



# **Investor Presentation 1 July 2016**

**Greg Solomon** 

## Disclaimer



#### FORWARD LOOKING STATEMENTS

This presentation includes certain forward-looking statements of Eden's management. Forward-looking statements are statements that contemplate the happening of possible future events and are not based on historical fact. Forward-looking statements may be identified by the use of forward-looking terminology, such as "may", "shall", "could", "expect", "estimate", "anticipate", "predict", "probable", "possible", "should", "continue", or similar terms, variations of those terms or the negative of those terms. Forward-looking statements should not be read as a guarantee of future performance or results and may not be accurate indications of when or whether such performance or results will be achieved. Forward-looking statements are based on information known to Eden when those statements are made or management's good faith belief as of that time with respect to future events and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. The forward-looking statements specified in this presentation have been compiled by Eden's management on the basis of assumptions (which may or may not turn out to be accurate) made by management and considered by management to be reasonable. Eden's future operating results, however, are impossible to predict because of risks and uncertainties, and no representation, guarantee, or warranty is to be inferred from those forward-looking statements. You are cautioned not to place undue reliance on these forward-looking statements.

#### Forward-looking statements include, but are not limited to, the following:

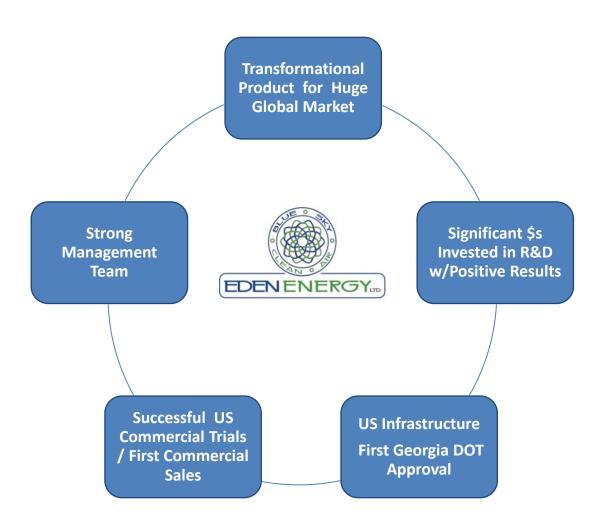
Statements relating to Eden's future production capacity and sales levels, and business and financial performance; Statements relating to future research and development results and regulatory approvals of Eden's products; Statements relating to Eden's competitive position; and Other statements relating to future developments that you may take into consideration.

Actual results of Eden's operations may differ materially from information contained in the forward-looking statements as a result of risk factors some of which include, among other things: global economic stability, continued compliance with government regulations regarding production and use of carbon nanotubes in the U.S. or any other jurisdiction in which Eden conducts its operations; changing legislation or regulatory environments in the U.S. and any other jurisdiction in which Eden conducts its operations; credit risks and product sales affecting Eden's revenue and profitability; exposure to product liability claims; changes and new competitive products in the specialty concrete admixture industry; the level of market acceptance and demand for EdenCrete™; Eden's ability to effectively market all the product it can produce; Eden's ability to manage its growth, including implementing effective controls and procedures and attracting and retaining key management and personnel; changing interpretations of generally accepted accounting principles; the availability of capital resources, including in the form of capital markets financing opportunities; and general economic conditions.

This presentation has been prepared as a summary only and does not contain all information relating to Eden's assets and liabilities, financial position and performance, profits and losses and prospects: it should be read in conjunction with all of the publicly available information in relation to Eden which has been released to the Australian Securities Exchange (ASX Code: EDE).

