

## Lifecycle study finds **ecosparc**® can deliver 18 to 21% Reduction in CO<sub>2</sub> Emissions and Significant Cost Savings

### HIGHLIGHTS

- ▶ Fully independent lifecycle assessment (LCA) has shown an 18 - 21% reduction<sup>3</sup> in CO<sub>2</sub>-e emissions through the use of **ecosparc**® enhanced coatings
- ▶ Results demonstrate that the use of **ecosparc**® product can also lower the cost of steel asset maintenance by 19 - 23%<sup>3</sup> leading to significant cost savings
- ▶ Expectation that full benefits of **ecosparc**® on carbon emissions and maintenance cost savings will increase substantially once the full suite of positive testing results<sup>1</sup> are included
- ▶ Results further strengthen Sparc Technologies' position to commercialise **ecosparc**® with infrastructure owners and global coatings companies

Sparc Technologies Limited (**ASX: SPN**) (**Sparc, Sparc Technologies** or the **Company**) is pleased to report the real-world benefits of our flagship **ecosparc**® product. An LCA was conducted by Lifecycles<sup>2</sup> based upon our extensive data covering several years of ISO corrosion testing. Results indicate that steel assets coated with **ecosparc**®-enhanced high-performance coatings reduce the CO<sub>2</sub> emissions associated with the maintenance of steel assets by 18 - 21%<sup>3</sup> when benchmarked against the same non-graphene-enhanced epoxy protective coatings. Furthermore, this also results in significant cost-saving of 19 - 23%<sup>3</sup> over the lifecycle of these same assets.

CO<sub>2</sub>-e emission reductions and cost savings are the direct result of the improved resistance to corrosion of **ecosparc**® enhanced coatings leading to longer durations between maintenance events.

### **Sparc Technologies General Manager – Graphene Materials, Dr. Denis Wright commented:**

*"This LCA strongly supports Sparc's journey towards improving sustainability and environmental outcomes for infrastructure owners in their supply chain, through the use of **ecosparc**®, along with significant cost savings for our customers. It's great to be part of an Australian business playing a positive role in helping to address the climate emergency".*

### **Lifecycles Senior LCA Consultant, Mr. Paul-Antoine Bontinck, commented:**

*"Lifecycles assessed the greenhouse gas emissions associated with using **ecosparc**® in coating products. Our analysis suggests that **ecosparc**® holds great promise through the reduction in maintenance requirements of infrastructure assets and their increased lifespan."*

<sup>1</sup> ASX Announcement [17 August 2023](#): Substantial Performance from **ecosparc**®.

<sup>2</sup> Life Cycle Strategies Pty. Ltd. is an independent company specialising in circular economy and sustainability reporting and training

<sup>3</sup> Bontinck, P, A (2023), Carbon footprint of **ecosparc**® graphene additive for protective coating applications, Lifecycles, Melbourne, Australia

## Key Results:

**Table 1: Modelling was conducted on three different steel assets in areas of high corrosion:**

<b>1. Wharf Pilings totalling 57,883 m<sup>2</sup> in a highly corrosive area.</b>
<b>Results</b>
<ul style="list-style-type: none"><li>• Annual Carbon Emission Savings with ecosparc: Over 15,000kg CO<sub>2</sub>e per asset per year</li><li>• Cost Savings: \$15million cost saving over the 50 year-life of the asset (from maintenance savings only)</li></ul>
<b>2. Underground Steel Infrastructure with a total surface area of 3376m<sup>2</sup></b>
<b>Results</b>
<ul style="list-style-type: none"><li>• Annual Carbon Emission Savings with ecosparc: Over 500kg CO<sub>2</sub>e per asset per year</li><li>• Cost Savings: \$1.9million cost saving over the 50 year-life of an asset (from maintenance savings only)</li></ul>
<b>3. Grain silos with a total surface area of 11,272m<sup>2</sup></b>
<b>Results</b>
<ul style="list-style-type: none"><li>• Annual Carbon Emission Savings with ecosparc: Over 1350 kg CO<sub>2</sub>e per asset per year</li><li>• Cost Savings: \$2.6million cost saving over 50 years of operation of the asset (from maintenance savings only)</li></ul>

The LCA clearly shows that steel asset owners will not only benefit from a tangible reduction in carbon emissions through enhanced coatings, but that this benefit will also come at a lower cost to the end-user. This underpins Sparc Technologies' model of creating shared value through its product offering. **ecosparc**<sup>®</sup> users will not only reduce their environmental impact through the coatings, but they can achieve this while reducing costs.

The LCA has been undertaken to international standards using Carbon Footprint (**CFP**) methodology by leading sustainability consultancy Lifecycles, based in Melbourne, Australia. CFP involves evaluating the complete environmental effects and advantages of products and processes from their inception to disposal. This entails analysing the greenhouse gas (**GHG**) emissions at every life cycle phase, aiming to prevent the transfer of impacts between stages and to offer insights for minimising GHG emissions over the entire product life cycle. The LCA report has been prepared by LCA as an independent study and professional fees payable for the preparation of the report constitutes LCA's only commercial interest in the study. The payment of these fees has in no way influenced the outcomes of the study. LCA and its principals do not hold securities in Sparc. At this point, this LCA is yet to be peer-reviewed. Lifecycles consents to the inclusion of its study outcomes in this announcement and the form and context in which they appear.

Sparc Technologies continues to currently assess our entire suite of testing. Once completed, it is expected that the anti-corrosive properties of **ecosparc**<sup>®</sup> will be significantly enhanced, resulting in further savings in cost and carbon emission.

