

Is it Different this Time?

Separating Hype from Reality in the Lithium Ion Boom



PDAC
Toronto, Ontario
Chris Berry
March 6, 2016

Who is House Mountain Partners, LLC?

- **We are an independent New York City-based research group focused on dynamics between macro economics, geopolitics, technology, and resources**
- **We provide bespoke research and consulting services to institutional clients on the above topics**
- **We publish a complimentary newsletter called the *Disruptive Discoveries Journal*. Join us at www.discoveryinvesting.com**
- **My email: cberry@house-mountain.com**



@cberry1



Questions to consider

What was the Great Game?

What are the forces at work in energy evolution?

What is truth and what is fiction?



(c) www.asiareport.com

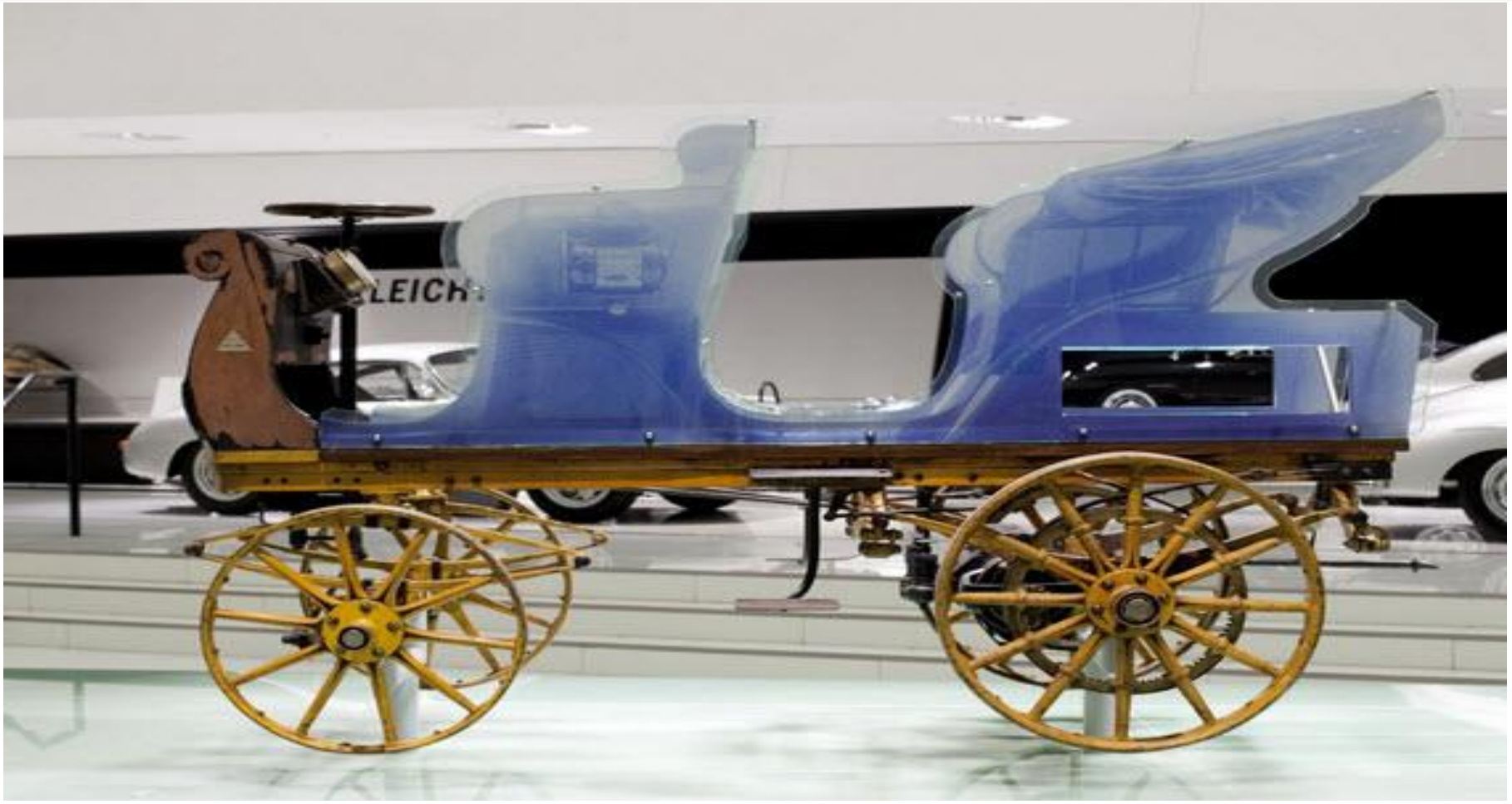


(c) www.asiareport.com

The Father of the EV



The First EV in 1898



Players in the New Great Game: The Insurgents



Neometals^{Nm}

and about 20 others.

