

ASX RELEASE

21 February 2023

ASX: NVU

## Antimicrobial Nano Coating Developed for Solar PV Panels

Nanoveu Limited (“**Nanoveu**” or the “**Company**”) (**ASX: NVU**), a company specialising in modern, cutting-edge nanotechnology in reducing contagious transmissions on high touch points extending to immersive vision-based entertainment and development of allied products, advises that it has successfully expanded its Nanoshield™ product suite to include a proprietary antimicrobial coating targeting algae growth on photo-voltaic (**PV**) panels (solar).

The transparent coating is self-maintaining, anti-fouling, anti-static and hydrophilic<sup>1</sup>.

### Highlights

- **Coating initially designed for photovoltaic solar panels to:**
  - **inhibit biofilm formation and algae growth (antifouling) which addresses a major issue in humid climates where solar panel energy output is hindered**
  - **inhibit dirt and sand adherence, reducing cleaning frequency for climates where sand build up on panels is a major issue**
  - **create a super hydrophilic film that reduces mineral and dirt accumulation after rainfall**
- **Testing to measure the energy saving is underway in the Philippines is underway with results due in H1 2023**
- **Additional anti-fouling (algae reduction) coating applications include shipping vessels and exterior windows of high-rise buildings**
- **Patent protection for the new formulation to be filed by Nanoveu**

### The Problem

A major inhibitor to the efficiency of a solar PV system is the accumulation of surface contaminants, which may also lead to corrosion.

Surface dust, water marks and sand are generally removed with costly regular cleaning and maintenance, and algae growth removal requires even more resources and maintenance.

### Nanoveu’s Solution

Biofilms (algae) will not form on the transparent nano coating, which the Company refers to as its E series, which were developed from the Company’s antiviral products. The hydrophilic and anti-static properties reduce adherence of all surface contaminants.

The coating is designed to solve a major issue for solar panels – reduction of output from panel surface debris.

Antifouling, using metal oxide nano sized particles in the E series inhibit the growth of algae on the coated surface, a major issue for PV systems in humid climates. Currently, panels require constant cleaning to ensure biofilm does not form.

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<sup>1</sup> **Hydrophilic** – having a tendency to mix with, dissolve in, or be wetted by water. The opposite of hydrophobic.

Commenting on the Company achievements, Nanoveu's Managing Director Mr Alfred Chong, said: "The growth of solar markets is a key green initiative adopted by countries worldwide. With this new and unique development, we will work towards establishing Nanoveu as an attractive solution to enhance the performance of solar assets worldwide."

### **The Algae Problem**

Algae and Lichen are organisms that grow on solar panels thriving in moist and humid conditions. Once algae spores are lodged in the microscopic pores of solar panels, they rapidly grow and, if not cleaned on regular basis, can cover the entire surface of the panel<sup>2</sup>.



*Algae and Lichen build up on solar panels<sup>3</sup>*

In addition, Algae and Lichen build up will eventually cause corrosion to the panels, leading to long-term damage to the solar panels.

Preventing Algae and Lichen build-up is a painstaking and laborious task which must be done continuously every few months. Dirty algae covered panels can cause up to 26% energy loss in the Solar's capacity to generate electricity<sup>2</sup>.

### **Other Benefits, Market and Progress**

The E series hard coat is a self-cleaning product which washes away the dirt in rainwater through its hydrophilic properties. As opposed to water repellent coatings (hydrophobic), the hydrophilic effect reduces the angle of water droplets, allowing penetration beneath the contaminant. Antistatic, larger particle sized debris such as dirt and sand simply slides off the surface. This makes the Company's E-series coating suitable as a self-cleaning coating solution for both humid and dry climates.

The Company is currently embarking on trials in the Philippines and has identified 55 MW of projects that are suitable candidates for its technology. The results of the trials will be published once the trials have been completed.

According to Fortune Business Insights, the Solar market was about USD 170.55 Billion in 2020 and is expected to grow to USD 293,18B by 2028, a 6.9% compounded annual growth rate<sup>4</sup>.

The Company believes that this technology is unique and a world first for the Solar Market. The Company plans to file for patent protection.

The Company believes that in addition to the initial solar panel market, the product's antifouling capability can be applicable to a wider range of applications including ships and boat hulls that constantly require antifouling

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<sup>2</sup> <http://Solvoltaics.com/removing-algae-from-solar-panels-9-steps>

<sup>3</sup> <https://solarsena.com/how-to-remove-algae-and-lichen-from-solar-panels/>

<sup>4</sup> <https://www.fortunebusinessinsights.com/industry-reports/solar-power-market-100764>

treatment as organism growth can greatly affect durability and performance; Oil platforms, where algae growth will compromise the integrity of the platforms over time and other uses.

*This announcement has been authorised for release by the Board of Directors.*

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**About Nanoveu Limited**

Nanoveu is a company specialising in modern, cutting-edge nanotechnology in reducing contagious transmissions on high touch points extending to immersive vision-based entertainment and development of allied products. <https://www.nanoveu.com/>

**Nanoshield™** - is a film which uses a patented polymer of Cuprous embedded film to self-disinfect surfaces. Nanoshield antiviral protection which is available in a variety of shapes and forms, from mobile screen covers, to mobile phone cases and as a PVC commercial film, capable of being applied to a number of surfaces such as doorhandles and push panels. The perfectly clear plastic film contains a layer of charged copper nanoparticles which have antiviral and antimicrobial properties. This technology is also being applied to fabric applications targeting use in the personal protective equipment sector.

**EyeFly3D™** - is a film applied to digital displays that allowed users to experience 3D without the need for glasses on everyday mobile handheld devices.

**Customskins** - are vending machines capable of precisely applying screen covers to mobile phones with an alignment accuracy of 150 microns.

**EyeFyx** - currently in research and development stage, EyeFyx is a vision correction solution using hardware and software to manipulate screen output addressing long-sightedness without the need to wear reading glasses.

**Forward Looking Statements**

Statements regarding plans with respect to Nanoveu's projects and products are forward looking statements. There can be no assurance that Nanoveu's plans for its projects or products will proceed as expected and there can be no assurance of future sales.