

WEBINAR



# BAiTERY TECHNOLOGIES CONFERENCE

13 AUGUST 2021

### Objective of the Conference

- To deliberate on battery energy storage developments at par with industrial revolutions
- To explore its enhanced applications both in transport and renewable energy sector
- To investigate alternative ways of cost reduction and performance improvement
- To discuss the need for research and developments on battery storage
- To investigate and improvise current battery management systems
- To explore hybridisation of Lead Acid Battery plates

### Speakers Include:

**Simon Hackett**  
System Integration Architect  
Redflow Limited – Australia

**Prof Kenneth Ozoemena**  
SARChI Chair: Materials Electrochemistry &  
Energy Technologies (MEET)  
University of the Witwatersrand

**Balaji Ramalingam**  
Program Director: Electrification  
Bosch Engineering, INDIA

**Dr Aderemi Haruna**  
Postdoctoral Research Fellow  
University of the Witwatersrand

**Prof Sheldon Williamson**  
Professor: Department of Electrical,  
Computer and Software Engineering, Ontario Tech University  
NSERC Canada Research Chair :  
Electric Energy Storage Systems for Transportation Electrification  
CANADA

**Prof. Ben Bladergroen**  
Deputy Director & Associate Professor:  
SAIAMC Innovation Centre  
University of the Western Cape

**Dr Nishad Mendis**  
National Sales and Engineering Leader-  
Renewables  
Bureau Veritas  
AUSTRALIA

**Mariekie Gericke**  
Manager: Biometallurgy  
Mintek

**Lesego Moshikaro**  
Economist  
Trade & Industrial Policy  
Strategies ( TIPS)

**Paul Vermeulen** Chief  
Engineer-Renewable Energy  
City Power

**Prof SP Daniel Chowdhury**  
Tshwane University of  
Technology

**Dr. Vishu Gupta**  
Head of Research  
TensaX Innovation Lab

**Latha Chembrakalam**  
Industry Expert

**Prof Sagar Mitra**  
Department of Energy  
Science and Engineering  
Indian Institute of Technology Bombay



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# BA<sup>+</sup>TTERY TECHNOLOGIES CONFERENCE

**WEBINAR**

*Enhancing Battery Storage Technologies*



13 AUGUST 2021

## Conference Background

Vukani Communications is back again with the Annual Battery Technologies Conference for the 7th year around. The previous conference saw a great attendance from both national and international players within the Battery industry.

There is no doubt that electrical energy is the backbone of human civilization. The business sector and thus the economy fully depend on it. All power systems encompass generation, transmission and distribution on real-time since electricity is a real-time commodity. It cannot be packaged and transported unlike other commodities. It needs to be generated, transmitted and distributed keeping the balance of energy supply with energy demand and losses in real-time. Ever-dwindling mineral resources of coal, oil and gas have been forcing for the transition to adapt fully renewable energy generation and electric vehicles. Besides, it corroborates with the pressing need of minimising GHG emission, carbon footprint and global warming. Global economy and supply chains need to be re-adapted with this transition. There are no excuses left to defer the much needed application of energy storage systems in all spheres of life. Transport sector remains one of the biggest consumers of battery energy storage systems and it will continue even after this transition. For global power systems, renewable energy system integration has been ever-increasing since the beginning of embedded generation. The aforementioned transition can never happen without the presence energy storage systems. In the energy sector, battery energy storage systems will play various key roles in multiple value streams.

Battery storage technologies have evolved starting from nickel-iron to the stable and long sustaining lead-acid technology. Lead-acid battery storage has been quite stable for more than a century now and it needs performance improvement to suit the needs of the time mainly in synergy with the advancement of Industry 5.0. Lithium-Ion batteries have captured a good fraction of the market even though it has two major challenges such as high cost and complications in recycling. Aluminium-Ion is a good alternative for Lithium-Ion batteries with slightly lower performance but with an ability to achieve huge cost saving; thus it provides a good trade-off between performance and cost. In summary battery storage systems need continuous attention from research and innovation perspectives for better serving the storage needs, be it transport sector or renewable energy sector or other industry sectors. All stake holders on the battery energy storage sector have huge appetite for latest developments on battery management systems with different technologies in addition to hybridization of technologies for better performance with lower costs. The main focus remains in reducing cost, enhancing energy efficiency as well as life cycles. The relationship of energy storage industry with automotive and energy industry is next to impossible to be severed and thus there is a pressing need for synchronous evolutions of these industries.

Vukani Communications in collaboration with S5 Enterprises are keen in partnering with this developments for improvised industry solutions with a competitive edge. Thus we seek to provide platforms by organizing highly sought after discussions around battery storage systems in order to adapt current and future needs of the market and maximise its benefits going forward while Industry Revolutions are progressing in leaps and bounds. This conference seeks to have wide range of in-depth R&D discussions and exploratory innovations from experts across the globe.

