



23 May 2016

ASX RELEASE

## BINDING HEADS OF AGREEMENT TO ACQUIRE GRAPHENE QUANTUM DOTS PRODUCER DOTZ NANO LTD

### HIGHLIGHTS

- Northern Iron Limited (**NFE**) to acquire 100% of Dotz Nano Ltd (**Dotz**).
- Disruptive technology producing Graphene Quantum Dots (**GQDs**) at a fraction of the cost of current competitors.
- Patented technology developed by the world renowned Prof. James Tour of Rice University, Houston.
- GQDs currently selling for as much as **\$2.5 million per kg**.<sup>1</sup>
- Quantum Dots (**QD**) market forecast to grow to over \$11 Billion by 2026 in current conventional applications alone.<sup>2</sup>
- Coal is used as the source material, bypassing higher cost and tightly controlled graphite market.
- Patents granted over the use of 'Coal as a source' material, giving Dotz exclusivity to a low cost and abundant GQD source.
- Dotz production is a simple, low capex and highly scalable process.
- Current consumers of QDs include Samsung, LG, 3M, Sharp, Phillips, TCL.

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<sup>1</sup> <http://www.acsmaterial.com/product.asp?cid=111&id=138>

<sup>2</sup> <http://www.idtechex.com/research/reports/quantum-dots-2016-2026-applications-markets-manufacturers-000452.asp>



The next BIG small thing

The Board of Northern Iron Limited (ASX:**NFE**) is pleased to announce that it has executed a binding heads of agreement (**HOA**) with Israeli based technology and materials Company Dotz Nano Limited (**Dotz**), to acquire 100% of the issued capital of Dotz (**Acquisition**). Dotz holds the exclusive worldwide life of patent licence for the commercialisation of the patented technology from the Rice University in Houston, USA. The patented and commercially ready technology is aimed at disrupting the lucrative and ever rapidly growing Graphene Quantum Dots (**GQD**) market.

Dotz aims to become the premier producer and supplier of high quality, non-toxic GQDs at a fraction of the cost for the use in countless applications, including; medical imaging, high-end & consumer electronics, energy storage, solar cells, HD displays, semiconductors and computer storage.

The patented technology licensed to Dotz was developed by one of the smartest minds in his field, Prof James Tour of Rice University; listed as one of the World's 50 most influential scientists. Patents include the use of "Coal as an abundant source of GQDs" & the 'Methods of producing GQDs from coal and coke'.

Dotz's production method is simple, cost effective and highly scalable, without the need for speciality infrastructure or equipment, providing an additional option to sub-license the technology to existing plants.

Dotz aims to disrupt the market with low cost, high quality and high volume production, opening up the opportunity for new markets and applications currently deemed uneconomical.

Dotz production costs for GQDs are substantially lower per kg, when compared to its competitor's production costs for Quantum Dots, whether Graphene, Metallic or Cadmium Free. High quality Cadmium Quantum Dots currently sell for as much as \$8 million per kg.<sup>3</sup>

The Patented use of Coal as a source material provides Dotz with a competitive edge and removes the reliance on the tightly controlled graphite market and other high cost commodities.

Dotz's low cost production will facilitate penetration into applications that today are limited in their use of Graphene Quantum Dots due to current high prices. This will allow Dotz to establish itself as one of the premier suppliers of GQDs to the industry.

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<sup>3</sup> <http://www.plasmachem.com/shop/en/pl-qdn-510/112-pl-qdn-510.html>

## CURRENT APPLICATIONS



Healthcare  
Tissue labeling, cancer  
Therapy, tumor detection.



Display market  
HD displays, Amazon's Kindle Fire  
HDX, Apple's iPhone 6.



Lighting industry  
GQD's primed to fill the growing  
need for better and efficient LEDs.



High End Electronics  
Semiconductors, computer storage,  
transistors.



Next Generation Energy  
Photovoltaics' (solar energy),  
fuel cells, batteries.

## DOTZ FUTURE TARGETED APPLICATIONS:

- Energy storage
- Li-ion batteries
- Medical Imaging
- Lighting (OLEDs)
- Photovoltaics
- Fuel Cells
- Transparent Flexible Films
- Advanced Materials
- Bandgap Engineering
- Detergents
- Textiles
- Water management
- Anti-counterfeiting
- Medical applications
- Coatings
- Paints and dyes
- Security applications
- Paper production

## KEY ACQUISITION TERMS

In consideration for 100% of issued capital of Dotz Nano Ltd, NFE will issue to Dotz shareholders:

