



ASX RELEASE | De.mem Limited (ASX:DEM)

**De.mem Signs Partnership Agreement for Commercialization of Graphene Oxide Membrane Technology;
Intends to Enter into North American Market**

19 July 2022: Australian-Singaporean water and waste water treatment company De.mem Ltd (ASX:DEM) ("De.mem" or "the Company") is pleased to announce that it has signed a partnership agreement related to the commercialization of its Graphene Oxide enhanced ("GO") membrane technology. The new technology has been presented by De.mem on 7 September 2021 (see ASX release "De.mem Presents Next Generation Membrane Technology").

Key Highlights

- De.mem to partner with Purafy Clean Technologies, Kingston, Ontario, Canada ("Purafy"), in the manufacturing, development, sales & distribution of the GO membrane technology.
- Under the agreement, De.mem receives exclusive access to Purafy's unique Graphene Oxide nanoparticles.
- In exchange, De.mem grants exclusive rights to Purafy for the use of De.mem's GO membrane, within Purafy's portable and domestic water treatment products.
- De.mem intends to promote Purafy's domestic water treatment products into Australia and Singapore initially.
- The commercial launch into the North American and Australian markets is pending the completion of regulatory product certifications, which are expected to be achieved within the next 6-12 months.
- De.mem conservatively estimates its revenues from the new partnership during the initial market introduction phase at approx. \$300k and \$750k in year 1 and 2 from the product certification respectively, for the North American and Australian markets only. There is substantial additional growth potential beyond year 2, and from the launch of the technology into other regions.

Commercial Partnership with Purafy (Canada)

De.mem will partner with Purafy Clean Technologies, Kingston, Ontario, Canada ("Purafy"), in the manufacturing, sales & distribution of the GO membrane technology.

Purafy is a division of Grafoid Inc., a graphene research, development and investment company that promotes a range of graphene-based products for applications in key commercial markets. Purafy manufactures and sells a range of products for domestic water filtration, as well as portable water treatment systems.

Under the agreement, De.mem receives exclusive access to Purafy's Graphene Oxide nanoparticles for use within De.mem's polymer ultrafiltration membrane. De.mem has tested Purafy's GO nanoparticles extensively and selected over several other, similar materials. Its unique properties allow De.mem to manufacture GO enhanced polymer-based ultrafiltration membranes with significantly enhanced filtration characteristics.

The new GO membrane technology has been validated in industrial trial projects in Singapore, and is proven to deliver 20 - 40% higher water flux (=throughput, or volume of clean water produced) vs. standard polymer ultrafiltration membranes in combination with a superior rejection of contaminants.

In exchange, De.mem grants exclusive rights to Purafy for the use of De.mem's GO ultrafiltration membrane, within Purafy's portable and domestic water treatment products.

De.mem intends to promote Purafy's domestic water treatment products into Australia and Singapore initially.



Targeting the Global Market for Domestic Water Filtration

Through the commercial partnership, De.mem targets the global market for domestic water filtration.

The new GO enhanced membrane technology is particularly well suited for domestic water filtration applications. As a result of the membrane's high throughput, the size of the membrane cartridge can be reduced significantly while maintaining the same treatment capacity. This is a key requirement for domestic water filtration applications, which are typically exposed to space constraints.

The global market for domestic water filters is a large commercial market growing faster than the overall water treatment industry. It is estimated at USD 8.6 billion in 2018 and expected to grow by 15.9% per annum to reach approx. USD 24.1 billion by 2025 (Source: Grand View Research, Home Water Filtration Market Unit Market Size, 9 July 2019).

Commercial Partnership to Launch the Products Initially into North America and Australia

Purafy intends to launch the new membrane technology as part of its portable and domestic water filtration systems into North America, while De.mem plans to sell Purafy's domestic water filtration systems into Australia and Singapore.

The commercial launch will immediately follow the achievement of regulatory product certifications. The relevant approvals are the NSF (National Sanitation Foundation) certification for the US, and the WaterMark certification for Australia. The respective process has been initiated and its completion is expected within the next 6-12 months.

Significant Financial Upside

De.mem considers the commercial partnership agreement significant as the Company receives:

- exclusive access to Purafy's unique Graphene Oxide nanoparticles as a key material for the manufacturing of its GO membrane technology, resulting in a new and unique product within the water treatment industry;
- the legal rights to promote Purafy's domestic water treatment products into Australia and Singapore, which, potentially, will generate significant revenue streams for the Company.