# Investment Highlights



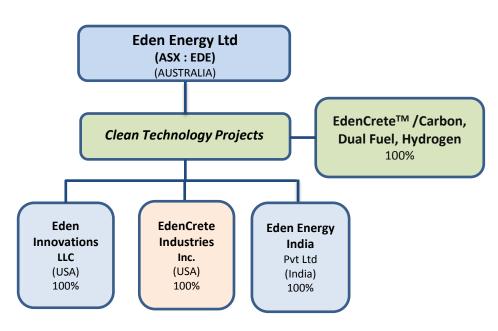


# **Company Overview**



Issuer:	Eden Energy Limited
Exchange / Symbol:	ASX: EDE
Stock Price <sup>(2)</sup> :	A\$0.23
Market Cap <sup>(2)</sup>	A\$267 million (EDE only)
LTM EBITDA <sup>(1)</sup> :	A\$(2.5) million
LTM Net Loss <sup>(1)</sup> :	A\$(6.3) million
Cash <sup>(2)</sup> :	≈A\$11 million
Debt:	A\$0.0 million



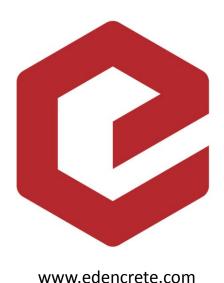


- 1) As of December 31, 2015- Unaudited
- 2) As of 30 June 2016

### EdenCrete<sup>TM</sup>



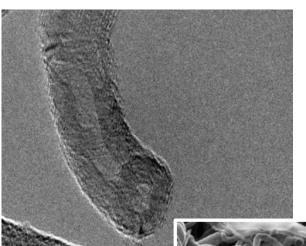
# **EdenCrete**



- EdenCrete<sup>TM</sup> is a revolutionary concrete admixture using carbon nanotubes (CNT)
- EdenCrete<sup>TM</sup> outperforms other admixtures by optimizing strength and other characteristics
- Permits the use of less concrete and/or steel reinforcement for the same structural integrity
- Translates directly into cost savings (material & labor)
- Both lab and field testing have shown dramatic results

## Carbon Nanotubes (CNT)





**TEM image of Eden's MWCNT** 

- **Tensile strength** 200-300x steel
- Weight ~17% of weight of steel
- Strengthens concrete, plastics
- Produces more durable concrete

Build-up of dense, hydrated cement on surface of CNT (see image)

#### CNT provide:

- Nucleation points for cement hydration
- Ultra-strong nano-scale fibre reenforcement
- CNT facilitate denser, tougher and stronger cement

# Benefits of EdenCrete<sup>TM</sup>



### **EdenCrete™** builds strength with excellent workability

Products	Increases Compressive Strength	Increases Split-Tensile Strength	Increases Flexural Strength	Reduces Shrinkage	Reduces Permeability	Increases Abrasion Resistance	Drawback
EdenCrete	•	•	•	•	•	•	None
Fibers (PP, PVA, Acrylok)		•	•	•			Reduced workability, difficult to handle
Shrinkage Reducers				•			Strength reduction, expensive, reduces workability
Steel Reinforcement	•			•			Vulnerability to corrosion, and weight
Surface Hardener					•	•	Compatibility issues (alkali-silica)
Silica Fume, Fly Ash	•				•	•	Expensive, increased water, hard to handle
Steel Fibers	•						Reduced workability, difficult to handle

# CNT in Concrete Applications



#### **Global Applications**

#### Increased Abrasion Resistance

Road & bridge surfaces, pavements, floors

#### Lower Permeability/ Lower Shrinkage

- Roads, bridges, runways (esp. freeze/ thaw and salt conditions)
- Coastal and marine applications
- Dams, spillways, sewer/water pipelines

