



# ULTRACHARGE

LEADING EDGE LITHIUM-ION BATTERY TECHNOLOGY

## Breaking Battery Barriers

RAPID CHARGING



ENHANCED SAFETY



LIFETIME



## A revolution in lithium-ion battery technology



**Significant game-changer to the entire battery industry**



**Revolutionary features breaking battery barriers**



**Economic and ecological benefits for future energy sources**

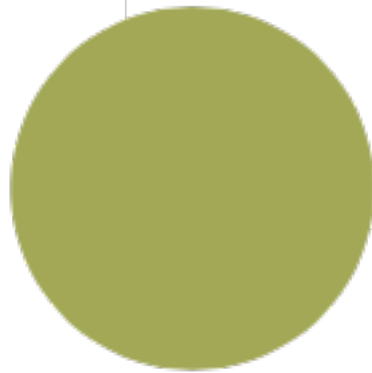


**Huge global market growth**

## Market Overview

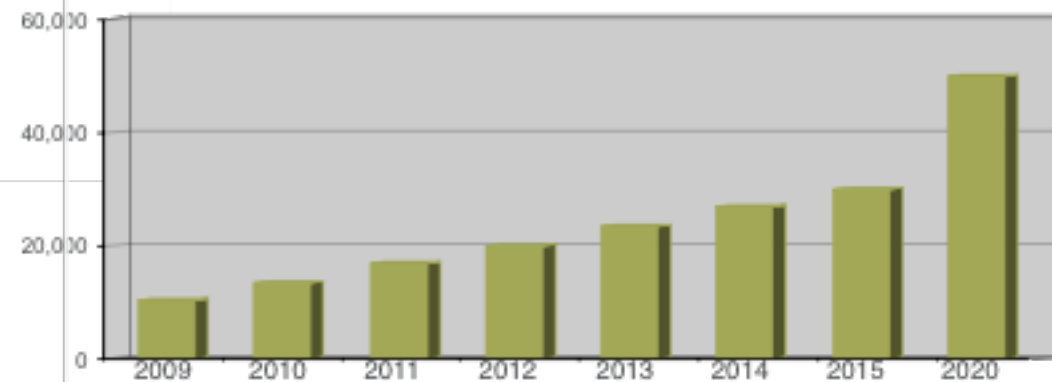


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*Global Lithium Market with Focus on Lithium-ion Batteries: Industry Analysis & Outlook (2016-2020)"*

Global Lithium Ion Market Revenue Forecast (Millions of U.S. Dollars)



Source: IHS iSuppli August 2011

**US\$31.55 billion (2016)**

**Growth rate 18.5%**

The lithium-ion battery sector is set to dominate the battery market reaching around \$140 billion in 2026\*