- 660,000,000 fully paid ordinary shares in NFE (**NFE Shares**) at a deemed issue price of \$0.02 each (**Consideration Shares**). All consideration securities will be subject to ASX escrow provisions; and
- Up to 660,000,000 performance shares (**Performance Shares**) which will convert into NFE Shares upon the following milestones being achieved:
  - 220,000,000 Performance shares shall convert upon Dotz achieving the production and distribution of an aggregate of 20 kilograms of GODs through formal off-take agreements or commercial samples with a



reputable third party within an 18 month period from the date of issue of the Performance Shares (**Milestone 1**);

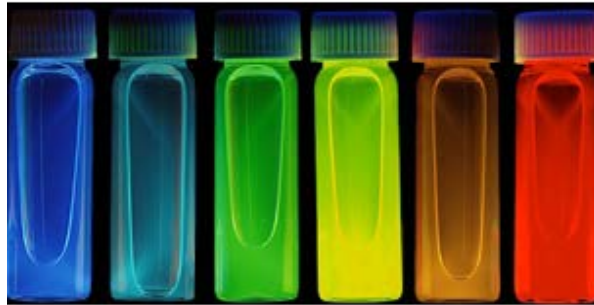
- 220,000,000 Performance Shares shall convert upon Dotz achieving the production and distribution of an aggregate of 50 kilograms of GQDs in any 12 month period through formal off-take agreements with a reputable third party within a period of 30 months from the date of issue of the Performance Shares (**Milestone 2**); and
- 220,000,000 Performance Shares shall convert upon Dotz achieving the production and distribution of an aggregate of 100 kilograms of GQDs in any 12 month period through formal off-take agreements with a reputable third party within a period of 48 months from the date of issue of the Performance Shares (**Milestone 3**).

Settlement of the Acquisition is conditional upon the satisfaction (or waiver) of the following conditions precedent:

- Shareholder approval for the change of NFE's business from a mining company to a technology & materials company;
- Shareholder approval to change the name of Northern Iron Limited to Dotz Nano Limited;
- Completion of due diligence by both NFE and Dotz in relation to the business and operations of the other;
- NFE obtaining all necessary regulatory approvals or waivers pursuant to the ASX Listing Rules, Corporations Act or any other law to allow NFE to lawfully complete the matters set out in the HOA, including but not limited to:
  - conditional approval to reinstatement of NFE to official quotation on ASX following completion of the Acquisition on conditions satisfactory to NFE and Dotz;
  - obtaining any necessary regulatory approval and ASX Listing Rule waiver to permit NFE's re-compliance with Chapters 1 and 2 of the ASX Listing Rules to occur despite the price of NFE Shares to be issued in connection with the re-compliance being less than \$0.20 per NFE Share (being a price of at least \$0.02 per NFE Share) and the exercise price of options to acquire NFE Shares to be issued in connection with the Acquisition being less than \$0.20 each; and
  - approval from the ASX to the terms of the Performance Shares;



- Execution by the Dotz shareholders of ASX restriction agreements for the Consideration Shares and Performance Shares;
- Dotz receiving initial approval from the Israeli Tax Authority to receive “roll-over” relief for the purposes of Israeli taxation regulations in relation to the Consideration Shares and Performance Shares to be issued to the Dotz shareholders;
- there having been no material adverse change in the condition of both NFE and Dotz prior to settlement of the Acquisition;
- NFE being entitled to acquire 100% of the issued capital in Dotz from all holders of Dotz shares and securities convertible into Dotz shares;
- NFE undertaking a capital raising not less than \$3,500,000 through the offer of NFE Shares at a price of not less than \$0.02 per NFE Share (**Capital Raising**);
- NFE obtaining all necessary shareholder approvals pursuant to the ASX Listing Rules, Corporations Act or any other law to allow NFE to lawfully complete the matters set out in the HOA, including (if required) ASX Listing Rule 11.1, ASX Listing Rule 10.1 and item 7 of section 611 of the Corporations Act 2001 (Cth) (Act) and to:
  - issue 45,000,000 unlisted options (exercisable at \$0.04 each, expiring 3 years from date of issue) and 17,500,000 Shares in part consideration for capital raising fees in respect of the Capital Raising (**Lead Manager Securities**); and
  - issue 10,000,000 unlisted options (exercisable at \$0.03 each, expiring 3 years from date of issue) to facilitators in part consideration for introduction and facilitation fees (**Facilitator Options**);
  - issue up to 17,500,000 fully paid shares, at a deemed issue price of \$0.02 per Share, on completion of the Acquisition, to convert convertible loans granted to Dotz by third party investors (**Dotz Convertible Loans**); and
  - issue up to 50,000,000 fully paid shares, at a deemed issue price of \$0.02 per Share, on completion of the Acquisition, to convert convertible loans granted to NFE by third party investors (**NFE Convertible Loans**).



## PUBLIC OFFER

Subject to shareholder approval, NFE will undertake the Capital Raising to raise not less than \$3,500,000 through the offer of NFE Shares at a price of not less than \$0.02 per NFE Share. NFE may accept over-subscriptions.