### **About **ecosparc**<sup>®</sup> - A performance additive for Marine and Protective Coatings**

Sparc Technologies has developed additives that exploit the power of graphene for a wide range of protective and marine coating applications. The addition of a very small quantity of **ecosparc**<sup>®</sup> to conventional paints leads to a substantial enhancement in anti-corrosive performance, ensuring the reliability, longevity, safety and cost-effectiveness of the infrastructure they cover.



In March 2023, the Company commissioned its **ecosparc**<sup>®</sup> commercial production facility. (See [ASX Announcement 30 March 2023](#)) The state of the art facility enables Sparc to produce commercial quantities of its graphene additive product. Target markets for **ecosparc**<sup>®</sup> include the global coatings industry, composites and other graphene additive applications.

Figure 1: **ecosparc**<sup>®</sup> is underpinned by rigorous product testing over four (4) years to ISO standards.

The **ecosparc**<sup>®</sup> production facility enables Sparc to provide commercial quantities of graphene additive product for trials with global coatings companies. In parallel, the Company is pursuing opportunities to target Australian coatings companies that are looking to enhance the anti-corrosive and environmental performance of their products, with the addition of **ecosparc**<sup>®</sup>.

Multiple global and domestic coating companies continue to undertake product evaluation of **ecosparc**<sup>®</sup> in anti-corrosion coatings. Results from testing and qualification work with these companies are expected in H2 2023/H1 2024. Further to this, Sparc has commenced a campaign targeting asset owners with a view to conducting field trials utilising graphene containing coatings on key infrastructure such as steel frames, tanks and steel structures close to the ocean. Infrastructure owners being targeted include government, defence, mining, and oil and gas companies.

### Enhancing coating performance



Figure 2: **ecosparc**<sup>®</sup> is a performance additive for Marine and Protective Coatings

Sparc is also currently engaged in product development and trials with global composites companies targeting inclusion of **ecosparc**<sup>®</sup> to improve performance outcomes. This leverages the excellent results in coatings where the inclusion of graphene is known to impart improved physical properties. Trials have commenced to overcome “pain points” where Graphene Based Additives may improve performance.

-ENDS-



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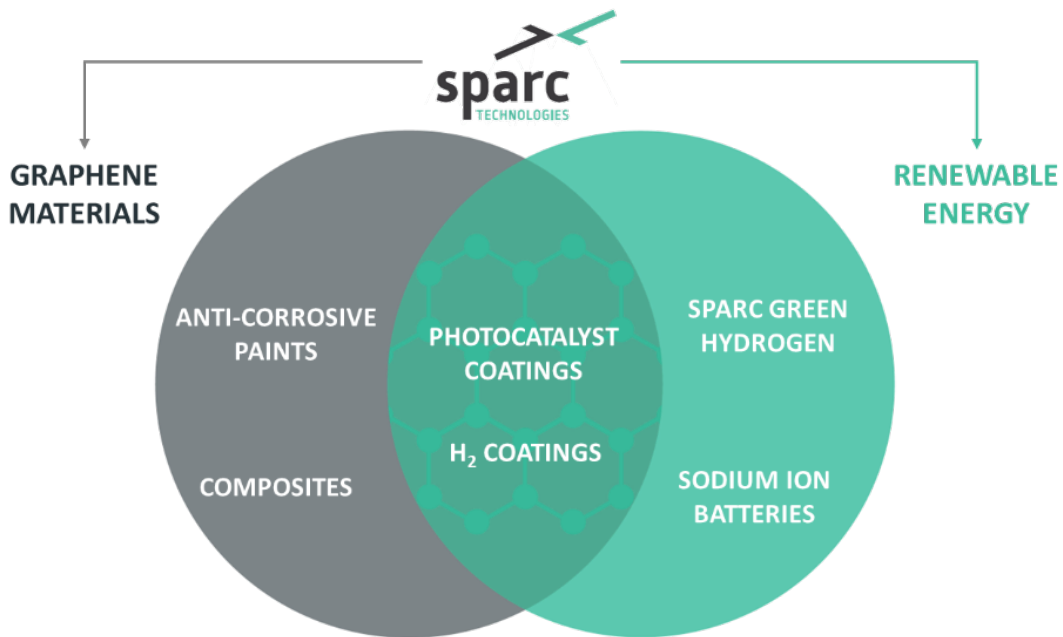
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**About Sparc Technologies**



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Sparc Technologies Limited ('Sparc', ASX: SPN) is an Australian company pioneering new technologies to disrupt and transform industry while seeking to deliver a more sustainable world. Sparc has established offices in Australia, Europe and North America and is focused on three core areas of technology development.

1. Sparc has spent over 4 years developing a **graphene based additive** product, **ecosparc®**, which has demonstrated up to 40% anti-corrosion improvement in commercially available epoxy coatings. Sparc recently commissioned a manufacturing facility to produce **ecosparc®** and is engaging with global paint companies and end users to advance commercial scale trials.
2. Sparc is a majority shareholder of **Sparc Hydrogen** which is a company pioneering the development of **photocatalytic water splitting** ('PWS') green hydrogen production technology. PWS is an alternative to producing green hydrogen via electrolysis, using only sunlight, water and a photocatalyst. Given lower infrastructure requirements and energy use, the process has the potential to deliver a cost and flexibility advantage over electrolysis.
3. Sparc is also developing **sodium ion battery technology** in partnership with Queensland University of Technology.

For more information please visit: [sparctechnologies.com.au](http://sparctechnologies.com.au)



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