Established Competitors: The Incumbents



FMC Lithium



Players in the New Great Game: The Insurgents



Established Competitors: The Incumbents



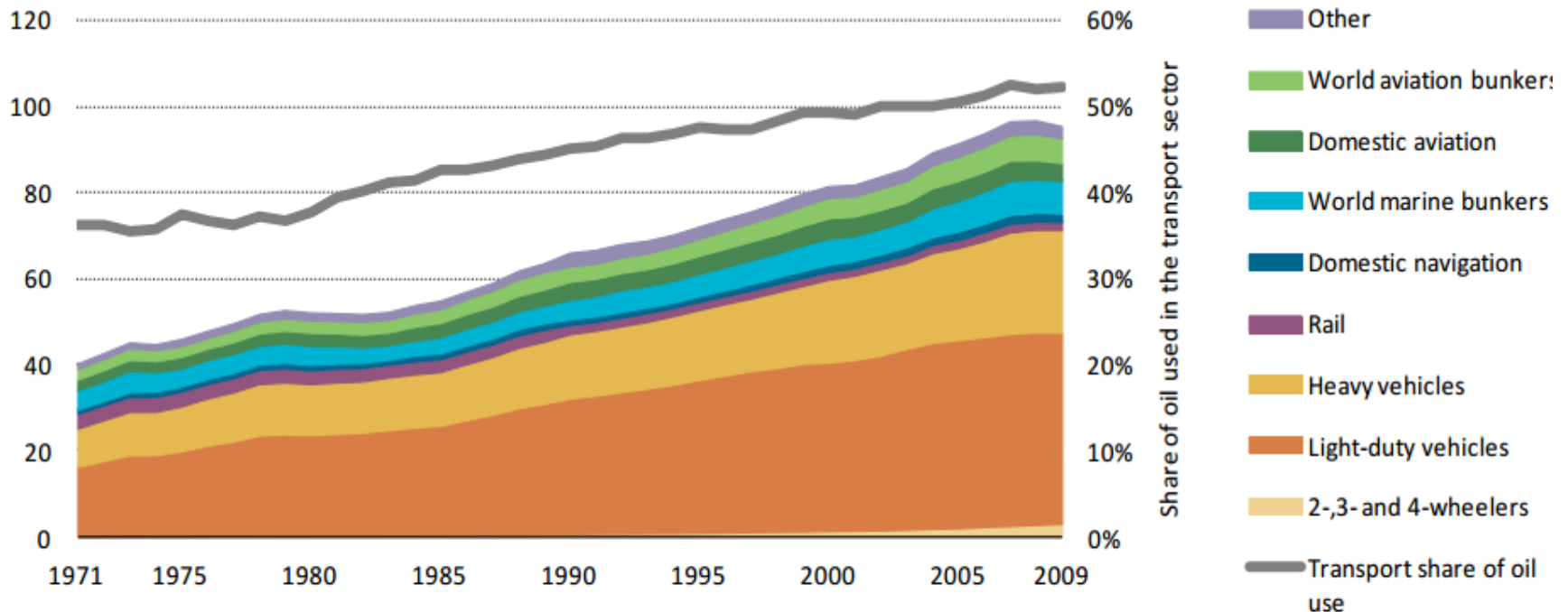
HYUNDAI



Established Competitors: The Hybrids



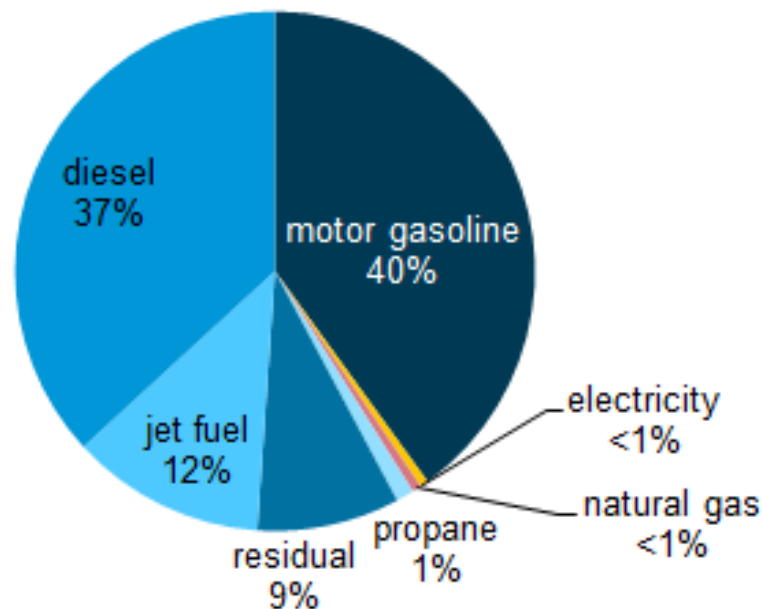
World transport energy use has doubled in the last 30 years



Light-duty vehicles continue to drive growth, while road freight and air travel also increased rapidly in last decade.

Electrification has a long way to go

World transportation consumption by fuel, 2012
percent of world total (energy equivalent basis)

