

3 June 2015



Letter to shareholders

Dear Shareholder

So much has been happening to your company in the past three months since our last newsletter that we consider it timely to provide you with a further update.

You will be aware that the shareholder meeting for the demerger of Ionic Industries (Ionic) will be held on Tuesday 9 June 2015. The last day of trading where an investor will receive Ionic shares is Wednesday 10 June 2015. Any shareholder of SER on the register on that day will receive Ionic shares on a 1:1 basis. This means that if, for example, you held 1,000 shares in SER you will receive 1,000 Ionic shares. You will not have to pay for these shares, they are issued for nil cash consideration to our shareholders.

A question has been asked by a few shareholders as to why we are demerging Ionic from SER and not keeping it in the Company? The reason is that Ionic is purely a technology company, not a resources enterprise. Ionic needs management and a board that understands and knows how to develop and commercialise the technologies in Ionic. Accordingly, the key drivers underpinning the demerger are to unlock value by:

- creating an independent entity focussed on the continued collaboration with Monash University and commercialisation of graphene technologies;
- enhancing the ability of Ionic to raise capital for its business, by presenting a focussed corporate entity and management team and an opportunity to understand and value Ionic as a stand alone entity; and
- enabling SER to continue to focus on its other businesses of minerals exploration and further incubation opportunities.

For further details in relation to the proposed demerger please refer to the Notice of Meeting previously despatched to you.

Ionic Industries - Developments

It certainly has been a busy period for all involved with Ionic. We have announced new board appointments, received the results of our marketing research for the potential activated carbon replacement product, SuperSand, and the results of an engineering scoping study for our Graphene Oxide pilot plant, which will produce the input material for all our technologies, but will also manufacture SuperSand as a finished product.

Three key appointments have been made to the team to help take Ionic Industries forward with Mark Muzzin as CEO. Currently, the board is investigating other additions to the board, individuals with the required skills in the financial and manufacturing areas.

Dr Anne-Marie Grisogono – Director

Dr Anne-Marie Grisogono is a physicist with over 30 years' experience in applied research and development and research management, including 15 years as a Research Leader in the Defence Science and Technology Organisation (DSTO). She has led scientific support for the Army's acquisition of the Tiger armed reconnaissance helicopter, worked with Army Headquarters to reframe the Army's approach to strategic planning and R&D prioritisation and management, and has held national and international leadership roles within DSTO in the fields of simulation, systems engineering and systems science, human sciences and complexity science. She is currently on the Australian Research Council's College of Experts, and now holds a visiting researcher position in the Melbourne Business School at Melbourne University and an adjunct professorial appointment in the Faculty of Computer Science, Engineering and Mathematics at Flinders University.

Assoc Prof Mainak Majumder - Director

Mainak Majumder is an Associate Professor in the Department of Mechanical and Aerospace Engineering at Monash University and is the Group Leader of the Nanoscale Science and Engineering Laboratory (NSEL). He holds a Master's degree from the Institute of Technology-Banaras Hindu University and was a staff scientist at CSIR, India from 2001-03. He obtained his PhD in 2007 from the University of Kentucky, USA and obtained postdoctoral training at Rice University, Texas USA on carbon nanomaterials.

Robert Riebolge – Director (proposed Chairman)

Mr Riebolge read engineering at Adelaide University gaining a BE (Hons) and continued post graduate studies at the City University, London obtaining an MSc (Distinction). Mr Riebolge is a Fellow of the Institution of Engineers, Australia and a Chartered Engineer, has been a Member of the Academic Board of the Australian Institute of Management, SA Chapter and has been an Adjunct Lecturer in the MBA programmes of the University of Adelaide and the University of South Australia. Mr Riebolge is an international expert in the optimal economic configuration of electricity systems with a large proportion of renewables and storage in their energy mix having undertaken cost benefit studies of hydro-electric schemes in Afghanistan, Burundi, Iceland, Indonesia, Rwanda, Surinam, Tanzania and Turkey. Recently, Mr Riebolge completed the documentation of nearly 10 years of trialling the transformation of legacy electricity grids to smart grids and beyond that employs evolving technology, demand side participation methodologies and techniques and distributed generation and storage. To put this work into context, Mr Riebolge undertook system simulation and scenario modelling of the electricity grid with an energy mix that included a significant proportion of renewables (photovoltaics and wind) and distributed storage (in home batteries, grid storage and electric vehicles). The work gives an invaluable insight of the likely future of electricity grids and how graphene can play a pivotal role in their transformation.