*IDTechEx Research report, Lithium-ion Batteries 2016-2026*





## Communication and Mobility

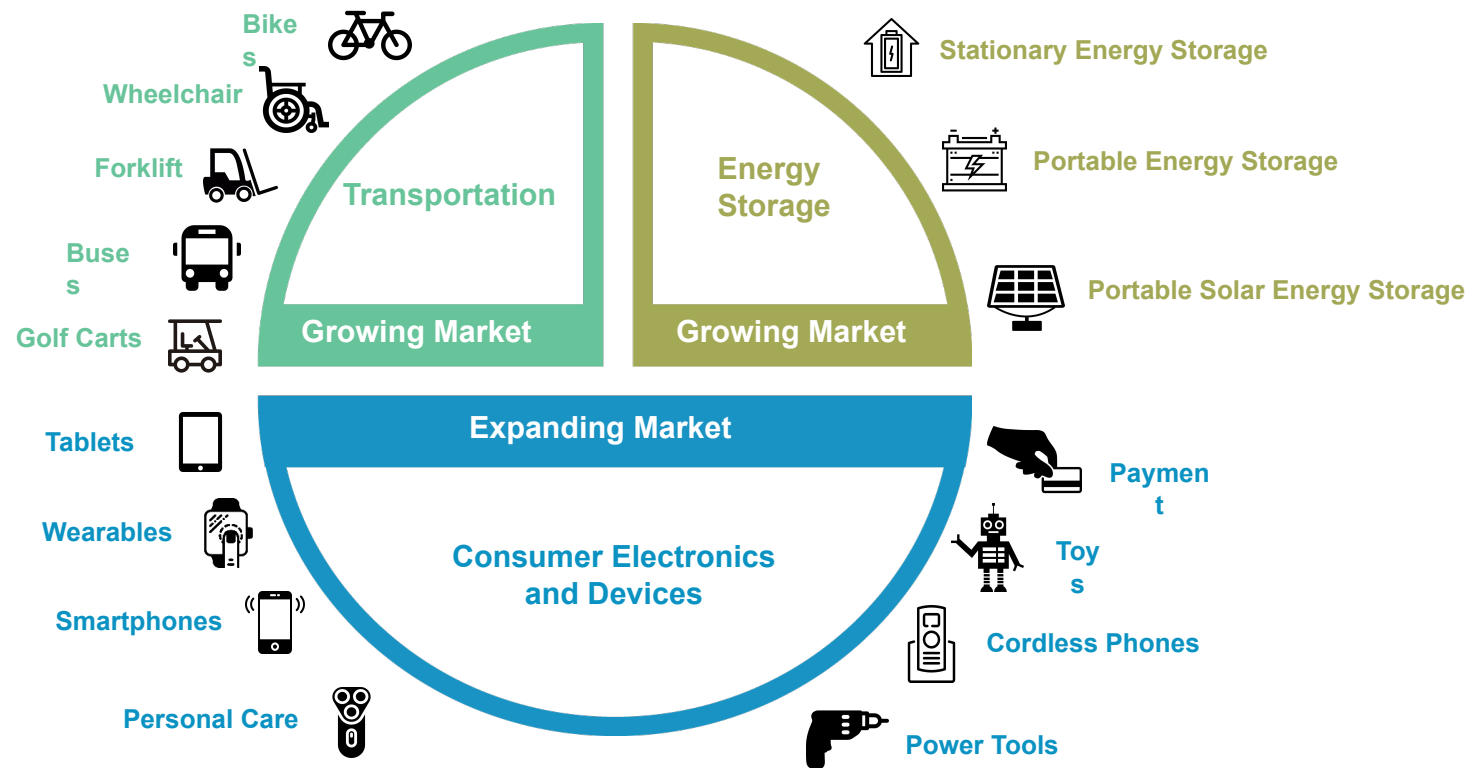
- Miniaturization of electronic devices
- Extended range of electronic devices
- HEV , P-HEV ,E-BUS
- Exponential growth of transportation



## Safety and Energy Efficiency

- Renewable energy concepts
- Smart grid & energy storage
- Fewer chemicals & simpler processes
- Reduction of carbon emissions

# The Future of Lithium-ion batteries

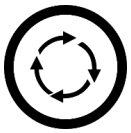


*“...the substantial expansion of lithium demand is hindered by life span, charging time, specific energy and specific power and safety issues”\**



## Slow Charging

~two hours to fully charge a Smartphone



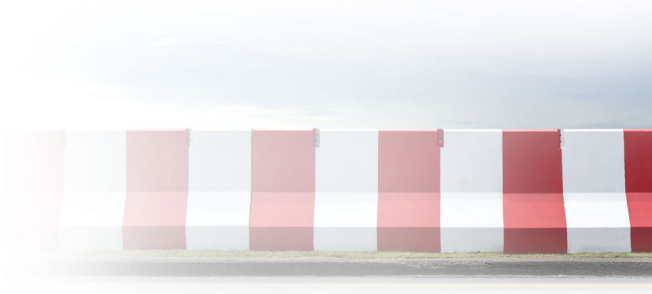
## Limited Lifetime

~[500 -1000](#) recharges cycles - two to three years of typical usage



## Safety and Transportation Restrictions

Vulnerable to leakage, fire hazards and can create unsafe environments



## A breakthrough in LIB Technology

Rapid Charging



Enhanced Safety



Cost efficiency



Longevity



Simplicity



**“The next big thing”**

*Dr. Rachid Yazami,  
co-inventor of today's lithium-ion batteries*





Replacing graphite in the anode (negative pole)  
with  
a nanotube gel material made from **TITANIUM DIOXIDE**



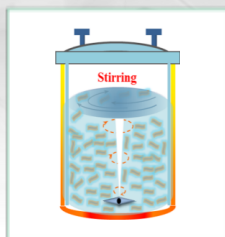
Abundant



Cheap



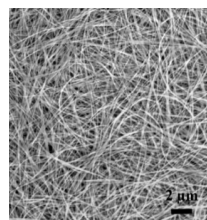
Safe



Patented  
Technology  
Low-cost raw  
material. Simple  
hydrothermal  
stirring.