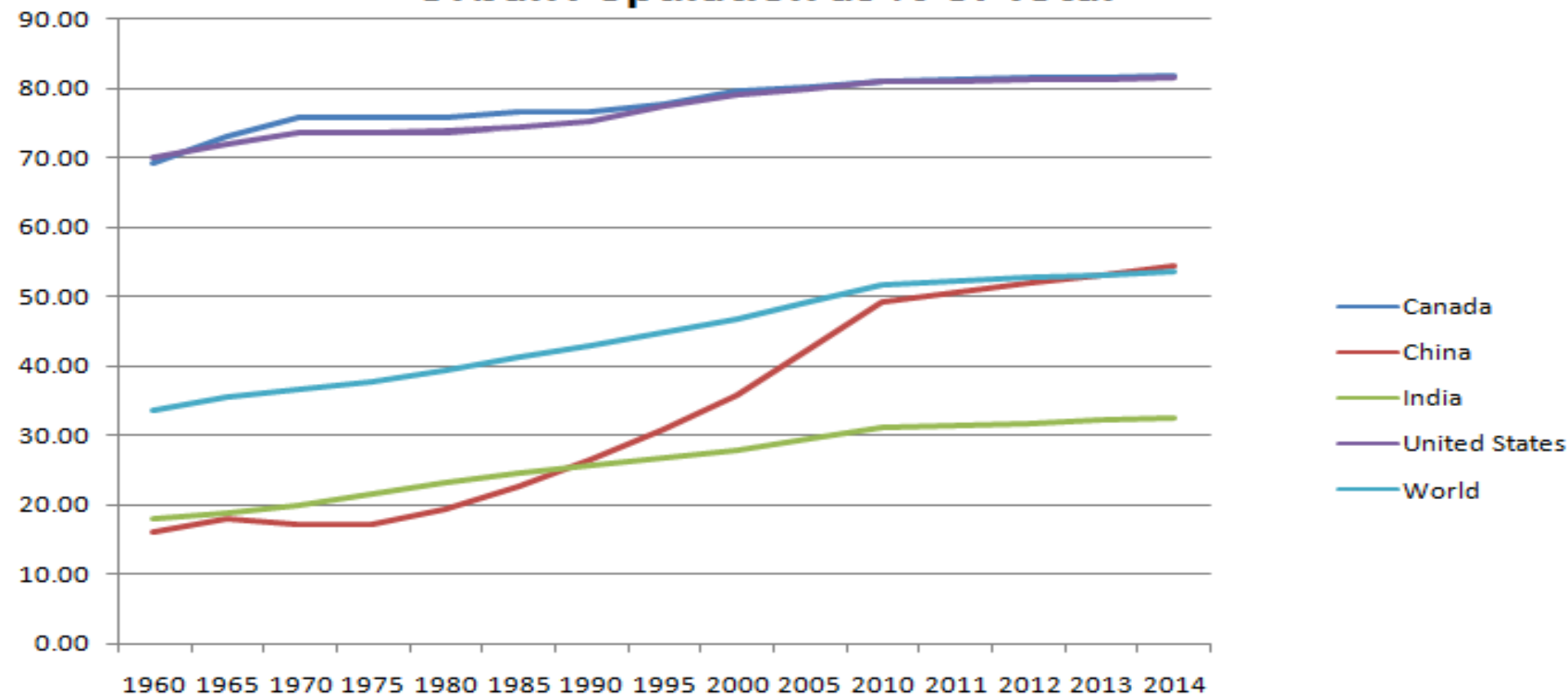


total = 103 quadrillion Btu

Source: : U.S. Energy Information Administration, International Transportation Energy Demand Determinants (ITEDD-2015) model estimates