Marketing and Engineering Studies – Pilot Plant

Ionic is setting itself up to be a leading manufacturer of specialised graphene based products for major sectors of the economy, concentrating on two areas where our research and development team have already made significant advances: graphene based high performance energy storage devices, and graphene-based filtration in various industries for environmental pollutant decontamination and resource extraction.

Graphene is not of itself a bulk commodity, but can be incorporated into smart bulk products tailored for specific applications, such as in our planned first product line, SuperSand, to be manufactured in our pilot plant.

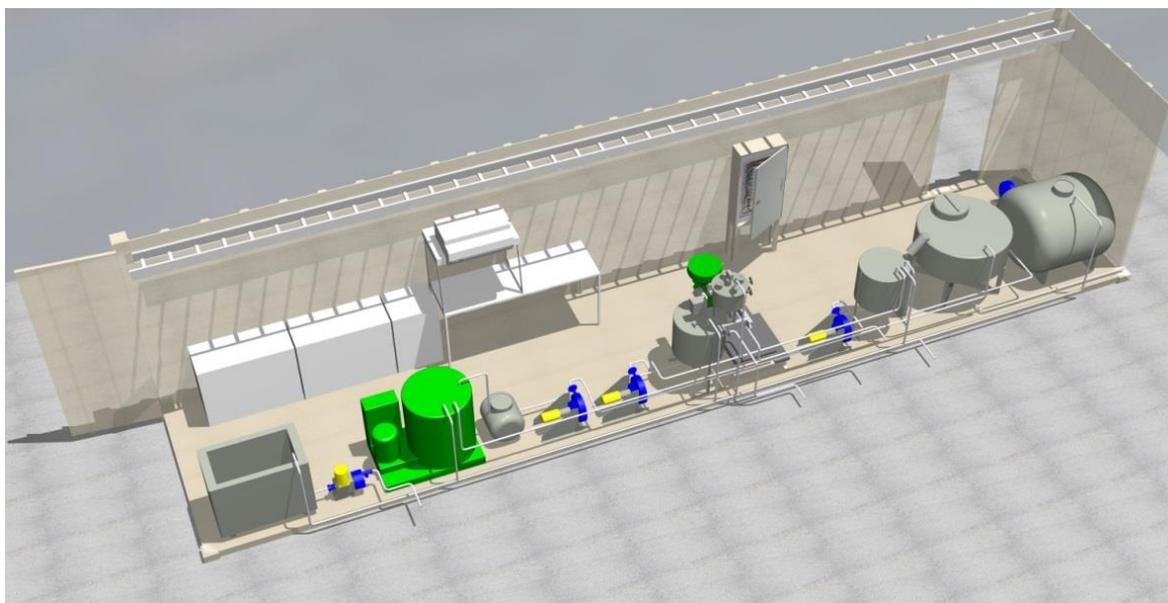
Much attention of late has been focussed on the pilot plant. The plant's feasibility was confirmed by Minnovo Pty Ltd, an independent engineering group, while Freedonia Custom Research Inc. reported on the potential markets for its products. Taken together these studies confirm the economic viability of the planned pilot scale graphene oxide and SuperSand facility.

Building the pilot plant is the logical next step to move forward on commercialising our innovative technologies in line with the positive findings of the Freedonia Custom Research Inc report which identified extensive potential for customised SuperSand products to replace activated carbon products.

Possible applications for SuperSand include water treatment to remove contaminants not easily treated by existing technology, and mercury removal from the flues of coal fired power stations, as required by environmental protection agencies. Both are multi-billion dollar industries in which Ionic hopes to make inroads by leveraging its unique technology to tailor SuperSand for particular applications and exceed the performance of current techniques.

Highlights of the Minnovo scoping study indicate that:

- The pilot plant will be capable of producing five kilograms a day of graphene oxide, which can be further processed into up to 2.5 tonnes a week of SuperSand.
- Preliminary production cost of SuperSand is \$2054 per tonne, of which the graphene oxide cost is \$1446.
- The pilot plant is estimated to take 26 weeks to build with a CAPEX of \$1.275 million.