TiO<sub>2</sub> nanotube gel



Electron  
microscopy of  
titanium dioxide  
nanotubes.



The graphite is  
replaced by  
titanate powder.



# UltraCharge Titanate nanotubes vs. other anode materials



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	Graphite	Silicon	LTO	Titanate Nanotubes
Capacity (mAh/g)	< 350	<u>400 - 2500</u>	<u>~170</u>	<u>300 -1000</u>
Typical Charge Time (hours)	>2	2-3	0.02	0.02
Cycle life	< 1,000	700 - 1,000	7,500	> 10,000
Safety	Low	n/a	Medium	High
Cost	Low	Low	Medium	Medium
Technology complexity	Market standard	High	Low	Low



## Ultra Fast Charging



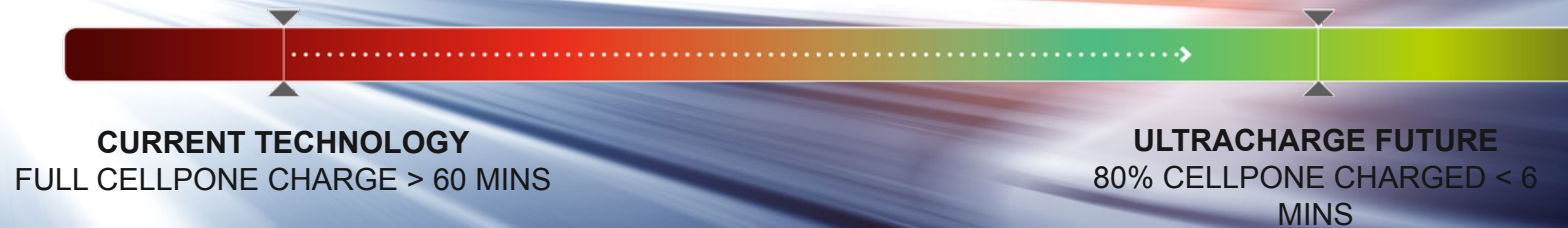
### Smartphones

80% charged in  
under six minutes



### Electric cars

Dramatic increase in capabilities with  
just 10-15 minutes of charging



## Ultra Safe

UltraCharge technology is entirely free of carbon for LIB Storage



No thermal runaway



No overheating



No Hazardous materials leakage



Eliminates fires



Eliminates explosions

*“Another iPhone **bursts into flames**, sending the owner to the ER”*

*“Replacement Galaxy Note 7 starts **smoking**, leads to plane evacuation”*



*and **catches fire** in a student's back pocket”*

*be the last to have **exploding batteries**”*

*agency advises consumers to stop using **fire-prone** mobile devices”*



## Lifetime

10,000 -15,000 charging cycles

**20x more than current batteries**

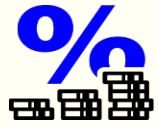


Currently mobile devices batteries  
lifespan last 2-3 years

- Reducing environmental ramification
- More efficient global lithium utilization



