



September 2014 Investor Presentation

Strategic Energy Resources Limited (ASX: SER), provides shareholders with the attached investor presentation on the Company's current Graphene activities and achievements to date.

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ASX Ticker:

SER

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Board of Directors:

Glenister Lamont (Non-Exec Chairman)
Anthony Rechner (Executive Director)
Peter Armitage (Non-Exec Director)

Chief Executive Officer:

Mark Muzzin

Company Secretary:

Melanie Leydin

Securities on Issue:

348.6M fully paid ordinary shares

28M unlisted options

Website:

www.strategicenergy.com.au



Shaw Stockbroking

Graphite Conference

Sydney 2014

Graphene - the wonder material of the 21st century

Presentation by Mark Muzzin and Dr Mainak Majumder

Certain statements contained in this presentation, including information as to the future financial or operating performance of Strategic Energy Resources ("SER") and its projects, are forward looking statements. Such forward looking statements:

- include, among other things, statements regarding incomplete and uncertain proposals or targets, production and prices, operating costs and results, capital expenditures, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions;
- are necessarily based upon a number of estimates and assumptions that, while considered reasonable by SER, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies; and
- involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward looking statements.

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All forward looking statements made in this presentation are qualified by the foregoing cautionary statements. Recipients are cautioned that forward looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward looking statements due to the inherent uncertainty therein.

Vision

Drive human advancement through the development and application of graphene technologies

Mission

Conduct research and development in technologies for the production and application of graphene in a range of contexts including energy storage, water treatment and biotechnology fields

4 Reasons for Success

Established Capability

- SER Graphitech are an established, fully-funded research program with a history of success and access to a low-risk supply of graphite

Advanced Technologies

- Our Monash research team have developed our technologies to an advanced level and have an actionable plan to bring it to market in several stages over the next 4 years

Strong Management Record

- Our SER management team has a strong track record of launching companies in the graphite industry, including in graphite technology development

Strong Market

- The market is primed for the successful launch of Graphitech

Who is SER Graphitech?



Graphitech is a collaboration
between Strategic Energy
Resources (SER) and Monash
University with funding support from
the Australian Research Council

Strategic Energy Resources

Graphitech is a wholly-owned subsidiary of Strategic Energy Resources



ASX Code:	SER
Share Price:	\$0.056 CoB 02/09/2014
Shares on Issue:	348,622,501
Unlisted Options:	28,000,000
Market Cap:	\$19.5 m



Mark Muzzin	Chief Executive Officer
Glenister Lamont	Non-Executive Chairman
Anthony Rechner	Technical Director
Peter Armitage	Non-Executive Director
Melanie Leydin	Company Secretary

SER Management Record

The SER Team are not newcomers to this field

We bring a wealth of experience and success to this venture that sets us apart from newer entrants to the market from the mining sector and elsewhere

- ◆ Successfully launched Valence Industries, Australia's only burgeoning producing graphite mine
- ◆ SER has a strong record as an incubator of successful companies
- ◆ To date, all graphite has been supplied from the Uley graphite mine
- ◆ Have been involved in the graphite industry for over 20 years
- ◆ Experience includes work on a graphite technology with CSIRO and BHP on "gunnable graphite"
- ◆ Have been working with Monash University on graphene since 2010

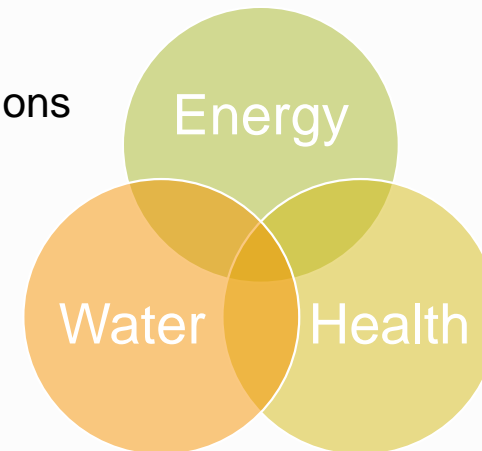
The SER Graphitech Research Program

SER Graphitech is a fully funded research enterprise that has twice been awarded prestigious ARC Linkage Funding in 2011 and 2014 for graphene research

