Plants and Reduce Emissions

Jon Pemberton – Director, Zest Energy

Advances in Lithium Ion battery cell chemistry are enabling the delivery of ultra-high power over short time durations. In power stations generators are kept on line spinning, so reserve capacity is instantly available to meet increasing demand. But generators running below their rated value are notoriously inefficient. By installation of Lithium Ion batteries, in appropriate applications, the spinning reserve can be replaced by stored energy, instantly available on demand. This saves fuel, improves efficiency and power quality plus in doing so reduces greenhouse emissions.




Morning Tea – 10.15am

10.45am
Session 11

Sources and Availability of Materials for Lithium Batteries

Adrian Griffin – Managing Director, Lithium Australia (LIT)

Traditional sources of material for lithium batteries are generally 50% spodumene and 50% brines. All other Western Australian lithium companies are generally concentrating on spodumene as a source of lithium and conventional production routes. This presentation will cover the “forgotten resource”, lithium micas, which are the most abundant group of lithium minerals and the ability to competitively process them. This process presents a real opportunity to secure a commanding position in the control of global lithium inventories. Experiences with the extraction of lithium from micas will be explored plus discussions on similar processes that may have application with the extraction of lithium from clays which are located near Elon Musk’s Nevada Gigafactory.




11.30am
Session 12

Reconfigurable Utility-scale Lithium Battery Energy Storage System

Allen (Guishi) Wang – Research Associate, Australian Energy Research Institute (AERI), The University of New South Wales (UNSW)

The application and research interest over utility-scale battery energy storage systems (BESS) have grown significantly over the last years. To achieve utility-scale, series and/or parallel connection of many battery packs with power rating of a few hundreds kilowatts each is the most viable technology at present. The charging imbalance within/among these packs is one of the main challenges to create the utility-scale BESS. This paper proposes a new reconfigurable concept to create the utility-scale BESS, which allows lithium battery packs operating under unbalanced condition. The concept deployment is also discussed in terms of control algorithm and optimization of charging/discharging process.




Lunch – 12.15pm

1.15pm
Session 13

Battery Storage for Recreational Vehicles – Why Lithium is the Next Big Thing

Spencer Smith – Managing Director, Lithium Battery Systems

The Australian recreational vehicle (RV) manufacturing sector is buoyant and in growth phase stimulated largely by a retiring population. Traditionally 12V lead acid batteries have been used in RV’s for energy storage, but now there is an emerging trend – applying lithium battery technology as a viable alternative. This presentation will give an overview of the RV industry and the advantages lithium batteries have over lead acid batteries, making them ideal for use in RV’s. This will then lead into why lithium batteries are set to revolutionise the way power is stored and used in RV’s, powering freedom for outdoor enthusiasts all over the country.



2.00pm
Session 14

Update on the Regulations Applicable to Air Transport of Lithium Batteries

David Brennan – Assistant Director of Cargo Safety & Standards, IATA

This session will look in detail at the regulations for transport of lithium batteries for 2016 and 2017 with a focus on air transport.




Afternoon Tea – 2.45pm

3.15pm
Session 15

Unearthing Off-Grid and On-Grid Battery Energy Storage

Glen Conway – Principal Consultant - Renewable Energy, AECOM

The battery energy storage market is evolving rapidly with changing cost structures and commercial offerings resulting in significant opportunities for lithium battery energy storage in both the off-grid and on-grid space. Whilst battery energy storage has capability to perform many functions it is critical to understand how the technical capability of a system will impact the ability of the battery to deliver the required functionality. This presentation will explore what is important to consumers, suppliers and regulators in the energy storage sector including knowledge from recent involvement in the specification and procurement of MW scale off-grid hybrid energy facilities. Also covered will be market and stakeholder requirements to provide insight into considerations relating specifically to the procurement of a battery energy storage system.




4.00pm
Session 16

Making Global Lithium Supply Ubiquitous – New Paradigms in Lithium Exploration to Prevent Lithium Becoming the Next “Oil”

Francis Wedin – Executive Technical Director, Dakota Minerals Ltd

The future of the global mass production of lithium ion batteries, and with it the revolution of transport and the electrical grid, relies strongly on diversifying the current sources of lithium. Recent events in South America have shown that even the largest producers are highly vulnerable to geo-politics and unexpected weather events. The highly concentrated nature of current supply worries some analysts, who see South America becoming the next Saudi Arabia in its control of a critical component of global energy. While Australian hard rock sources will fill some of this gap, clearly making lithium a ubiquitous commodity, and thus making batteries more affordable, is in the global interest. Sedimentary sources, particularly along the Tethyan Belt through Eurasia, remain a vast untapped resource with the potential to satisfy ever-growing demand.



Closing – 4.45pm

KEYNOTE SPEAKERS

DAVID BRENNAN

David joined IATA in May 2002 as the Manager, Dangerous Goods Technical Services. In April 2004 David was appointed Assistant Director of Cargo Safety & Standards. David is responsible for coordinating the activities of the cargo team who are jointly responsible for the IATA standards publications and products that address dangerous goods transported by air. David is the Secretary of the IATA Dangerous Goods Board and the Panel member nominated by IATA to the International Civil Aviation Organization (ICAO) Dangerous Goods Panel. David also participates, on behalf of IATA, in the meetings of the United Nations Subcommittee of Experts on the Transport of Dangerous Goods and the International Atomic Energy Agency Transport Safety Standards Committee (TRANSSC).

Before joining IATA David worked for Australia Post as a consultant on Aviation Security and Dangerous Goods compliance. Prior to that David worked for Ansett Australia for a period of 26 years holding a number of supervisory and management positions within the Operations Division, the last being Corporate Advisor Dangerous Goods Compliance.



SIMON CHAN

Simon is the chief engineer at Radlink Communications, a Perth based Telecommunications Company. Simon holds an engineering degree from the University of Western Australia and over his career has worked with electronic, software and systems engineering, remote control technologies and communications.

For the past 8 years, Radlink have been delivering remotely located, large-scale, digital 2-way critical communications infrastructure for many 'blue chip' companies such as BHP, Rio Tinto, FMG, Atlas Iron, Chevron and BP. Many of these systems have been deployed in remote parts of Australia where there is no easy access to grid-connected electrical power and they have used 'traditional' deep-cycle Lead Acid battery solutions. Recently Simon and his colleagues have been searching for suitable alternative energy harvesting and storage technologies and have partnered with a Lithium battery supplier in China to offer turn-key energy storage design, manufacture, supply, maintenance and support in Australia. Simon will be sharing his recent experiences with lithium battery technology and where the market is heading.



REGISTRATION FORM:

LITHIUM BATTERIES CONFERENCE

24th & 25th MAY 2016, RYDGES HOTEL

Simply complete this registration form online or return by email

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	3	Mr/Ms:	Job Title:
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2. HOW DID YOU HEAR ABOUT THIS EVENT?

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 Magazine advertisement/insert (please specify which magazine below)

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3. REGISTRATION & PAYMENT DETAILS

Prices shown are inclusive of GST

LITHIUM BATTERIES CONFERENCE – 24th & 25th May 2016

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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

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Accommodation

The conference venue has accommodation available. Contact directly on (02) 9922 1311 and mention the conference when booking and receive the best room rate available.

Food and Beverages

All lunches, 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.

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