Otsana has also provided NFE access to a convertible loan facility (convertible at \$0.02 per share) for up to \$1,000,000 for the purposes of working capital and ensure solvency of NFE until completion of the proposed transaction.

## PROPOSED CAPITAL STRUCTURE

PROPOSED CAPITAL STRUCTURE	SHARES	OPTIONS
Existing securities on issue	54,844,503 <sup>3</sup>	50,000,000 <sup>3</sup>
NFE Convertible Loans	50,000,000	-
Dotz Convertible Loans	17,500,000	
Dotz Consideration Shares	660,000,000 <sup>2</sup>	
Capital Raising under Prospectus to raise a minimum \$3.5 million <sup>6</sup>	175,000,000	
Facilitator Options		10,000,000 <sup>4</sup>
Lead Manager Securities	17,500,000	45,000,000 <sup>5</sup>
Total issued capital at re-listing	974,844,503 <sup>2</sup>	105,000,000

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<b>Market Cap on listing</b>	\$19,496,890	
<b>Cash at Bank</b>	~\$4,515,000 <sup>1</sup>	

<sup>1</sup> Cash net of costs (including DOCA payment, capital raising fees, legal cost, relisting Costs and admin).

<sup>2</sup> Excludes 660,000,000 Performance Shares

<sup>3</sup> Including DOCA proponent shares and options to be issued post consolidation. The actual number of Shares on issue following completion of the consolidation approved by shareholders at a general meeting on 13 May 2016 will vary slightly due to rounding.

<sup>4</sup> Facilitator Options to be issued exercisable at 3 cents per share and expiring 3 years from the date of issue.

<sup>5</sup> Lead manager Options to be issued exercisable at 4 cents per share and expiring 3 years from the date of issue

<sup>6</sup> Assumes the minimum subscription of \$3,500,000 is raised under the Capital Raising. In the event that the maximum subscription of \$7,000,000 is raised at an issue price of \$0.02 per NFE Share, an additional 175,000,000 NFE Shares will be issued.

## INDICATIVE TIMETABLE\*

Event	Date
Execute Heads of Agreement	23 May 2016
Completion of due diligence	12 June 2016
NFE shareholder & regulatory consent	July 2016
Lodgement of Prospectus with ASIC	July 2016
ASX Conditional Confirmation of reinstatement to quotation	August 2016
Completion of Capital raising & acquisition	August 2016

\*These dates are indicative only and subject to change

## BOARD OF DIRECTORS & ADVISORS

It is proposed that the Board will consist of Dr Moti Gross, Mr Kobi Zecharya, Mr Steve Bajic, Mr Faldi Ismail and an additional Australian nominee director to be advised. Professor James Tour will act as an advisor to Dotz upon completion of the Acquisition. A brief on the proposed directors and Professor Tour are as follows:

### Dr Moti Gross

Moti Gross has extensive managerial experience leading technological companies, developing business strategy for ongoing enterprises and start-ups. Dr Gross has promoted various technological projects including raising capital in both government and private sectors, developing and remodelling business tactics and strategies and building business models for numerous companies. Dr Gross earned his PhD in Economics and Finance at Oxford University.

### Mr Kobi Zecharya

Mr Zecharya with more than 20 years' experience working in leading investment banks in Israel, Poalim Capital Markets and Investments, Leumi and Co Investment Bank, Israel Discount Capital Markets & Investments and was the CEO of Zeler Eblagon Underwriting &

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Investment and the CEO of Menorah-Gaon Underwriting & Investment and has been CEO and Chairman of several Israeli technology start-up companies. During his work for the investment banks and start-ups he raised a total capital of more than a Billion Dollars. He holds a BA in Economics and Business Administration from Ben Gurion University and a MBA in Finance from Bar-Ilan University.

### **Mr Steve Bajic**

Since 1996, Mr Bajic has been the President of Hexagon Ventures Inc., a company providing financial and business services consulting to private and publicly listed companies. Mr. Bajic has been in the finance industry for 20 years and has helped raise capital in various industries at all levels of company advancement. He has an extensive resume of current and past private and public director and officer positions. Mr. Bajic holds a Financial Management Diploma from the British Columbia Institute of Technology.

### **Mr Faldi Ismail**

Mr Ismail is an experienced corporate advisor specialising in the restructure and recapitalisation of ASX listed companies. He has a significant amount of ASX and investment banking experience and has advised on numerous cross border transactions including capital raisings, structuring of acquisitions and joint ventures overseas. Mr Ismail is also the founder and operator of Otsana Capital, a boutique advisory firm specialising in mergers and acquisitions, capital raisings and Initial Public Offerings.

Mr Ismail currently sits on the board of a number of ASX listed companies.