Our team has met a structured series of milestones to reach our current stage of research. Thoroughly planned schedules are in place to ensure continued successes as we move toward commercialisation of these technologies

The Monash team have a program of research that covers several highly promising areas of graphene research while being focused enough to ensure optimal allocation of resources

- ◆ Graphene membrane program for water treatment and biotech applications
- ◆ Super sand for water treatment and chemical separation
- ◆ Planar Super-capacitors for energy storage
- ◆ Bench-scale production facility
- ◆ Longer-term plans for liquid crystalline GO for use in biotech





Dr. Mainak Majumder - Research team leader; experimental nano-fluidics, desalination, drug delivery, electrochemical energy storage devices



Dr. Parama Chakraborty-Banerjee - Postdoctoral research fellow; development and electrochemical characterisation of carbon-based energy storage devices



Dr Dhanraj Shinde - electrochemical unzipping of carbon nanotubes; in producing high quality graphene



Samuel Martin - PhD candidate; mechatronics, theoretical physics and mathematics; nano-fluidic behaviour of carbon systems focusing on biosensors



Rachel Tkacz - PhD candidate; synthesis and modification of graphene in liquid-phase, materials for electrochemical energy storage



Abozar Akbarvakilabadi - PhD candidate; advanced graphene-based membranes for water treatment and food processing



Dr Ankshat Tanksale - Heterogeneous catalysis, nanomaterials, photocatalysis for water splitting and purification



Associate Professor Adrian Neild - Biomedical devices, microfluidics, sample handling, cell manipulation



Phillip Sheath - PhD candidate focusing on graphene based materials for water treatment



Derrek E. Lobo - PhD candidate focusing on use of carbon allotropes for energy storage

What is Graphene?

One material with numerous extraordinary properties

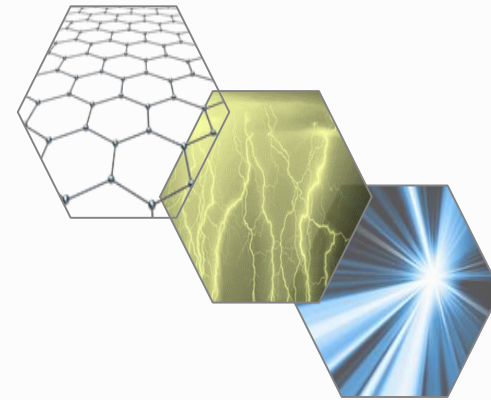
A truly 2D material with very high surface area

Can be engineered at all scales

One of the lowest density materials

1000 times more power

100 times faster response time



10 times less resistance

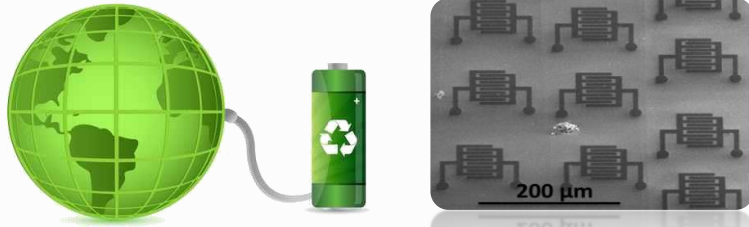
Long life with 99% efficiency retention

100 times higher energy storage

One of the strongest known materials

Extremely high thermal conductivity

Our Application Focus

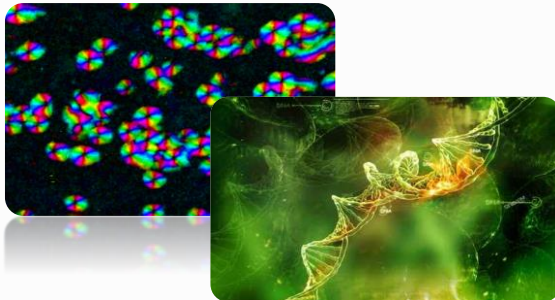
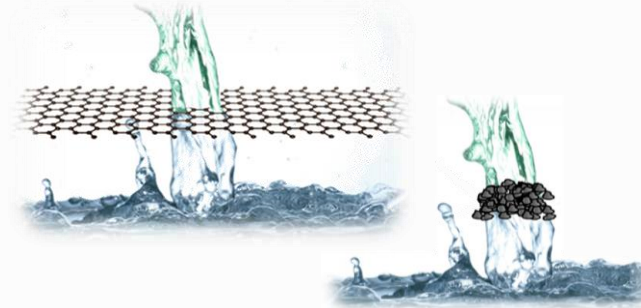


