ASX ANNOUNCEMENT 30 August 2017

DOTZ NANO TO DEVELOP GRAPHENE EMBEDDED CATHODES FOR THE LITHIUM ION BATTERY MARKET

- **Development Program to commence following research agreement and optional license agreement with Nanyang Technological University (NTU) in Singapore.**
- **Funding request submitted to the Singapore Israel Industrial R&D foundation (SIIRD) for AU$1.87 million.**
- **Dotz Nano to develop functionalised GQDs that will be embedded by NTU researchers into a new Vanadium Oxide cathode with multi-national Ulvac Technologies to provide beta-site support.**
- **Japanese-based Ulvac Technologies Inc. will provide beta testing facilities and be involved in the commercialisation process.**
- **Research program to establish GQDs coated/embedded cathodes substantially increases performance leading to increased Li-ion battery metrics.**

Dotz Nano Limited ("Dotz Nano" or **"the Company")**, a nano-technology company focusing on the development, manufacture and commercialisation of graphene quantum dots (**GQDs**), is pleased to announce that it has established a program to develop a GQD embedded cathode for use in the Lithium ion battery market which will substantially increase performance and increase battery metrics.

The program is based on a research agreement and optional license agreement reached with Singapore's Nanyang Technological University (NTU). NTU researchers developed the technology of embedding GQDs into Vanadium Oxide with the objective of replacing Lithium Cobalt Oxide cathodes and their use in the Li-ion battery market. Preliminary research was done by NTU's Associate Professor Hongjin Fan and the results published in his article on the use of GQDs in Li-ion batteries[1]. The program is aimed at improving cathode and thereby Li-ion battery metrics by increasing battery lifecycle (3x) and substantially decreasing re-charging time (~10 minutes).

In April 2017, Dotz Nano signed a Research Collaboration Agreement (**RCA**) pursuant to which it funded (by way of payments of non-material amounts), together with the NTU, a Proof of Concept (**PoC**) research program to replicate Assoc. Prof. Fan's research using Dotz Nano's coal derived GQDs. In terms of intellectual property (**IP**), the RCA provides:

i) all IP created or developed solely by NTU, its employees, staff, servants, students, or agents, without any intellectual input or contribution from Dotz Nano, shall be the sole and exclusive property of NTU;

[1] Chao, Dongliang & Zhu, Changrong & Xia, Xinhui & Liu, Jilei & Zhang, Xiao & Wang, Jin & Pei, Liang & Lin, Jianyi & Zhang, Hua & Shen, Zexiang & Jin Fan, Hong. (2014). ***Graphene Quantum Dots Coated VO 2 Arrays for Highly Durable Electrodes for Li and Na Ion Batteries.*** Nano letters. 15 .10.1021/nl504038s.

ii) all IP created or developed solely by Dotz Nano, its employees, staff, servants or agents, without any intellectual input or contribution from NTU, shall be the sole and exclusive property of Dotz Nano; and

iii) all IP created or developed jointly by NTU and Dotz Nano shall be jointly owned in equal undivided shares by NTU and Dotz Nano (**Joint IP**).

Pursuant to the RCA, NTU also granted Dotz Nano an option to negotiate for exclusive commercialisation rights (in a designated field of use, where appropriate) to the Joint IP on commercial terms and conditions to be mutually agreed upon by NTU and Dotz Nano. The option can be exercised by Dotz within 3 months of completion of the PoC.

With the recent successful completion of the PoC, a full development program was established and a Singapore Israel Industrial R&D (SIIRD) funding application submitted.

Beta-testing of the cathode in Li-ion batteries will be completed by Japanese-based Ulvac Technologies Inc. Ulvac produces thin-film Lithium secondary batteries for various applications and has the necessary facilities to implement, test and validate Dotz Nano GQD cathodes for use in the Li-ion battery market. The Company also expects to exercise its option with NTU for negotiation of exclusive commercialisation rights.

During the development program, Dotz Nano will conduct the necessary surface modification of its GQDs for optimal use in the cathode development. Once the development program has been completed, and the program's targeted metrics are reached, the Company intends to commercialise the newly developed cathode by supplying the required GQDs to either cathode material manufacturers and/or the developed GQD embedded cathode to Li-ion battery manufacturers.

Commenting on the new development, Dotz Nano's CEO Dr. Moti Gross, stated: *"We are extremely pleased to commence the GQD cathode Research and Development program which will allow us to expand our reach into the energy storage market and collaborate with first tier companies, such as Ulvac Technologies and others."*

"The Lithium ion battery market is a large and lucrative market with a variety of applications such as consumer electronics, mobile, light EVs, heavy EVs, with analysts valuing the market at over AU$32.5 billion annually[2]. Specifically, the Li-ion Cathode segment of the market is valued at approximately AU$5 billion annually for which Dotz Nano's cathode, if successful, can result in the use of large quantities of GQDs."

"Funding of the proposed program is based upon the SIIRD grant funding mechanism which supports innovative research and development projects between Israel and Singapore. With the PoC's successful completion, Dotz Nano intends to exercise its license option with NTU and commercialise the GQD Cathode to the Li-ion battery market to either battery manufacturers, cathode manufacturers or cathode material manufacturers."

"We are also extremely pleased to have Ulvac's beta support in this program. Ulvac has the necessary facilities to implement, test and validate Dotz Nano GQD cathodes for use in the Li-ion battery market, and the necessary experience to support the commercialization efforts.

[2] Pillot, Christophe, ***The Rechargeable Battery Market and Main Trends 2016-2025***, Avicenne Energy, March 2017

"Dotz Nano's commercialisation efforts are continuing in various applications, and the exposure of our GQDs to a wide variety of market segments will assist us in the commercialisation of our GQDs."

"I look forward to notifying the market on our future programs and commercialisation efforts."

About Ulvac Technologies

Ulvac Technologies Inc is a multi-national, Japanese based vacuum company that provides "ULVAC Solutions" that diversely incorporates equipment, materials, analysis, and services for flat panel displays, electronic components, semiconductors, and general-industry equipment by combining their original technologies nurtured with research, developments and production engineering reforms. Within their activities, Ulvac produces thin-film Lithium secondary batteries for various applications.

About Dotz Nano

Dotz Nano Limited (ASX: DTZ) is a technology company focusing on the development, manufacture and GQDs. Its vision is to be the premier producer of GQDs by producing and supplying high quality GQDs for use in various applications including medical imaging, sensing, consumer electronics, energy storage, solar cells and computer storage.

To learn more about Dotz Nano please view the website and our corporate video via the following link: www.dotznano.com

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