



## SOR Moisture Energy to Exceed Solar Power Density

Strategic Elements Ltd (ASX: SOR) is pleased to announce that the Energy Ink™ technology is on track to **exceed the power density of solar** technology due to technical breakthroughs in the process of converting moisture into electrical energy.

Power density is a measure of how much power can be generated from a given space. To date, no other relevant renewable energy technology has come close to exceeding the power density of solar technology. Breakthroughs in moisture-to-energy conversion are being engineered into an Energy Ink™ cell, designed for **renewable energy generation**, with a power density that exceeds solar technology

### Renewable Energy Power Density

In renewable energy technology, power density is highly desirable because it means that more power can be generated from a given space. In the context of solar panels, power density refers to the amount of power that can be generated per unit area of the panel. Photovoltaic technology (solar) has the highest power density of all renewable energy sources and is the gold standard. Exceeding the power density of solar will represent a significant global achievement for the Energy Ink™.

Power density is also used to predict the potential power output of renewable energy systems scaled up over a larger area or volume. Once the power density of the Energy Ink™ cell is finalised, predictions on the potential power output of a larger-scale system can be made. This will assist the Company in communicating the significant potential larger-scale opportunity of the Energy Ink™.

### Application Focus

Market entry is focused on where solar or grid energy is **impractical or too expensive**. The Company is working with experts from specialised areas, such as electric vehicle charging and computing infrastructure, to identify initial applications that leverage the features of the Energy Ink™.

Summary of potential features:

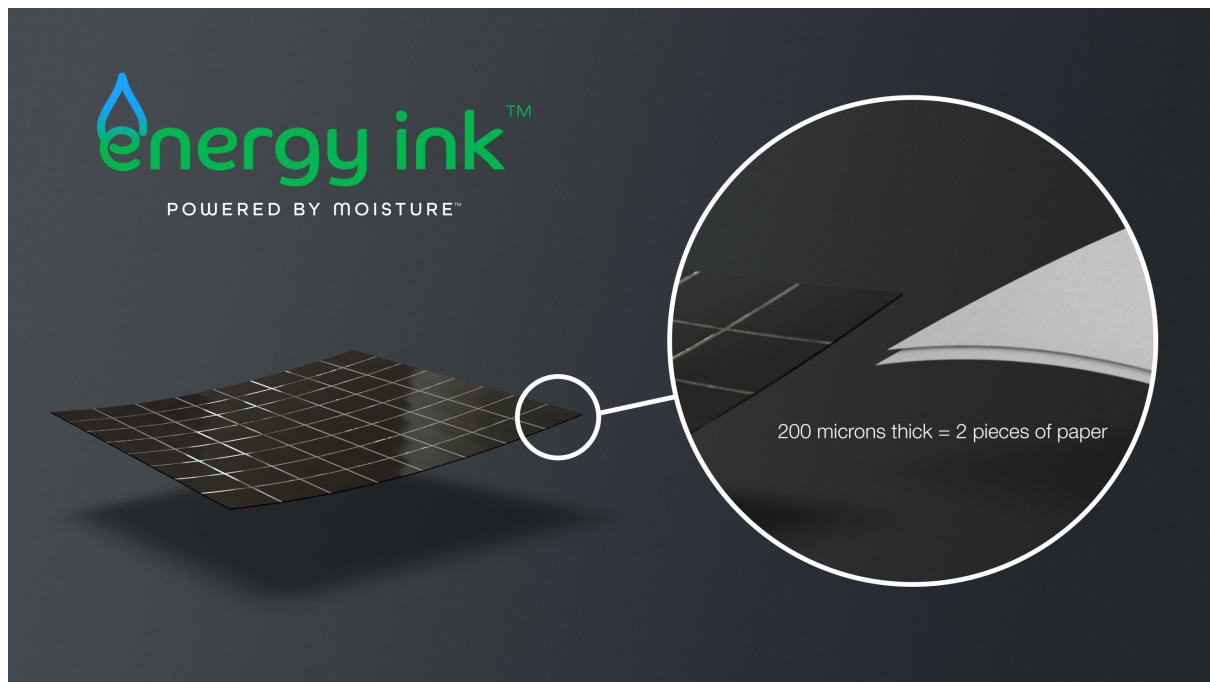
- Renewable green energy
- Utilises free, limitless ambient moisture
- Generate energy both day and night
- Portability, lightweight, flexible materials
- Position in a cabinet indoors or outdoors
- Avoid expensive grid infrastructure
- Much smaller footprint
- Printable materials reducing time and cost

### Short-Term Development Paths

Australian Advanced Materials (100% owned) is working with Prof. Dewei Chu and a team from the University of New South Wales to convert moisture into electrical energy. Breakthroughs in moisture-to-energy conversion are currently being engineered into an ink formula. The short-term development path is as follows:

1. Nano-engineering of recent discoveries into an ink formula
2. Optimisation of the ink to enable cells to be printed freestanding or onto a polymer, creating an ultra-thin layer of approx. 200 micrometres (2 pieces of paper)
3. Fabrication and testing of Energy Ink™ cells with power density exceeding solar (>20mW per cm<sup>2</sup>)
  - Nano-engineering and optimisation are expected to take approximately **12 weeks**.
  - Fabrication and testing are expected to take a **further 10-12 weeks**.

**An additional significant development in Energy Ink™ cells for renewable energy is being finalised, and information will be released when appropriate.**



In conjunction with the Company's Perth Engineering Lab, the team is developing and testing an Energy Ink™ cell for use in **wearable technologies**. Part of this work is funded by the Australian Federal Government under a \$1.6M project<sup>1</sup>. Recent success has been demonstrated in powering Electronic Skin Patches, which need to sense, collect data and communicate via Bluetooth to a phone or reader.

The team is also seeking to develop a different type of Energy Ink™ cell, customised specifically for use in the **Internet of Things (IoT) sector**. A \$2.7M Project is currently under consideration for Federal Government support<sup>2</sup> to develop alternative power sources for IoT sensors. If successful, funding, expertise and highly advanced, specialised equipment will be available to commence a significant development program in April, 2023.

#### Comments

Prof. Dewei Chu, the key inventor and head of the UNSW team, said, "We are very keen to work with the Strategic Elements team and potential end users of the Energy Ink to leverage the great potential of moisture-enabled power generation in applications from wearable electronics to IoT sensors and now to larger-scale electricity generation".

Strategic Elements Ltd Managing Director Charles Murphy said, "It is obvious that the potential rewards from the successful development of larger-scale Energy Ink systems are immense. However, it should also be recognised that the technology is under development and still has risks. Success in the short-term development pathway outlined will provide a strong, early indication of the technology's potential to scale up and power certain larger-scale systems".

#### Strategic Elements (ASX:SOR) – Pooled Development Fund

The Australian Federal Government has registered Strategic Elements (SOR) as a Pooled Development Fund with a mandate to back Australian innovation. The Company supports leading Australian scientists and innovators in high-risk-high reward ventures. SOR majority funds initial development whilst seeking a major strategic investor/partner to assist commercialisation. Investors in SOR have potential tax benefits as the Company operates under the Pooled Development Program. More information should be read on the Company's website.

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This announcement was authorised for release by the Strategic Elements' Board of Directors.

1. ASX release 13 Dec 2022  
2. ASX release 20 Feb 2023