Urbanization is on the increase

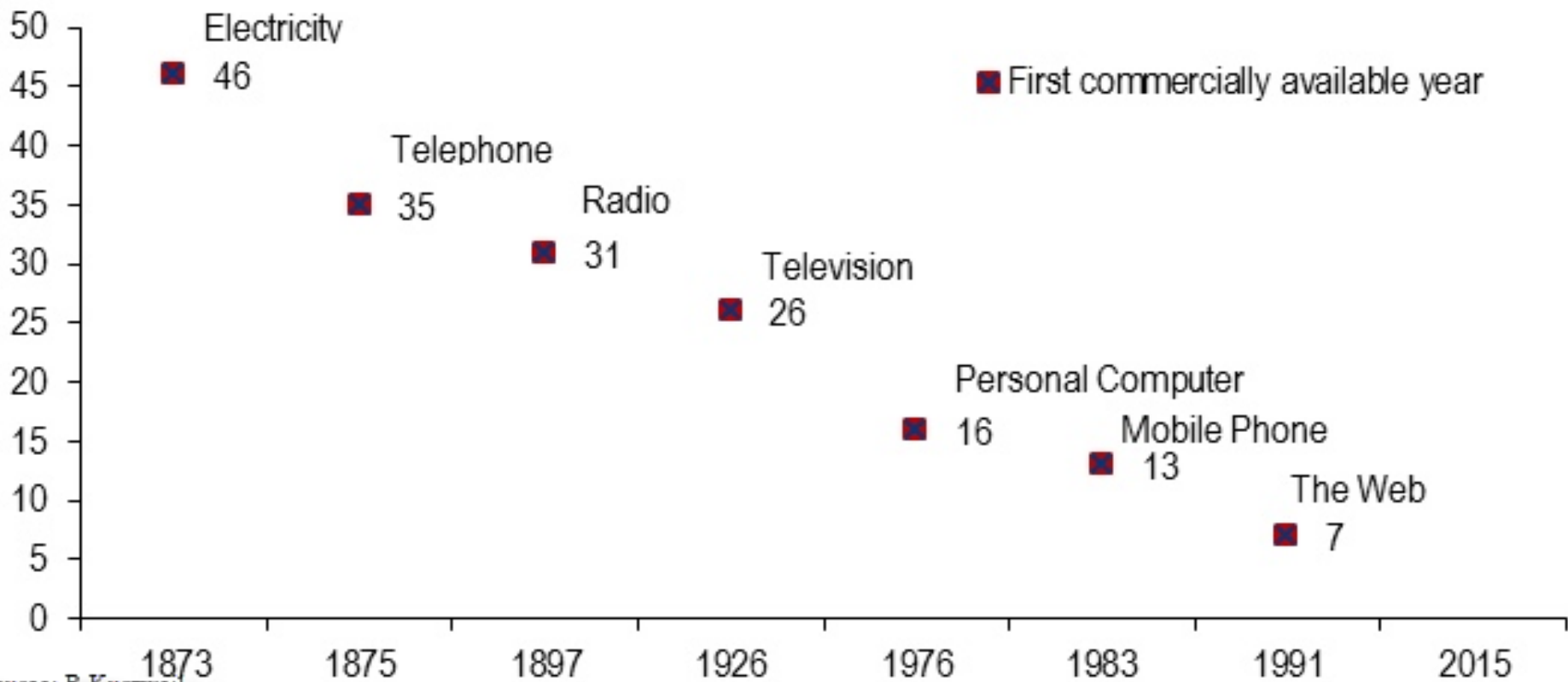
Urban Population as % of Total





Tech adoption accelerating

Years until used by one quarter of American population



Source: R. Kurzweil

**This positive change is occurring
against a gloomy macro
environment**

The commodity super cycle is over

**China growth adjustment is slow and
painful**