### **Professor James Tour**

Professor James Tour of Materials Science and Nano Engineering and a Professor of Computer Science at Rice University in Houston, Texas. He is well known for his work in molecular electronics and molecular switching molecules. Prof. Tour holds more than 60 US patents and has over 500 publications. He was named among "the 50 most Influential Scientists in the world today" in 2014 and was selected as Scientist of the Year by R&D magazine in 2013.

### **Appointment of Company Secretary**

The Company also advises the appointment of Mr Peter Webse as a Company Secretary. Mr Webse, FGIA, FCPA, MAICD, has over 24 years' company secretarial experience and is managing director of Platinum Corporate Secretariat Pty Ltd, a company specialising in providing company secretarial, corporate governance and corporate advisory services to listed companies





## PRO FORMA BALANCE SHEET

		Min Subscription		Max Subscription		
	Note	Audited as at 30 June 2015	Pro-Forma Adjustment	Pro-forma as at 31 December 2015	Pro-Forma Adjustment	Max Subscription Pro-forma as at 31 December 2015
		USD'000	Min Subscription	AUD'000	Max Subscription	AUD'000
				\$		
<b>Current Assets</b>						
Cash & cash equivalents	1,3	5,258	(2,071)	4,753	1,219	8,043
Trade and other receivables		2,653	(3,443)	(0)	(3,443)	(0)
Inventory		19,486	(25,287)	(0)	(25,287)	(0)
Prepayments		310	(402)	0	(402)	0
Other Current Assets			51	51	51	51
<b>Total Current Assets</b>		<b>27,707</b>	<b>(31,152)</b>	<b>4,804</b>	<b>(27,862)</b>	<b>8,094</b>
<b>Non-Current Assets</b>						
Trade and other receivables		1,417	(1,839)	(0)	(1,839)	(0)
Mine properties		38,828	(50,387)	0	(50,387)	0
Property, plant and equipment		151,839	(197,037)	5	(197,037)	5
Deferred tax asset		3	(4)	(0)	(4)	(0)
Investment	6		12,371	12,371	12,371	12,371
<b>Total Non-Current Assets</b>		<b>192,087</b>	<b>(236,896)</b>	<b>12,375</b>	<b>(236,896)</b>	<b>12,375</b>
<b>TOTAL ASSETS</b>		<b>219,794</b>	<b>(268,048)</b>	<b>17,179</b>	<b>(264,758)</b>	<b>20,469</b>
<b>Current Liabilities</b>						
Trade & other payables	2, 4	(17,229)	22,185	(173)	22,185	(173)
Derivative financial liabilities	4	(19,192)	24,905	(0)	24,905	(0)
Provisions	4	(22,189)	28,795	0	28,795	0
Current tax liabilities		-	-	-	-	-
Interest bearing loans and borrowing: 4		(73,678)	95,612	0	95,612	0
<b>Total Current Liabilities</b>		<b>(132,288)</b>	<b>171,497</b>	<b>(173)</b>	<b>171,497</b>	<b>(173)</b>
<b>Non-Current Liabilities</b>						
Provisions	4	(17,454)	22,650	(0)	22,650	(0)
Interest bearing loans and borrowings	4	(8,614)	10,895	(283)	10,895	(283)
<b>Total Non-Current Liabilities</b>		<b>(26,068)</b>	<b>33,545</b>	<b>(284)</b>	<b>33,545</b>	<b>(284)</b>
<b>TOTAL LIABILITIES</b>		<b>(158,356)</b>	<b>205,042</b>	<b>(457)</b>	<b>205,042</b>	<b>(457)</b>
<b>NET ASSETS</b>		<b>61,438</b>	<b>(63,006)</b>	<b>16,722</b>	<b>(59,716)</b>	<b>20,012</b>



**EQUITY**

Issued Capital	1	380,761	18,063	512,177	21,353	515,467
Reserves		16,617	-	21,564	-	21,564
Accumulated Losses	3	(335,940)	(81,069)	(517,018)	(81,069)	(517,018)
<b>TOTAL EQUITY</b>		<b>61,438</b>	<b>(63,006)</b>	<b>16,722</b>	<b>(59,716)</b>	<b>20,012</b>
		-	(0)	(0)	(0)	(0)

**Notes:** these proforma accounts are based on half yearly review for the period ended 31 December 2012.

1. The Issue and Shares of Options
2. Total ordinary trade creditors (subject to adjudication) and outstanding administration fees.
3. Cost of Recapitalisation and RTO Process and capital raising fees (6%).
4. Forgiveness of existing liabilities.
5. Unaudited Dotz Balance Sheet (Converted from USD to AUD on a 1.3742:1 rate) as at 31 December 2015.
6. Acquisition of Dotz.
7. Conversion of NFE's balance sheet (Converted from USD to AUD on a 1.2977:1 rate) as at 30 June 2015.

-Ends-

Further enquiries:

Peter Webse

Company Secretary

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