#### Increased Compressive and Tensile Strength

 High rise buildings, bridges, retaining walls, pre-fabricated

### Pour In The Strength In These Key Areas









Abrasion

Flexural

Shrinkage

Permeability







Compressive



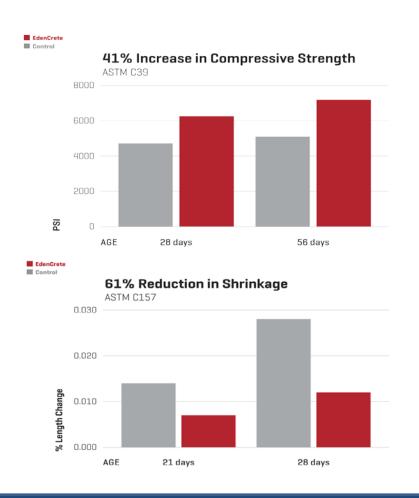
**Staining** 

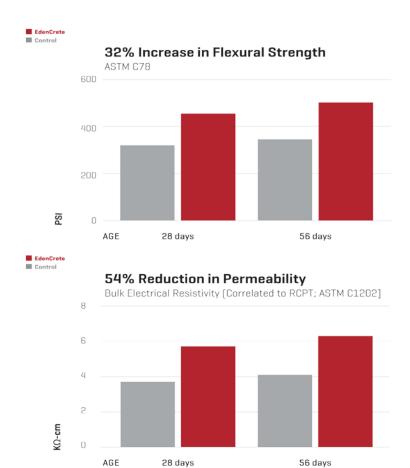


### **CNT in Concrete Results**



### U.S. and Australian Concrete Trials – 2015-16





# ASTM C494 "S" - Results to 180 Days



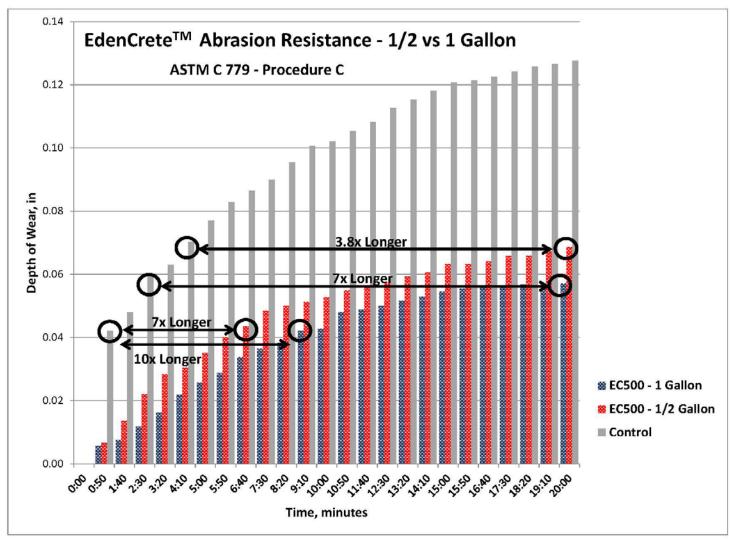
EdenCrete <sup>TM</sup> ASTM C494 Results  (Reported by Intelligent Concrete LLC)								
% Increase of EdenCrete (4gal/yd.3) over Reference								ence
	Age (Days)							
Test	1	3	7	28	56	90	180	365
Compressive Strength (ASTM C39)	25%	35%	39%	41%	41%	39%	38%	12/1/16
Flexural Strength (ASTM C78)		<b>25</b> %	19%	32%	Complete			
Split-tensile Strength (ASTM C496)				29%	22%	Complet	e	
Abrasion Resistance (ASTM C779 Proc C)					56%	59%	Complet	te
Length Change (ASTM C157; Shrinkage)	61% reduction; Complete							
Time of Set (ASTM C403)	Reduced: Initial Set 3 min, Final Set 4 min; Complete							
Freeze/Thaw Resistance (ASTM C666)	Reference=88.0, EdenCrete=96.4. 9.5% enhancement; Complete							

• Testing by Intelligent Concrete LLC. Intelligent Concrete is entitled to receive royalties on sales of EdenCrete™

### EdenCrete<sup>TM</sup> – Abrasion Resistance Performance Improvement vs Dose



11



### GDOT I-20 Field Trial — August 2015





#### **Georgia Department of Transportation (GDOT)**

- (1) 90 Days 4 gallons
- (2) Application Rate will vary for different targeted applications
- (3) Based on total GDOT costs per yd3