Planar Super-capacitors (energy storage)

Electric Cars
Electronics
Renewable energy applications

Water treatment

Super sand
Nano-sieves
Chemical separation technologies
Mining recovery processes



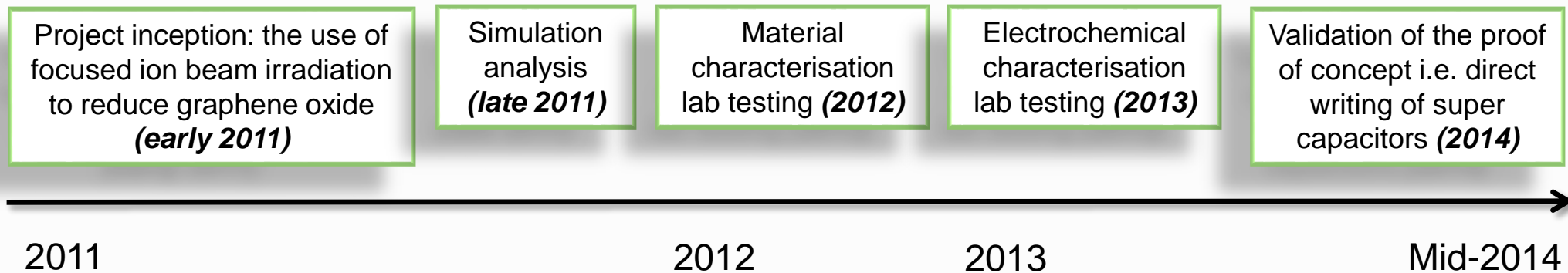
Anti-corrosion treatment

Liquid Crystalline Graphene Oxide

Drug delivery
Nano-fluidics and biotech applications
Li-ion batteries

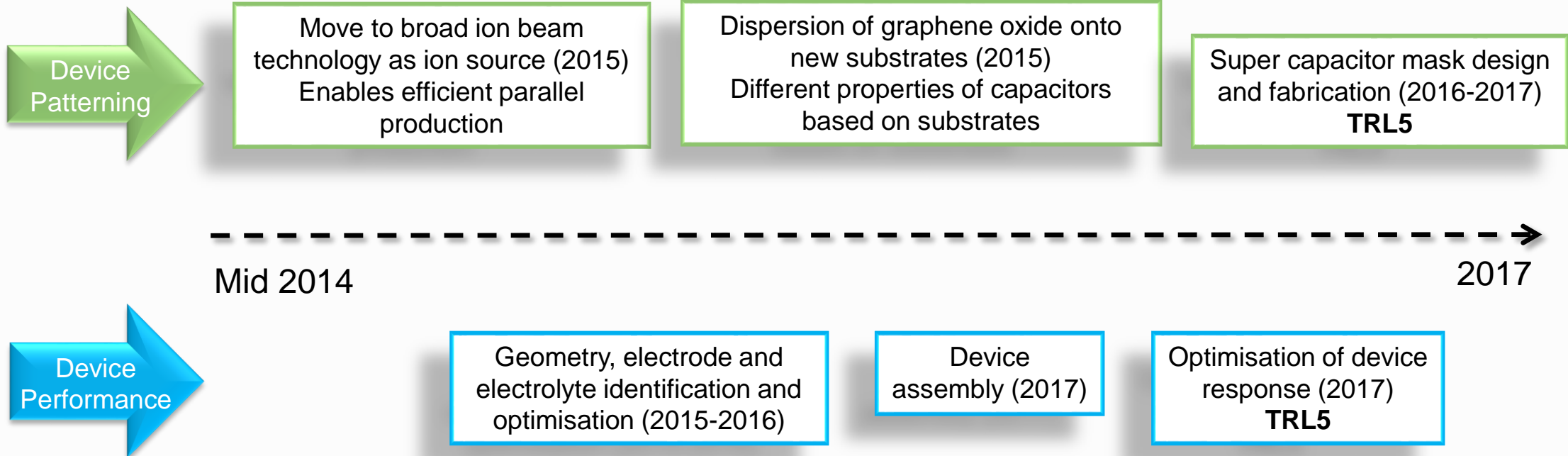
Planar Super-capacitor Program: Past Success