**Huge leverage overhang and need to
de-lever**

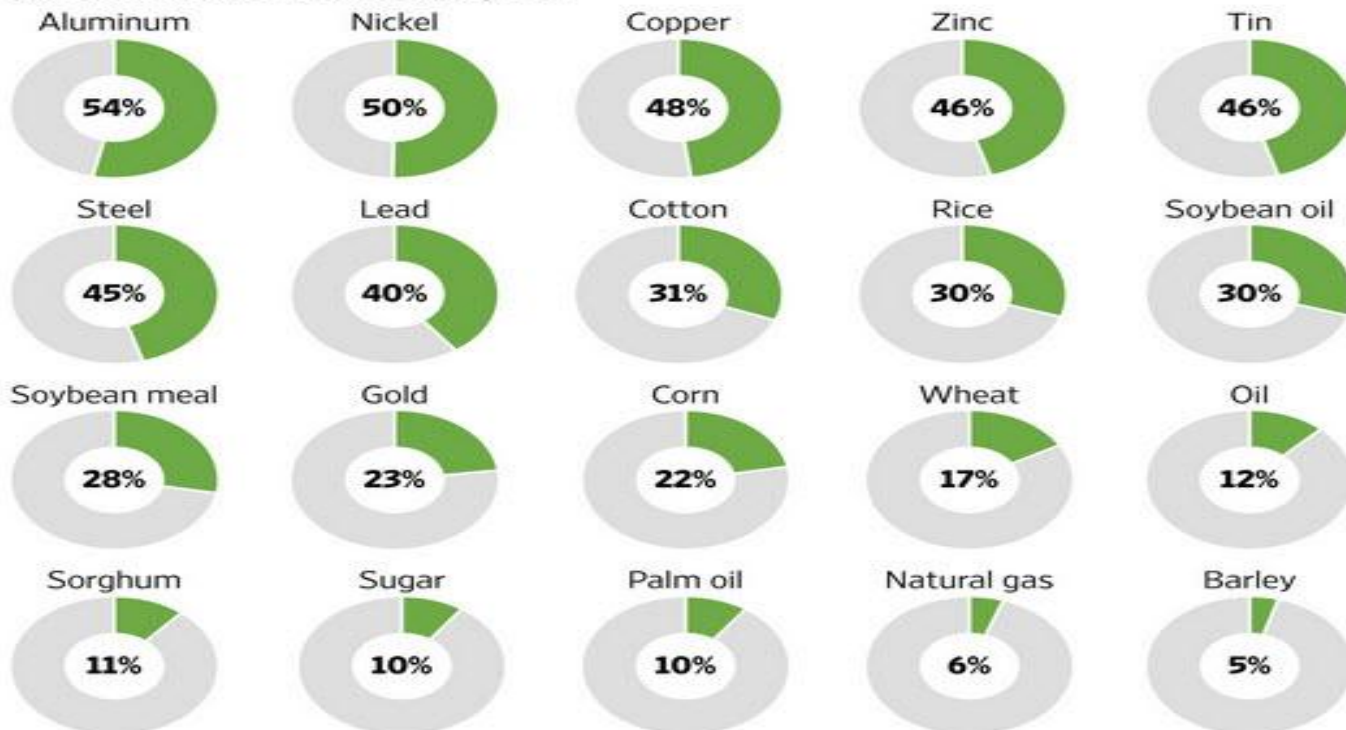
Sluggish global growth prospects

China holds the keys to global growth

Giant Appetite

The main customer for a range of commodities is China, which will continue to wield enormous influence even as slowing economic growth cuts into its demand.

China's share of world consumption