#### % Improvement with EdenCrete<sup>™(1)</sup>

- Compressive Strength 45.8% at 56 days
- Abrasion Resistance 56% at 56 days (20 Minute Trial)

#### **Outcomes**

- GDOT Approval To Use in 24hr Mix / B Class Concrete
- 2nd Field Trial, Class A Concrete Q2/Q3 2016

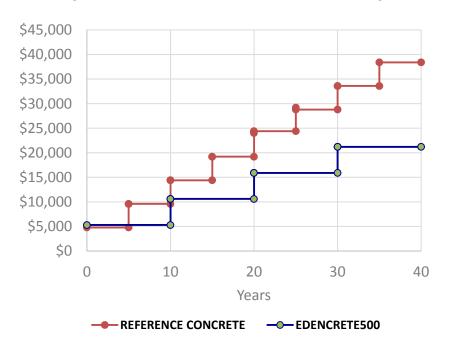
### **EdenCrete**<sup>TM</sup> - **Cost/Benefit Analysis**<sup>(2)</sup>

- EdenCrete<sup>TM</sup> current price is \$25 per gallon
- Cost per yard determined by application rate<sup>(2)</sup>
- Anticipated Extra Cost ≈ 3%-20%<sup>(2,3)</sup>
- Anticipated Increased Service Life >100%
- Anticipated IRR ≈ 50%

# GDOT I-20 Cumulative Cost Analysis



### **Anticipated Cumulative Cost Comparison**



■ Using EdenCrete<sup>TM</sup> for 25 years, 60% more repairs can be achieved on the same budget<sup>(1)</sup>

### **Cost Benefit Analysis**

- Projected Extra Cost For GDOT
  - Based on total GDOT costs per yd<sup>3</sup> ≈ 3% - 20% (depending on dosage rate)
  - Dosage Rate will vary for different targeted applications
- Anticipated Increased Service Life >100%
- Anticipated IRR < 50%</p>

(1) Based on GDOT actual costs for I-20 Field Trial

# EdenCrete<sup>TM</sup> — First Commercial Project



### **Ultra High Wear and Abrasion Resistance Application**







# 6 month field trial - no cracking or visible wear - results in commercial order:

- 50% thinner than new ultra high strength slab
- Only EdenCrete<sup>™</sup> (no steel mesh or rebar)
- No significant sub-base preparations
- At least a comparable 5-year service life
- Total cost saving of approximately 45%

# EdenCrete<sup>TM</sup> - First Infra-structure Project



### First Commercial Infrastructure Contract for EdenCrete™



MARTA Brady Mobility Facility – Trial Concrete Slab Heavy Duty Wear/ High Abrasion Application

#### **Georgia- New State of Art MARTA Bus Garage**

- Very heavy duty wear/abrasion from 200 buses
- EdenCrete<sup>™</sup> used in ≈160 yds³ (17 truckloads)
- MARTA annual maintenance budget is US\$400m/planned US\$2 billion expansion of light rail system



**EdenCrete<sup>™</sup> Trial Slab** 

# US Marketing Update-Initial Targets



**US Infrastructure (Highways / Bridges / MRT)** 

Other Applications: Pre-Cast & Ready Mix Concrete, Coastal and Marine

Interstate Highways (73,000kms\*)

- Use ≈48mt of cement p.a. (≈ 40% of US cement)\*
- **≈\$40 billion p.a**. preservation/maintenance bill\*\*

#### **Georgia Infrastructure**

- 14,700 bridges 2,600 Structurally Deficient/ Functionally Obsolete \*\*\*
- **GDOT \$1.1bn annual budget-**planned-76 lane miles trucks- \$2.06bn
- MARTA-\$400m pa repairs- planned-US\$2.6bn expansion
- Fixing America's Surface Transportation Act 2015- US\$225.2 bn highway investment over 5 years

