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# Batteries & Fuel Cells Seminar

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## About Batteries & Fuel Cells Seminar

The seminar program focuses on present and future needs of portable and stationary electrochemical energy sources and highlights the latest technological developments designed to satisfy application requirements.

The seminar program reviews primary, rechargeable, reserve, commercial, industrial and military batteries, fuel cells, ultra capacitors system and their accessories.

The seminar program reviews typical cycle life aspects of designing and manufacturing energy source solutions: from application energy requirements, power source electrical and mechanical design, cells selection, cells evaluation tests, battery prototype, acceptance tests, design and manufacturing techniques, testing, mass production, safety issues, transportation, use and disposal.

Special focus is given to battery design and testing aspects which are vital tools for battery solution.

The seminar program trains attendees on safety issues along the energy source solution cycle life.

The seminar program also reviews the updated status of battery air transportation restrictions and instructs on the safe transport of batteries according to IATA regulations.

## Key Benefits

Batteries & Fuel Cells Seminar provides:

- Full review of current and future electrochemical energy sources.
- Training on cells and raw material selection, design, manufacturing, testing, safety, transportation and disposal aspects of energy sources.
- Basic knowledge for new employees entering the field.
- Expands the knowledge of industry members already working in the field.
- Training on Energy Sources Database software – a vital tool for optimal energy source design.



Shmuel De-Leon  
Energy Ltd

## Seminar Program Topics

- Battery characteristics
- Primary cells & batteries
- Rechargeable cells & batteries
- Battery chargers
- Military batteries
- Thermal & reserve batteries
- Battery design process
- Battery design optimization using the Energy Sources Database
- Battery safety
- Battery disposal
- The “smart battery”
- Battery testing systems
- Battery holders
- Fuel cells
- Ultra Capacitors
- EVs energy solutions

## Seminar Schedule

- The seminar is 2 days long
- 10-11/10/2013

## Seminar Location

Orbis – Das Seminarraumkonzept

Bruckmannring 32, 85764

Oberschleibheim/ Greater Area Munich

<http://www.orbis-muenchen.de/seminarraeume.html>

## Who should attend?

Battery and energy sources users  
Pack assemblers  
Cell makers  
Energy sources suppliers  
Academic researchers  
R&D engineers  
Market researchers  
Safety supervisors  
Battery shippers and disposals  
Others industry members  
Anyone who wants to increase their power sources background

## About Shmuel De-Leon

Shmuel De-Leon is Founder and CEO of the company. Shmuel is a leading international expert in the business of Power Sources.

Prior to founding the company, Shmuel held for over 20 years various positions as a power sources, engineering and quality control team manager.

Shmuel holds a BSc. in mechanical engineering from Tel-Aviv University and an MBA in quality control and reliability engineering from the Technion Institute in Haifa as well as an Electronic Technician's diploma.

Shmuel De-Leon Energy Ltd. provides unique tools for the energy sources industry, such as the Energy Sources Database, Battery & Fuel Cells Seminar, Energy Sources Solutions, Industry News weekly newsletter, and consultations.

## Local Partner

Ice Seminars/ Mr. Arnbjörn Eggers

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## Pricing

Price per attendee	
Early Registration till 10/9/2013	810 Euro + VAT
Registration from 11/9/2013	929 Euro + VAT

- 10% discount for 3+ group attendees
- 50% discount for Students (Copy of an Academic Institute ID required)
- Pricing includes hard copy print out of all seminar presentations and slides, lunch and refreshments

## Exhibit & Sponsor

Exhibitor and Sponsor will receive:

- 1 roll-up in the seminar room
- Advertisement materials on a side table in the seminar room
- Logo in the seminar program, agenda and seminar web site
- Extra 10% discount on attending the seminar
- Pricing: 475 Euro + VAT



## Batteries & Fuel Cells Seminar, Munich October. 10-11, 2013

### Seminar Agenda

<b>Thursday, 10/10/2013</b>	
08:00 – 09:00	Registration
09:00 – 10:00	Battery Characteristics
10:00 – 11:00	Primary cells & Batteries
11:00 – 11:30	Coffee Break
11:30 – 12:00	Rechargeable cells & batteries
12:00 – 13:00	Chargers
13:00 – 14:00	Lunch Break
14:00 – 14:20	Military Batteries
14:20 – 14:40	Thermal & Reserve Batteries
14:40 – 16:00	Battery Design Process & Optimization
16:00 – 16:30	Coffee Break
16:30 – 18:00	Battery Safety
<b>Friday, 11/10/2013</b>	
08:00 – 08:30	Registration
08:30 – 09:00	ICE Venture Presentation
09:00 – 09:20	Battery Disposal
09:20 – 09:40	The “Smart Batteries”
09:40 – 10:10	Battery Testing Systems
10:10 – 10:30	Coffee Break
10:30 – 11:00	Battery Holders
11:00 – 12:00	Fuel Cells
12:00 – 12:30	Lunch Break
12:30 – 13:15	Ultra Capacitors
13:15 – 14:15	Fuel Cells
14:15 – 16:00	EV Energy Solutions