In our Planar Supercapacitor program, the research team has hit a series of milestones in the development of these graphene-based energy storage devices



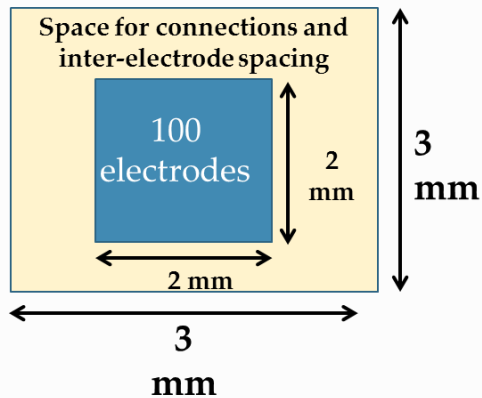
The technology is now at Technology Readiness Level 3: *Analytical and experimental critical function and/or characteristic proof of concept*

Planar Super-capacitors: Program Schedule



Accelerated Prototype Program

Depending on the availability of funding, the SER Graphitech team can have a working prototype of a basic planar super-capacitor in 6 months



- Energy → 0.5 mJ
- Power → 0.577 W
- Maximum applied current → 450 mA
- Voltage range → 0.5 V-50 V
- Resistance range → 100 mΩ – 1000 Ω



It can light up a commercial LED

Funding dependent accelerated prototype program

Focused ion beam patterning of the planar electrodes with the standard interdigitated geometry (2 months)

Assembly of the electrolyte reservoir / deposition of a polymer electrolyte (1 month)

Choice and installation of a suitable current collector (1 month)