# Key Advantages



## Cost efficiency

Low-cost raw materials  
Uniquely affordable patented  
production method

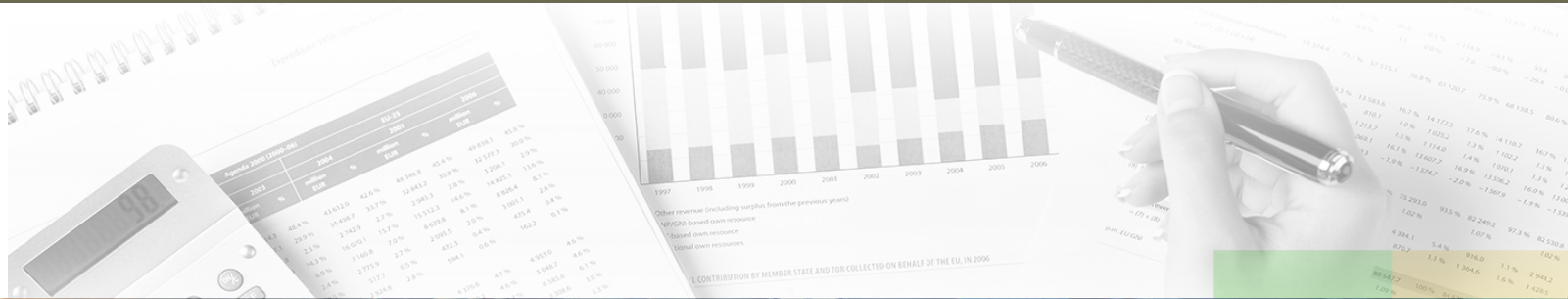


## Simplicity

Rapid integration  
into current battery  
production lines

# Competitor Analysis

	Anode materials	Charging time	Lifetime	Energy density	Commercial status	Intended use
Tesla Supercharger	<b>Graphite</b> (advanced in charge system design)	80% - 40 min	8 years (Warranty)	~ 170 Wh/kg	Commercialized	EVs & power walls
Qualcomm QC 2.0		100% - 96 min	2-3 years			Embedded into chips
OPPO VOOC		75% - 30 min	2-3 years			Smartphones
Toshiba SCiB	<b>Li<sub>4</sub>Ti<sub>5</sub>O<sub>12</sub></b>	80% - 6 min	> 20 years	65-90 Wh/kg	Prototype	Laptop
UltraCharge	<b>TiO<sub>2</sub></b>	70% - 2 min	> 20 years	100-150 Wh/kg	Prototype	All markets



# Commercialisation Models



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License  
the IP

Material  
Manufacturing  
of TiO for Anode  
Manufacturing

Anode  
Manufacturing  
and Sales

Cell  
Manufacturing  
and Sales

Battery  
Manufacturing  
and Sales

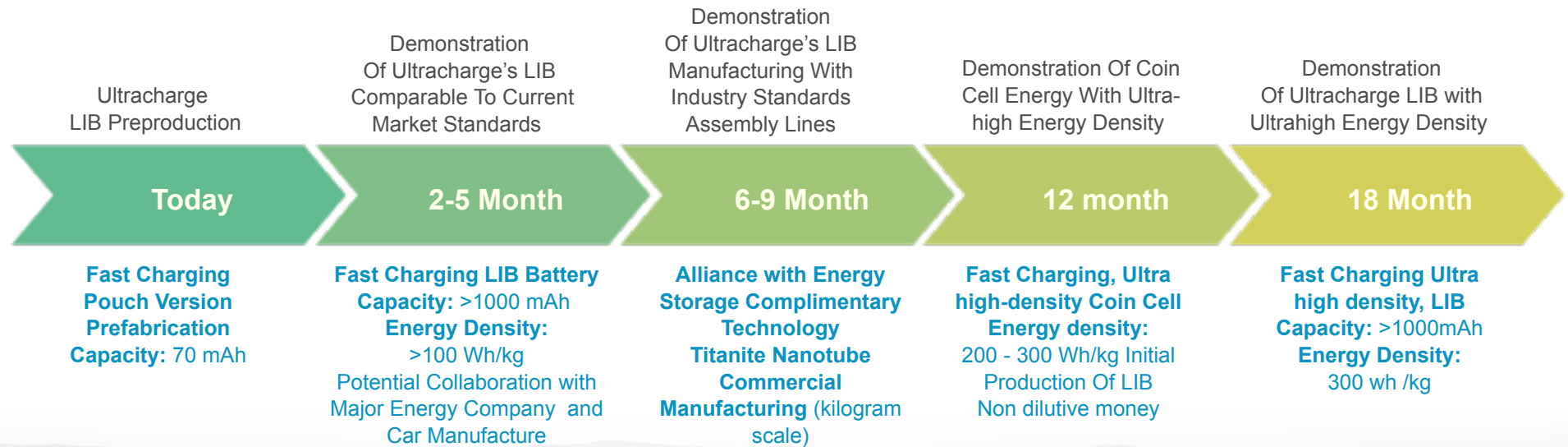




# Road Map



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Note: Milestone timeline commences from recompliance



# Cap structure



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Offer Statistics		Minimum (AUD)	Maximum (AUD)
	Total Proceeds of The Offer	\$ 2,500,000.00	\$ 3,500,000.00
	Total Shares of The Offer	50,000,000	70,000,000
	Price per share	\$ 0.05	\$ 0.05
LTX Cap Structure at IPO		Min IPO - \$2.5m (millions)	Max IPO - \$3.5m (millions)
	LTX shares on issue	169.54	169.54
	Public Offer	50.00	70.00
	Vendor Offer	485.90	485.90
	CPS Offer	24.30	24.30
	<b>Total shares on issue (A\$0.05 IPO share price)</b>	<b>729.74</b>	<b>749.74</b>
	<b>Market Capitalisation</b>	<b>\$ 36.49</b>	<b>\$ 37.49</b>
	Cash	\$ 5.62	\$ 6.62
	<b>Enterprise Value</b>	<b>\$ 30.87</b>	<b>\$ 30.87</b>
	Options already on issue*	22.00	22.00
<p>*10m exercisable at \$0.16 by 31/12/16; 8m exercisable at \$0.05 by 5/4/18; 4m exercisable at \$0.59 by 4/4/19</p> <p>**50m exercisable at \$0.0625 by 3 years from listing; 20m exercisable at \$0.05 by 3 years from listing</p> <p>***Vest on a 6 monthly basis in 4 equal instalments in consideration for services</p>		70.00	70.00
		<b>92.00</b>	<b>92.00</b>
		60.00	60.00