## Seminar Pre-Registration Form

Organization:	
Title:	
First Name:	
Last Name:	
Street:	
City:	
State:	
Country:	
Zip:	
Phone:	
Fax:	
E-mail:	

I accept the general conditions of Ice Seminars.

Signature: \_\_\_\_\_

Please send the completed pre-registration form to Shmuel De-Leon Energy Ltd. by email: [shmueld33@gmail.com](mailto:shmueld33@gmail.com).

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Or in German to:

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## **Seminar Content**

### **Module 1: Battery Characteristics**

This session introduces a historical prospective of batteries, detailed battery definitions and features (electrical, mechanical, standards, etc.). Module 1 lays the foundation for the attendants to share a common “battery language” and provides all the background needed for upcoming modules.

### **Module 2: Primary Cells & Batteries**

This session reviews and compares primary battery chemistries (Alkaline Manganese Dioxide, Zinc Carbon, Zinc Chloride, Silver Zinc, Nickel Oxyhydroxide, Lithium Iron Disulfide, Lithium Iodine, Lithium Manganese Dioxide, Lithium Carbon Monofluoride, Lithium Sulfur Dioxide, Lithium Thionyl Chloride, Lithium Sulfuryl Chloride, Lithium Bromine Chloride and High Power Organic Lithium).

### **Module 3: Rechargeable Cells & Batteries**

This session reviews and compares rechargeable batteries chemistries (Nickel Cadmium, Nickel Metal Hydride, Rechargeable Alkaline, Lithium Ion and Lithium Polymer).

### **Module 4: Battery Chargers**

This session reviews battery chargers, charging techniques per battery chemistry, charging problems and solutions, personal chargers, industrial chargers and charger types by charging time.

### **Module 5: Military Batteries**

This session reviews and compares Military batteries & Chargers (Primary, Rechargeable Batteries).

### **Module 6: Thermal & Reserve Batteries**

This session reviews and compares Thermal and Reserve batteries (Thermal Batteries, Reserve Lithium Batteries, Reserve Zinc Air, Reserve Magnesium Silver Chloride and Reserve Silver Zinc).

### **Module 7: Battery Design Process**

This session introduces battery design processes (cell and raw materials selection, cell level testing, battery design documents, battery electrical, mechanical and safety design and final verification tests (electrical, mechanical, safety)).

### **Module 8: Battery Design Optimization using the Energy Sources Database**

This session introduces the unique battery design tool of the Energy Sources Database that easily helps select the optimal cells and raw materials for your design. This session is designed to provide training on how to use this tool and understanding its advantages, such as finding suppliers and information in the field.

### **Module 9: Battery Safety**

This session introduces the safety risks along the battery cycle life and provides safety guidelines for safety event elimination. Module 8 also addresses the procedures involved in handling safety events, including first aid.

**Module 10: Battery disposal**

This session introduces battery disposal requirements and updates disposal status in Europe and the US.

**Module 11: The “Smart Battery”**

This session introduces the “Smart Battery” technology, including single wire and smart battery communications bus and its advantages.

**Module 12: Battery Testing Systems**

This session introduces battery testing techniques, available systems and their features.

**Module 13: Battery Holders**

This session introduces and reviews the common market battery holders and guides on how to select the right battery holder for your battery.

**Module 14: Fuel Cells**

This session reviews and compares fuel cell types and their market status (Alkaline, Molten Carbonate, Phosphoric Acid, Proton Exchange Membrane, Solid Oxide and Direct Methanol).

**Module 15: Ultra Capacitors**

This session reviews and compares ultra capacitor types and their market status.

**Module 16: EVs Energy Solutions**

This session introduces EVs driving range problem and energy solutions.

- The new electric automotive revolution
- EV Batteries
- EV Fuel Cells
- EV Metal Air systems
- EV Battery SWAP
- EV Battery Chargers