• What are the future prospects for hybrid and electric vehicles?
• What amounts of lithium will be needed by future electric vehicle batteries?
• What is the outlook for lithium demand, supply and the global market balance?
• Where are prices likely to go in the next five years?
• What are the costs of lithium carbonate production from hard rock and brine deposits?
Just over a decade ago, the lithium industry underwent a paradigm shift. Chile usurped Australia and the USA as the major supplier of lithium minerals. Again, we now find the industry in a state of flux, owing to:

• The USA’s determination to reduce its dependence on oil;

• The question that as most of the lithium carbonate for use in automotive batteries is found in South America, if the USA relies on lithium as an energy carrier will it become too dependant on South America as the predominant source?

• A global drive to reduce carbon emissions from automotives and the pending auto electrification;

• Changes to legislation regarding automotive fuel economy targets;

• The rampant quest for new lithium reserves to meet the anticipated increase in demand;

• The introduction of new processing technologies;

• The rise of new portable electronic devices such as laptops, portable music players and mobile phones that employ lithium ion batteries.

In the same way that lithium displaced nickel-based batteries in electronic devices in the 1990s, the question is; will lithium now be able to replace these batteries in automotives as well?

There is a plethora of mainstream media articles, statesmen and legislations endorsing or mandating the uptake of hybrid and electric vehicles as a means to reducing the reliance on fuel and the Middle East for oil. Consequently, lithium-ion batteries for automotives have become the new buzz word and the expectation is that lithium demand will soar. But what is the reality over the media hype surrounding future lithium demand to 2013?

Today, while brine deposits remain the most cost effective means of extracting lithium reserves, there is a vast amount of research into developing technologies that could exploit lithium from other types of deposits such as hectorite, jadarite and geothermal brines. Should they succeed, they could seriously compete with the brine producers.
The Lithium Industry: Market Projections and Company Strategies to 2013 is the first report of its kind to provide independent and on-the-ground research combined with strategic recommendations. This report comes amid a challenging economic climate directly impacting those looking to invest, or already operating, in lithium today.

Industrial Minerals Research (in partnership with Metal Bulletin Research) has undertaken a long-overdue in-depth review of the lithium industry and its outlook over the next five years. The Lithium Industry: Market Projections and Company Strategies to 2013 offers independent research and analysis including:

- The demand, supply and pricing prospects of the lithium industry;
- The future prospects for hybrid and electric vehicles and the potential for lithium-ion batteries;
- A special focus on never before seen bottom-up analysis of the electric vehicle market. The report considers each emerging electric vehicle’s potential separately, and the specific volume unit lithium demand;
- Unique production costs for lithium extraction – detailed analysis for both hard rock and brine sources;
- Detailed strategic recommendations on competitive strategies to be adopted by producers, and those looking to invest, for sustainable and profitable growth;
- SWOT analysis for the leading lithium producers: SQM, Chemetall, FMC, and also the emerging players;
- The key demand and supply drivers of the soda ash market – the key component for lithium carbonate production;
- The main trends for other key lithium end-user markets including glass and ceramics; aluminium; air conditioning; pharmaceuticals; nuclear fusion; and batteries for mobile telephones, laptops, and power tools;
- Lithium’s trade prospects;
- Unique and in-depth insights into the lithium market and company strategies from industry experts within Industrial Minerals and Metal Bulletin Research.

The goals for hybrid electric vehicles (HEV), plug in hybrid electric vehicles (PHEV), and fully electric (EV) designs are different owing to the different energy storage and charging properties demonstrated in the graph. Will one design prevail or is a combination of three more likely?
With the lithium industry plagued by inconsistent data, and the associated danger of spurious strategic decisions and high investment risk, *The Lithium industry: Market Projections and Company Strategies to 2013* also offers independent answers to the following questions:

- New business models to offset battery costs - Is there hope for lithium batteries to become mainstream?
- What is the outlook for lithium demand, supply, and the global market balance to 2013?
- Where are prices likely to go in the next five years?
- What are the costs of production at the Salar de Atacama?
- What are the costs of lithium carbonate production from hard rock deposits?
- How is the current global economic malaise impacting the lithium market and its prospects?
- Who will be the potential producers of lithium and what are the key projects coming up?
- What will be the state of global lithium reserves with the advent of the lithium-ion automotive batteries?
- What is the current state of Chinese production and the potential lithium projects in the country?
- What are the supply prospects for lithium carbonate and lithium oxide supply?

### Author biographies:

**Mike O’Driscoll** has a BSc in Geology and Geography (1983), and an MSc in Mining Geology (1986) from the Camborne School of Mines, UK. He has been analysing the non-metallic minerals industry for 22 years and has been Editor of Industrial Minerals (IM) since 1995. Mike was a co-founder of the industry’s leading event, IM’s Lithium Supply & Markets 2009 conference held in Chile. During his career in industrial minerals, Mike has visited a wide range of mineral and end-user operations worldwide, and has regularly organised, chaired, and presented papers at industry conferences. He was Associate Editor and contributing author to the 7th edition of Industrial Minerals & Rocks, published by the Society for Mining, Metallurgy and Exploration (SME) in 2006.

**Simon Moors** is Industrial Minerals’ lithium analyst, writing regular global reviews and market comment on this rapidly developing industry. He was a co-founder of Lithium Supply & Markets 2009 conference and co-chaired the event. Simon has visited the brine extraction operations of SQM and Chemetall in the Salar de Atacama and the corresponding lithium carbonate processing facilities in Antofagasta, Chile. He wrote the major market research piece, *Between a Rock and a Salt Lake* (IM June 2007) which is widely cited in the industry.

**Lara Smith** worked as a mining analyst for Beny Steinmetz Advisory Services, which specialised in exploration and production of bulk and base metals, uranium and diamonds in Africa and the Baltic Regions. Whilst under their employ she completed in-depth research into the viability of expanding the current commodity portfolio to include a lithium deposit.

**Industrial Minerals** has been covering global non-metallic minerals from mine to market for 42 years, and is established as the industry’s authoritative source of premium information on the business. IM recently launched the inaugural Lithium Supply & Markets event in Chile.

**Metal Bulletin Research** is the leading provider of independent market analysis and forecasts for the global metals and mining industry. For 18 years MBR has provided in-depth research into the commodities markets looking at specific industry and wider macro-economic issues.
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Macroeconomic Outlook
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- Sales/Marketing/Communications Manager/Director (5776)
- Business Development Manager/Director (5174)
- Purchasing/Procurement/Buyer Manager/Director (6461)
- Commercial Manager Director (6465)
- Finance Director/Manager/Accountant (6197)

Please indicate your **COMPANY TYPE**

- Raw Material Supply (0003)
- Metal/Steel Production/Processing (0027)
- Distribution (0095)
- End-User Sector (0167)
- Other Primaries (0315)
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