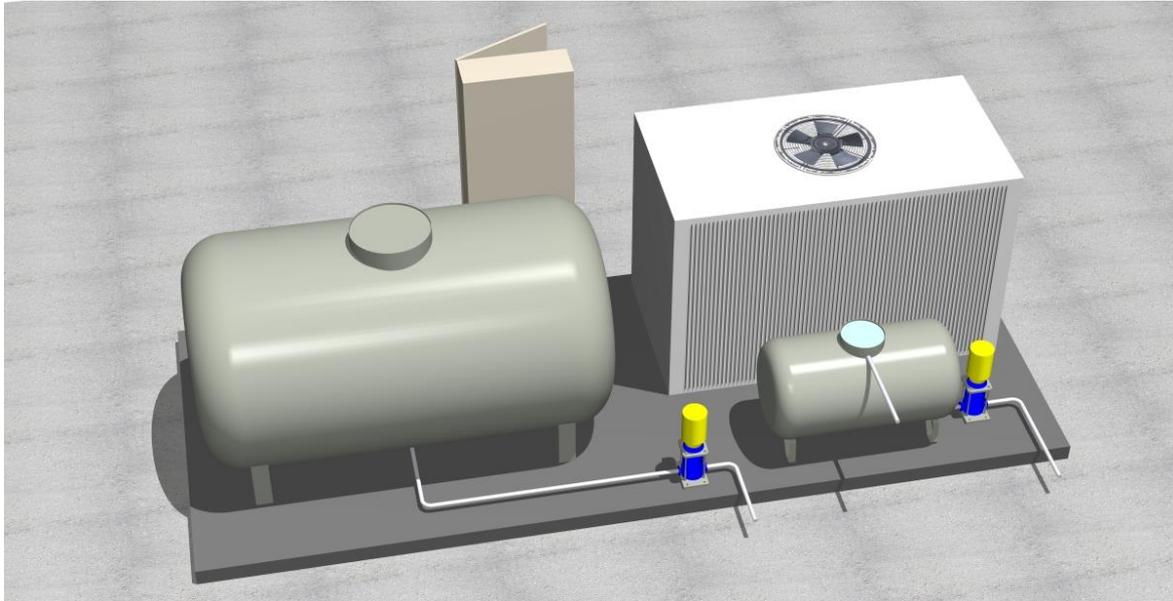
Graphene Oxide Pilot Plant inside 40 foot sea container

Pilot Plant – highlights from the marketing and engineering studies.

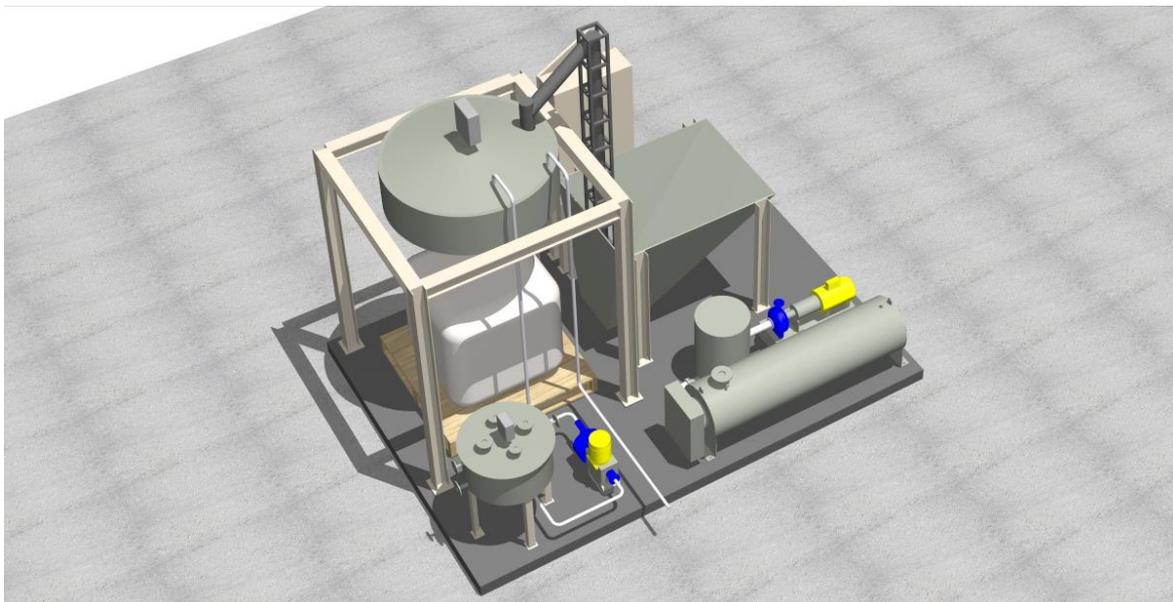
The site for the pilot plant is under review, with good options being explored in both Victoria and South Australia. Discussions with potential customers in the energy and water sectors are currently under way. Ionic is also exploring possible strategic alliances which could strengthen and accelerate our plans. We expect to have some exciting new announcements to make on the outcomes of these discussions soon.