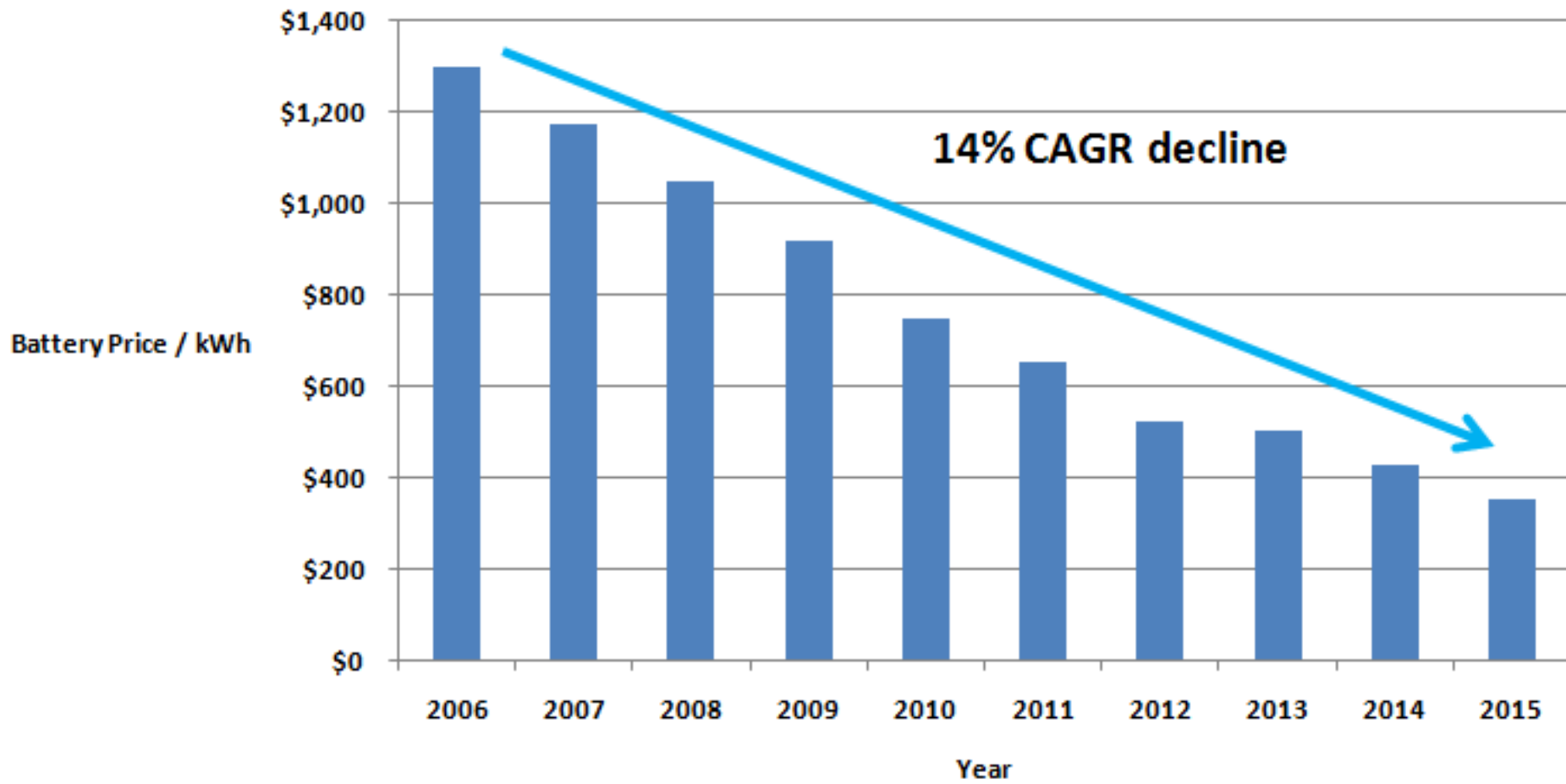
Sources: World Bureau of Metal Statistics (first six months of 2015 for refined metals, slab zinc); World Gold Council (2014 for gold); BP Statistical Review of World Energy 2015 (2014 for oil, natural gas); Metalytics via Morgan Stanley (2015 estimate for finished steel); U.S. Department of Agriculture (2013-14 season for others)