### Topics of discussion (But not limited to)

- Battery energy storage systems (BESSs) developments
- Current trends, roles and needs of BESSs
- Battery storage in transport and renewable energy sector
- Outlook of battery storage market in various sectors
- Hybridisation of battery technologies
- Research, innovation and developments of new technologies
- Lead-acid battery performance improvements
- Prospects and applications of Lithium-ion batteries
- Exploring options on cost minimisation of Lithium-ion batteries
- BESS Health monitoring and Life-cycle enhancement
- Battery energy storage systems' needs in grid

integration of renewable energy

- Grid power supply stability, quality, security enhancement by BESSs

### Who should attend (but not limited to)

- Account managers
- Analytical chemist
- Battery technicians
- Business development managers
- Business process engineers
- Business process engineers
- CEO
- Chemical engineers
- COO
- Design engineers
- Directors
- Electrical engineers
- Energy consultants
- Energy storage experts

- Forensic scientists
- Managing directors
- Manufacturing directors
- Mining engineers
- Operational manager/directors
- Operations directors
- Product specialist
- Production managers
- Programme managers
- R&D engineers
- Researchers
- Safety facilitators
- Sales and marketing directors
- Software engineers
- Solutions engineers
- Students
- System engineers
- Technical sales representatives

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## Draft Programme

- 08:50** **Opening By Chairperson: Professor SP Daniel Chowdhury**
- 09:00** **Prospects of Li-Ion Batteries in the Upcoming Pervasive Market for Renewable Energy Mass Storage**  
Prof. Ben Bladergroen, Deputy Director & Associate Professor: SAIAMC Innovation Centre, University of the Western Cape
- 09:30** **Deploying the world's smallest production flow battery at 'grid scale'**
- The Redflow ZBM2 Zinc-Bromine Flow Battery
  - Standby Power System (SPS) mode: an alternative to gensets using no fossil fuel
  - Grid-scale' Redflow energy system deployments using the new Pod-Z high voltage DC architecture
- Simon Hackett, System Integration Architect, Redflow Limited – Australia**
- 10:00** **Case study: Low cost method to calculate SoC of Automotive Lead Acid Battery**  
Balaji Ramalingam, Robert Bosch Engineering and Business Solutions, INDIA
- 10:30** **Current Energy Storage Landscape in Australia**
- Trends of energy storage system
  - Bankability of energy storage system
- Nishad Mendis, National Sales and Engineering Leader- Renewables, Bureau Veritas, Australia**
- 11:00** **BREAK**
- 11:10** **Prospects of e-Mobility towards Net-Zero Emission World amidst the Predicaments of Covid-19 Pandemic.**  
**Professor SP Daniel Chowdhury, Tshwane University of Technology**
- 11:40** **Recycling of Lithium Ion Batteries**  
**Mariekie Gericke, Manager- Biometallurgy, Mintek**
- 12:10** **Development of Next Generation Room Temperature metal sulfur batteries**  
**Prof. Sagar Mitra, Department of Energy Science and Engineering, Indian Institute of Technology Bombay, India**
- 12:40** **BREAK**
- 12:50** **Electric Mobility & Significance of Battery Energy Storage**  
**Dr. Vishu Gupta, Head of Research, TensaX Innovation Lab, India**
- 13:20** **Opportunities associated with vanadium-based batteries**  
**Lesego Moshikaro, Economist, Trade & Industrial Policy Strategies (TIPS)**
- 13:50** **System Benefits of Energy Storage of Electricity Distribution Customers**  
**Paul Vermeulen, Chief Engineer- Renewable Energy, City Power-Johannesburg**
- 14:20** **BREAK**
- 14:30** **Microwave irradiation suppresses Jahn-Teller lattice distortion in spinel  $\text{LiMn}_2\text{O}_4$  cathode material for lithium-ion batteries.**  
**Dr Aderemi Haruna, Postdoctoral Research Fellow, University of Witwatersrand**
- 15:00** **Emerging technologies in EV space**  
**Latha Chembrakalam, Industry Expert, India**
- 15:30** **Design and development of rechargeable zinc-air batteries**  
**Prof Kenneth Ozoemena, Research Professor, University of Witwatersrand**
- 16:00** **Recent advancements in fast charging and battery management systems for transportation electrification**  
**Prof Williamson, Professor: Department of Electrical, Computer and Software Engineering, Ontario Tech University, NSERC Research Chair: Electric Energy Storage Systems for Transportation Electrification, CANADA**
- 16:30** **Closing By Chairperson: Professor SP Daniel Chowdhury**



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## CONFERENCE

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# REGISTRATION FORM

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### Banking Details

Vukani Communication Consultancy (PTY)  
 First National Bank  
 Account No. 62584405867, Account Type : Cheque  
 Branch Name : Randburg Square  
 Branch Code: 261750

## CONFERENCE FEE

**R1 997** Per Delegate Excl. VAT

Conference fee above INCLUDES the following entitlements: Entrance to session

## REGISTER NOW

### Terms and Conditions

- The following terms and conditions will apply
- Vukani Communications reserves the right, due to circumstances beyond our control, to change speakers, conference content, date and venue.
  - The signed registration form is a binding contract.
  - No seats will be reserved unless Vukani Communications receives a signed registration form.

### SUBSTITUTIONS:

- Delegate Substitution. Substitution is welcome at any time and do not incur any additional charges. Please notify Vukani Communications in writing of any such changes at least 3 days before the date of the event.
- Please note that the speakers and topics were confirmed at the time of publishing however circumstances beyond the control of the organizers may necessitate substitutions, alterations or cancellations of the speakers and/or topics.
- As such, Vukani Communications reserves the right to alter or modify the advertised speakers and/or topics if necessary. Any substitutions or alterations will be updated and sent to you as soon as possible.
- Delegate substitution must be made in writing 7 days before the start of the event.

### CANCELLATION:

- By signing and returning the registration form, the authorising signatory on behalf of the stated company is subject to the following terms and conditions.
- Charge of 50% of the Registration Fees, plus R700 (+VAT) charge will be made for cancellations received in writing at least 14 working days prior to the event.
- For any cancellations less than 7 working days before the date of the event, the full fee will be payable and no refunds or credit notes will be given.

• If registered delegate does not cancel and fails to attend the summit, this will be treated as cancellation and no refund or credit will be issued

**Participant 1:** .....

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Designation: .....

Company / Organisation: .....

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