The aim is to run the pilot plant to produce tailor made products for specific customer needs with a view to upscaling the plant to target broader market opportunities both in Australia and overseas.

The majority of the pilot plant facility is housed in a modified sea container. Services and SuperSand mixing/drying is housed on separate skids, allowing for flexibility in the location of items of plant.



Graphene Oxide Services Skid



SuperSand Pilot Facility Skid

The global market for activated carbon is valued at \$4.8 billion dollars (AUD) and is projected to steadily grow by 6.5% through to 2024.

Demand in Asia Pacific is expected to increase at a rate 11.3% per year over the next five years, with China being the largest user. North America is expected to overtake Asia Pacific in 2019,

whereas Western Europe is expected to maintain steady growth and finally Central and South America, Eastern Europe, Africa and the Middle East is where growth will escalate once these economies expand and industry comes into line with the environmental protection requirements present elsewhere.

Given the global pressures of population growth and environmental degradation there will be growing needs for improved access to safe drinking water in developing nations, as well as for improved ability to comply with tighter water quality regulations in developed areas. These factors will contribute significantly to continued overall growth in the activated carbon market for water treatment.

Freedonia have identified that SuperSand appears to fit within Granular Activated Carbon (GAC) water treatment applications due to the large pollutant particle sizes that need to be removed and that it is also well suited to applications in large water treatment systems for removal of synthetic organic compounds.

Industrial air purification is expected to overtake water treatment as the largest activated carbon market segment by 2019. Increasing mercury emission regulations will drive this trend, which will be increasingly beneficial to Powder Activated Carbon (PAC) usage.

According to Freedonia, the markets for mercury removal, flue gas treatment and other gas phase applications – particularly solvent recovery in coatings, adhesives and printing inks – all appear viable for suitably optimised SuperSand products as replacements for activated carbon.

Flue gas treatment and mercury removal generally requires adsorbents that are effective within the few seconds that it takes the gas to transit through the flue, therefore requiring adsorbents with a high available surface area per volume, for which SuperSand is ideally suited.

Solvent recovery requires the ability to differentially absorb molecules of different sizes, for which the tailorability of the pore sizes in SuperSand makes it ideal.

Together with the results of the positive marketing report for SuperSand, the pilot plant scoping study confirms the development of a pilot plant as a major step in unlocking the entry to the burgeoning global activated carbon market and is an important strategic decision, which is also financially robust. Given market penetration and acceptance by customers is achieved, Ionic could see SuperSand becoming an important future bulk commodity.

Ionic's five years of work has brought it to a point where a marketable product, SuperSand, is close to release. However, Ionic has multiple strings to its bow.

Our membrane technology is also advanced and the upscaling of production is being investigated. This work is also being progressed under an ARC Linkage, Australian Research Council Linkage grant, awarded to Ionic and Monash with collaboration from CSIRO and the University of Kentucky.

The other development we are investing in is graphene-based super-capacitors for energy storage.

Super-capacitors are devices that store energy using either ion adsorption (electrochemical double layer capacitors) or fast surface redox reactions (pseudo-capacitors). These devices can store energies orders of magnitude higher than the well-known electrolytic capacitors due to their high surface area and small electrode separation distance. Super-capacitors can complement or replace batteries in electrical energy storage and harvesting applications, when high power delivery or uptake is needed.

Renewable energy markets are projected to grow rapidly to keep up with the global energy demands and our over-reliance on fossil fuels.

In recent weeks the media has focussed on the future of energy storage. Just this month Tesla, the electric car manufacturer, released a range of domestic lithium ion batteries, to give the renewable energy house or building a secure 24-hour, all-season storage capacity, reducing grid dependency, improving householders' utilisation of the renewable energy they produce – which will be particularly attractive to them economically when the subsidised feed-in tariffs expire shortly – and reducing the need to keep extending centralised power generation infrastructure at massive capital costs.

But lithium ion batteries are a relatively mature technology that has significant inherent limitations whereas super-capacitors are not subject to the same limitations, are rapidly evolving to fill the gaps in the market, and are soon expected to outperform and overtake the more traditional batteries, not only for storing electrical energy in the grid, and in homes with solar energy panels, but also to extend range and performance of electric vehicles and consumer electronics.

With their unique properties, graphene super-capacitors are set to play key roles in these disruptive and landscape changing developments.