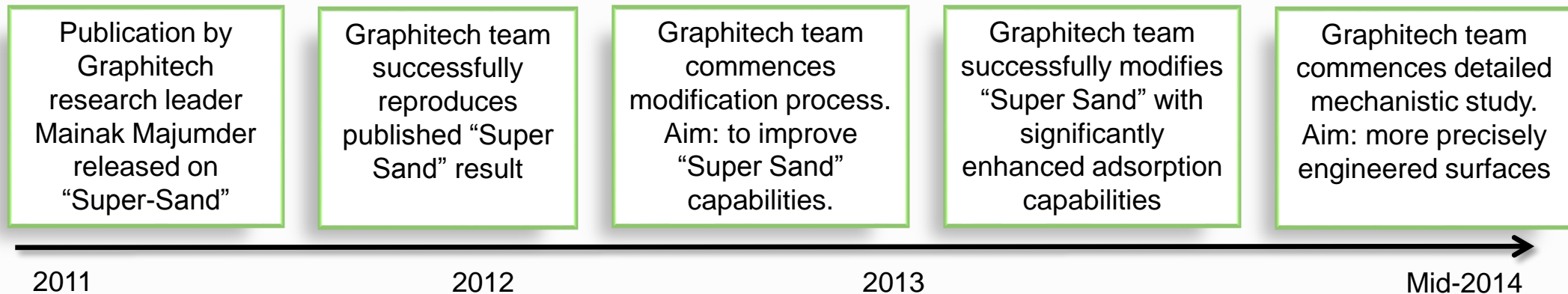
Testing the prototype (2 months)
TRL 4

Late 2014

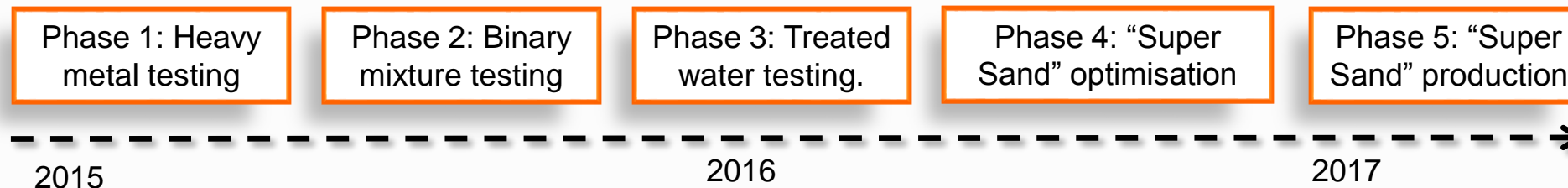
Mid 2015

Super Sand

Our research team has hit a series of milestones in the development of graphene coated sand ideal for use in low-cost water treatment and chemical separation technologies. The technology is now at Technology Readiness Level 5: *Analytical and experimental critical function and/or characteristic proof of concept*

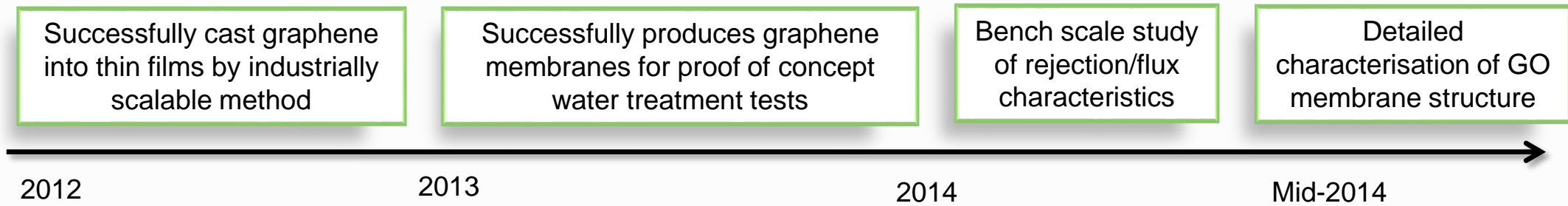


Our phased developmental program will see the technology at TRL 9 by 2017: *Actual application of technology is in its final form - Technology proven through successful operations*

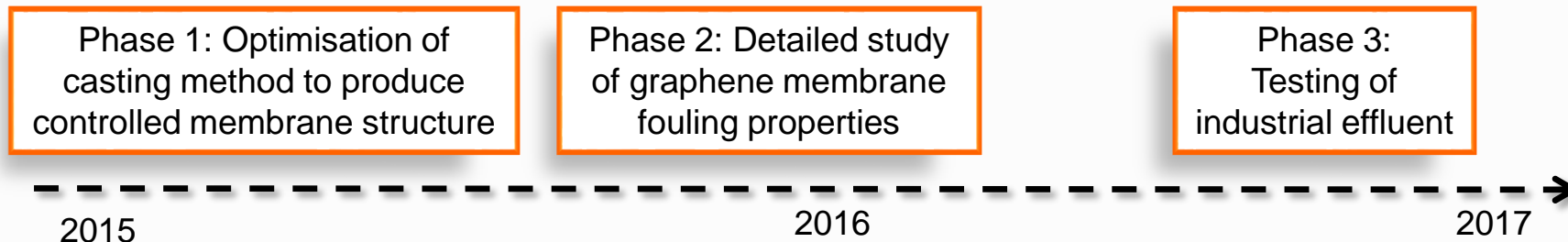


Graphene Membranes Program

Our research team has hit a series of milestones in the development of graphene membranes for use in water treatment and mining applications. The technology is now at Technology Readiness Level 4: *Component and/or breadboard validation in laboratory environment*



Our phased developmental program will see the technology at TRL 8 by 2017: *Actual system completed and qualified through test and demonstration*

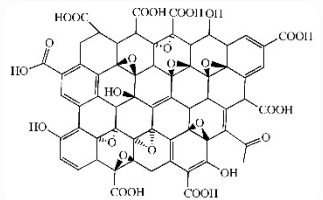


Bench-scale Production Facility

By mid 2015, we will have developed a new bench-scale graphene production facility. This initiative will involve:

- ◆ Modular synthesis of graphene through our modular reactor technology
- ◆ Enable the research team to manufacture tailored graphene products for use in research
- ◆ Facilitate refining of our methods for the economic, sustainable production of graphene
- ◆ Enable production of graphene in 500g – 1kg batches