Source: U.S. Geological Survey Fact Sheet 2006-3127

\*\* Source: FHWA Highway Statistics 2013

\*\*\* Source: U.S. Department of Transportation - DOT Fact Sheets Highlight Grim State of U.S. Roads and Bridges (July 9, 2015)

# **US Marketing Update- Progress**



### **US Infrastructure**

- 1st GDOT Field Trial completed on I-20 Interstate Highway- August 2015
- **GDOT approval** for use in 24-hour repair mix/ B Class mix
- GDOT specifications for B Class being prepared
- 2<sup>nd</sup> GDOT Field Trial approved Class A Mix- new construction- Q3 2016
- 1<sup>st</sup> MARTA contract- Brady Mobility Facility- May 2016

### Marketing/Sales / Ongoing trials

- Ready Mix Concrete trials/sales
- Pre-Cast/ Fabricated Concrete trials/ sales
- Sales Team being assembled
- Marketing Study underway

# US Production Scale-Up Estimated Costs / Timetables / Outputs



						LDLI VEI VEI IB
Location	Est. Cost US \$	Estimated Output p.a.	Estimated Value <sup>(2)</sup> US \$ p.a.	Start Date	Date To Compete	Anticipated Source of Funds
Colorado Stage 1	Funding completed	108,000 galls p.a.	\$2.7m	Q1 2016	Q2 2016	Equity (completed)
Colorado Stage 2	≈\$3.5m	≈2.4m galls p.a.	\$50m-\$62m	Q2 2016	Q1 2017	Equity (completed)
Georgia Stage 1a <sup>(1,3)</sup>	≈\$37m	12.5m galls p.a.	\$312.5m	Q4 2017/ Q1 2018	Q1/Q2 2019	Equity/ Cashflow/ Incentives/ Debt
Georgia Stage 1b <sup>(1,3)</sup>	≈\$35m	50m galls p.a. (including Georgia Stage 1a output)	\$1.25 billion	2019/2020	2020-2022	Cashflow
Georgia Stage 2 <sup>(1,3)</sup>	≈\$60m	100m galls pa (including Georgia Stages 1a/1b output)	\$2.5 billion	2020 / 2021	2022-2023	Cashflow

- (1) Land in Georgia is sufficient for expansion up to 10 stages (i.e. 500m galls. p.a. output).
- (2) Based on Current Selling Price of EdenCrete™ US\$25/ gallon- assumes all targeted production can be achieved and sold.
- (3) Eden proposes to establish its large scale global production plant in Augusta, Georgia. The State of Georgia and the Augusta Economic Development Authority have agreed to provide a combined US\$24.7 million worth of financial incentives, including an IRB-financed grant of 112 acres of suitable industrial land worth approximately \$2.8 million, construction commitments aggregating approx. \$4.2 million and the balance being largely by way of abatement of future taxes and levies. Eden proposes to supply from Georgia, EdenCrete<sup>TM</sup> to the entire North American market and also export it to the rest of the world through the Port of Savannah.

# CNT in Plastics/ Polymers



# UQ/ Eden- ARC Linkage Research Project Highly Encouraging Preliminary Results with CNT in Nylon 6

- Excellent combination of high modulus (stiffness) and outstanding ductility.
- Superior ductility /comparable tensile strength vs super-tough commercial Nylons.
- Higher tensile strength vs comparable Nylon materials with similar ductility.
- Excellent dispersion of CNT.
- Visual clarity and transparency potentially suitable for a super-tough-film grade.
- Relatively low-cost processing method.
- Possible suitable future markets automotive and packaging markets.





### **ASX: EDE**

### **Greg Solomon**

#### **Executive Chairman**

Level 15, 197 St Georges Terrace,
Perth, Western Australia,
Telephone +618 9282 5889

Email gsolomon@edenenergy.com.au

Website: www.edenenergy.com.au