Both initiatives are subject to the successful conclusion of the regulatory product certification process.

Based on the sales numbers discussed with Purafy, De.mem conservatively estimates its revenues under the partnership during the initial market introduction phase at approx. \$300k and \$750k in year 1 and 2 after the product certification respectively, for the North American and Australian markets only.

There is substantial growth potential beyond year 2.

Furthermore, De.mem sees significant revenue potential from the launch of the technology into other regions, in particular Asia and Europe. The Asia-Pacific region accounts for the largest share in the overall market for domestic water filters. De.mem will provide further updates when initiatives with respect to new countries/regions are confirmed and the respective revenue potential is known.

De.mem and Purafy will share the cost for the product certification processes. The costs will not be material to De.mem.

The commercial partnership agreement does not define any minimum sales numbers or guarantees by either party. It has a term of 10 years and can be terminated by either party by giving 6 months notice. It also contains such other terms that are standard in agreements of this nature.



Management Commentary

De.mem Chief Executive Officer Andreas Kroell said:

“We are very pleased to enter into a commercial partnership with Purafy.

Purafy brings us access to a unique type of Graphene Oxide materials, which allows us to manufacture Graphene-Oxide enhanced ultrafiltration membranes with superior filtration characteristics. Thanks to its high throughput, the new membrane is a perfect fit for the portable and domestic water filtration market.

Furthermore, given its strong focus on water treatment products and established position in North America, Purafy also is an ideal partner for the launch of our membrane technologies into portable and domestic water treatment applications in this region and globally.

The wider commercial launch is expected to kick off subject to the completion of regulatory product certifications, within the next 6 to 12 months.

We look forward to a successful partnership which brings substantial revenue potential to De.mem, within a large and high-growth commercial market.”

Purafy Chief Executive Officer Marc Roy said:

“This commercial partnership agreement with De.mem represents a key validation point and milestone for applying the manufacturing process for our Graphene Oxide materials within a unique commercial setting.

With instances of clean water scarcity only continuing to rise around the world, our work together with De.mem for introduction of these new, advanced membrane products is an important step towards collectively helping people ensure their access to clean water is secure, sustainable, and achieved economically.

We look forward to working together with De.mem for years to come in fulfilment of Graphene Oxide materials supply obligations, the commercial launch of the advanced membrane products within our portable and domestic filtration applications, and in seeking new commercial opportunities that would lead to substantial revenues for both Purafy and De.mem.”

This release was authorized by the Company’s Chief Executive Officer, Mr. Andreas Kroell.

-ENDS-

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De.mem Limited (ASX:DEM) is a decentralised water and wastewater treatment business that designs, builds, owns and operates turnkey water and wastewater treatment systems for some of the world's largest companies in the mining, electronics, chemical, oil & gas, and food & beverage industries. Its systems also provide municipalities, residential developments and hotels/resorts across the Asia Pacific with a reliable supply of clean drinking water.

De.mem's technology to treat water and wastewater is among the most advanced globally. The Company is headquartered in Australia and has international locations in Singapore, Germany and Vietnam. It is commercialising an array of innovative proprietary technologies from its research and development partner, Nanyang Technological University (NTU) in Singapore, a world leader in membrane and water research. Technologies uniquely offered by De.mem include a revolutionary low-pressure hollow fibre nanofiltration membrane that uses less electricity and is cheaper to operate than conventional systems, as well as a new Forward Osmosis membrane deployed in de-watering applications or the concentration of liquids.

To learn more, please visit: www.demembranes.com

Purafy Clean Technologies is a division of Grafoid Inc., a graphene research, development and investment company that invests in, manages and develops markets for processes that produce economically scalable graphene for use in graphene development applications by leading corporations and institutions.

At Purafy, we believe in a world where clean water is accessible to all. We apply cutting-edge materials and innovations in nanotechnology to manufacture and distribute robust and effective water filtration systems for commercial and residential use to help defeat the water scarcity issue. We believe that graphene – a thin layer of graphite that has endless potential applications in almost every industry due to its unique and extraordinary qualities – holds the key to developing and producing more effective, safe, and environmentally friendly solutions that deliver clean water in both small and largescale applications.

For more information, please visit www.purafy.com.

Forward Looking Statements

Statements contained in this release, particularly those regarding possible or assumed future performance, revenue, costs, dividends, production levels or rates, prices or potential growth of De.mem Limited, are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.