This capability represents a significant step forward for our team and will enhance our research across all programs



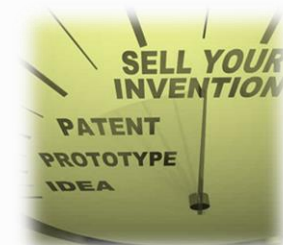
Graphitech currently holds 2 valuable patent positions:



- ◆ Patent for patterning conducting graphene pathways in graphene oxide using focused ion beams which will be instrumental in our development of planar super-capacitor production technology
- ◆ We have a second patent pending (invention disclosure) on Super Sand, which will ensure our ability to harvest value from this technology as we near production of it over the next 2-3 years

Our area of research is not one that is heavily characterised by aggressive patent activity at the present time

However, we are aware of risks in this area and given that our business model is focused on selling intellectual property, we will shortly be taking steps to enhance our market intelligence and patent submission capabilities



The Graphene Market

The market is primed for the launch of Graphitech. Our capabilities will enable us to take full advantage of the vast opportunities that exist for graphene focused companies

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- Three hexagonal icons are arranged vertically on the left side of the list. The top icon shows a green circuit board with a glowing blue node. The middle icon shows a green field with solar panels under a blue sky. The bottom icon shows a large, deep, reddish-brown mining pit.
- ◆ Demand for energy storage technology is increasing as advances in electronics and computing are limited by out-dated energy storage capabilities. Alternative energy sources will also depend on better energy storage solutions
 - ◆ Technological solutions for water treatment, particularly for waste management and filtration purposes are increasingly important and graphene can be applied in this context
 - ◆ With our mining industry, there is likely to be a strong demand for water treatment technology for use in the safe and economical treatment of corrosive mining effluents and recovery of precious metals
 - ◆ An increasing emphasis on our knowledge economy and high tech industries is likely to drive interest in graphene, which may revolutionise Australian industry and will require sustained research and development to bring it to market
 - ◆ Federal and state government policy on incubating high-tech industries will ensure availability of ongoing funding
 - ◆ Graphene biotechnology applications will also meet a vast range of growing needs in the healthcare sector

Risk Management

Several of our broader strategic risks that we have identified and are taking steps to address include the following...

Risk Description	Risk Assessment	Mitigation
Loss of grant funding	We currently have strong support and committed funds, however there remains a moderate risk that funding will not be sufficient to complete all our research goals	Consider other forms of funding and ensure research remains focused on commercialisation to fund future research
Patent infringement by or against SER Graphitech	There is low to medium risk in our specific areas of research at present, however this will become a high risk in future if we continue unprepared	We will identify and resource a market research and patents capability to ensure awareness and facilitate filing of patents in future
Market saturation by inundation of graphene applications and technologies	There is a moderate risk of our research being swamped by other research and technology developments given the rapidly evolving graphene milieu	Ensure a professional and thorough approach to marketing and public awareness to ensure our research is appropriately recognised



Why Us, Why Now?

Established Capability

- We were the first recipient of ARC Linkage Grant in 2011, with a second grant awarded in 2014
- We have an experienced, multi-disciplinary team of graphene researchers that has consistently hit research milestones for the past 4 years
- The research team sits within the highly-regarded Mechanical Engineering Department of Monash University

Advanced Technologies and First-mover Advantage

- We will leverage our first-mover advantage in our areas of specialist graphene research. Our Planar Supercapacitor technology is at TRL3 and we can have a basic prototype by mid-2015. We have one patent in relation to this research
- Super Sand technology is at TRL5, with plans for testing and commercialisation by 2017. We have a patent pending on this technology
- Our bench-scale facility will be operational in 6 months enabling production and tailoring of graphene materials
- Our membrane technology for water treatment and mining applications is at TRL 4 with plans to be at TRL8 by 2017

Strong Management Record

- Our SER management team has a strong track record of launching companies, including in the graphite industry
- Our experience is not limited to graphite mining and includes graphite technology development and graphite marketing

Strong Market

- Graphene is likely to be one of the most significant materials technology advances this century
- Demand for graphene and graphene technologies will grow massively in coming years
- Graphitech is ideally placed now to capitalise on these opportunities



Thank You

Questions?

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