# Use of Funds

Application of Funds	Funds raised will be used for (incl. \$3.1m existing cash):	Min (\$m)	Min (%)	Max (\$m)	Max (%)
	Research	1.55	28%	1.71	26%
	Development & Manufacturing	1.22	22%	1.76	27%
	Sales and Marketing	0.27	5%	0.32	5%
	Business Development	0.65	12%	0.68	10%
	Working Capital	1.46	26%	1.62	25%
	Expenses of the Offer	0.48	8%	0.53	8%
	<b>Total</b>	<b>5.62</b>	<b>100%</b>	<b>6.62</b>	<b>100%</b>





## **Kobi Ben-Shabat** Co- Founder and *CEO*

- Founder of OPS - annual sales of \$14M, employs 30 people across Australia and NZ
- OPS was acquired in 2014 by Hills Pty Ltd (ASX listed).
- B.A and MBA in Marketing and Information Technology
- Vast experience and successful track record in funds raising, sales and senior management



## **Dr. Linoam Eliad** *VP R&D*

- 15 years of experience as a materials engineer and an expert in electrochemistry
- Expert in R&D projects of Nano materials for batteries and super capacitors for industrial companies and high-tech start-ups
- Collaborated on nano-material-related projects for the U.S. Air Force
- Ph.D. in Physical Chemistry and Electrochemistry from Bar Ilan University



## **Prof Chen Xiaodong** *CSA*

- Associate Professor at the School of Materials Science and Engineering, Nanyang Technological University (Singapore)
- Expert in integrated nano-bio interface and programmable materials for energy conversion.
- Over 40 papers published in prestigious refereed journals
- MS degree in Physical Chemistry (honors)
- Ph.D. degree (Summa Cum Laude) in Biochemistry



## Danny Hacohen

VP Business Development, Marketing & Sales

- Over 25 years in the hi-tech industry
- Various senior positions in the business and operation management of several technology companies:
  - EVP Business Development at Paradox Security Systems
  - VP Business Operation at DSP Group
  - COO at Emblaze group
  - VP Sales at TowerJazz
- BA degree in Social Science and Mathematics from Haifa University and MBA studies from the University of Bradford



## Ultra-Charge advisory board:

### Prof. Gideon Grader

- BSc in Chemical Engineering degree FROM UC Berkeley
- PhD in Chemical Engineering from Caltech
- Over 30 years experience in the field of ceramics processing
- Founder of the Technion Energy Program (GTEP) and its director from 2007-2015
- Responsible for raising \$50m for a campus-wide interdisciplinary program
- Dean of the Chemical Engineering department



## John Paitaridis Board of Directors

- Managing director of Optus Business,
- Strong track record of driving growth in sales, revenue and profitability as well as building high performance teams.
- Extensive experience managing businesses in international markets
- A graduate member of the Australian Institute of Company Directors.
- Deputy chair of the Australian Information Industry Association's (AIIA) board of directors



Ultra Charge

## Breaking the Battery Barriers

Rapid Charging



Enhanced Safety



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This presentation contains certain statements that constitute forward - looking statements. Examples of such statements include, but are not limited to, statements regarding the design, scope, initiation, conduct and results of our research and development programs; our plans and objectives for future operations; and the potential benefits of our products and research technologies.

In some cases, forward-looking statements can be identified by the use of terminology such as “may,” “will,” “expects,” “plans,” “anticipates,” “estimates,” “potential” or “continue” or the negative thereof or other comparable terminology. These statements involve a number of risks and uncertainties that could cause actual results and the timing of events to differ materially from those anticipated by these forward-looking statements.

These risks and uncertainties include a variety of factors, some of which are beyond our control. All forward-looking statements and reasons why actual results may differ are based on information available to us when initially made, and we assume no obligation to update these forward-looking statements or reasons why actual results might differ.





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