News from our Research and development Team

Royal Society Presentation

The head of Ionic/Monash University's graphene research team, Assoc Prof Mainak Majumder, was honoured with an invitation to speak to the prestigious Royal Society in London, on his work on graphene. Assoc Prof Mainak Majumder spoke on the topic "Graphene-based fluidic systems: From compact micro/nano-fluidic devices to large area filtration membranes," on Tuesday April 28.

Graphene Membrane manufacturing Machine Commissioned

Under our Australian Research Council Linkage grant (ARC Linkage) with Monash University, we now have in operation a membrane casting device for our graphene membrane technology. This is a very important step in our development of a roll-to-roll process for manufacturing high performance graphene membranes, which will potentially have multiple uses in the mining and food processing industries. Monash University has filed an invention disclosure which is now at PCT stage to protect the intellectual property (IP) developed in this technology, while Ionic will have exclusive rights to use the IP for commercialisation.

Another exciting development is that Ionic Director, Assoc Prof Mainak Majumder has been given more laboratory space at Monash University Clayton campus, so now he and his researchers have two labs for the advancement of Ionic's technologies.

New Breakthrough

Our research team at Monash have also had another exciting new breakthrough which has been accepted and published by the respected American Chemical Society (ACS) publications. The paper is titled "Electrochemical Capacitance of Ni-Doped Metal Organic Framework and Reduced Graphene Oxide Composites: More than the Sum of Its Parts" and has appeared in ACS Applied Materials and Interfaces. The breakthrough presents a unique way of converting an insulator into

a high performance energy storage material. The project illustrates another application of the wonder material – graphene.

“In our quest to discover new, light weight, high-performance materials for efficient chemical storage of renewable energy, the team at Monash University has discovered that a composite of graphene with a porous material, known as Metal Organic Framework, unexpectedly starts to store chemical energy through a rather unique and efficient redox reaction. Although redox reactions are part and parcel of most batteries, our recent discovery can unlock the use of graphene in improving the performance of energy storage systems. In this particular case, graphene plays a supporting role by improving the electrical conductivity of the material.” said Assoc Prof Mainak Majumder.

The Monash team showed that a simple chemical tailoring dramatically improves the charge storage capability of the porous material. Further addition of reduced graphene oxide (rGO) significantly reduces the resistance of the system, improves the power delivery, and enhances the electrochemical capacitance of the system.

“The capacitance of this composite is almost three times larger than the algebraic sum of contributions from the porous material and rGO. An efficient charge transfer process from the synergy between the interconnected graphene nanosheets and the chemically modified porous material translates into materials with energy density of 37.8 Wh/kg at a power density of 226.7 W/kg and large stability during cycling. These metrics are comparable to current literature standards in Ni-hydroxide based super-capacitors.”, said Dr. Parama Banerjee-Chakraborty, the first author of the article.

“These research findings will instigate further research across the wide family of MOFs known today as tuneable energy storage and delivery materials.” Dr. Parama Banerjee-Chakraborty went on to say.

But why Graphene?

The key to graphene’s unique properties is that it is inherently a two-dimensional material, a planar layer consisting of tightly bound carbon atoms in a hexagonal pattern which is extremely strong and stable, lightweight, and transparent.

One consequence is that all its atoms are surface atoms which can participate in reactions with the surrounding materials, unlike a bulk material where most of the atoms are in the interior and not available for surface interactions.

Another important consequence is that both electrical and thermal energy can move easily and fast through the planes, so it has extremely high conductivity.

Moreover graphene’s properties can be easily modified to suit particular applications both by chemical modification, and by engineering the way in which the single planes are assembled into larger particles, allowing the detailed nanostructure to be engineered and tuned, for example to maximise the available internal surface area in larger particles of graphene consisting of many open layers. The possibilities for smart devices is vast.

Ionic IPO and Advancement

Ionic’s vision is to be a leading manufacturer of diverse tailor made graphene based products for a number of major sectors of the economy. The next steps for Ionic are to continue to engage with potential customers and explore new markets as well as securing funding, commencing, building and commissioning the pilot plant.

Discussions are well advanced with a lead funding manager and preparations for an Initial Public Offering (IPO) are progressing. Ionic management has been busy engaging with industry on supporting its endeavours in becoming a manufacturer of graphene based technologies.

Ionic envisages a smooth demerger process and public listing on the ASX. Work has commenced in securing cornerstone investors. Preparation for an Information Memorandum to raise the seed capital in Ionic has commenced and should be released to the sophisticated investors not long after the demerger is confirmed.

We thank you for your ongoing support and look forward to delivering on shareholder value. But to benefit from the potential of Ionic Industries you must be an SER shareholder.

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