THE WALL STREET JOURNAL.

There is a ray of hope here

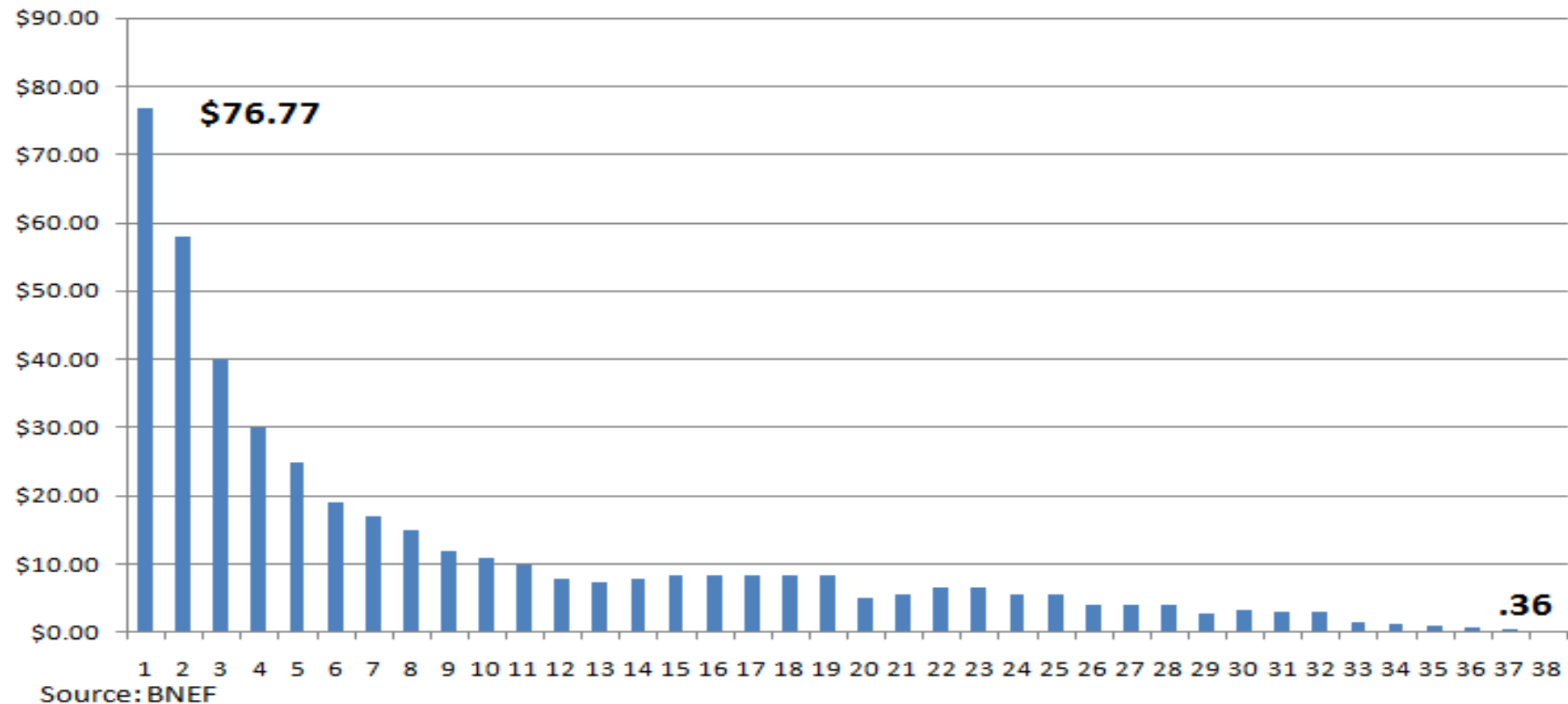


“Good” Deflation



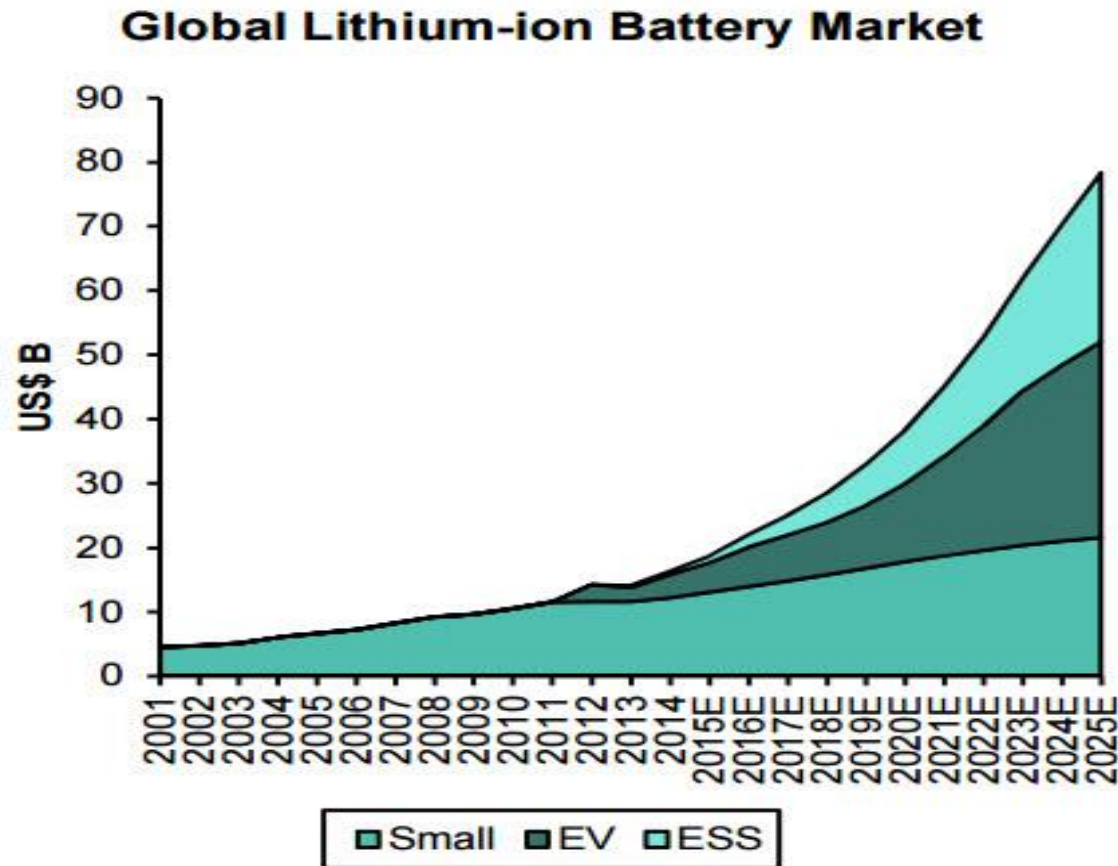
“Good” Deflation

\$/Watt PV Cell 1977 - 2014



Source: BNEF

Falling costs drive demand



Source: Navigant, Bernstein analysis and estimates

Tesla isn't the only game in town

EXHIBIT 263: The Korean battery giants, Samsung SDI and LG Chem, have been dominant in winning new orders in xEV space

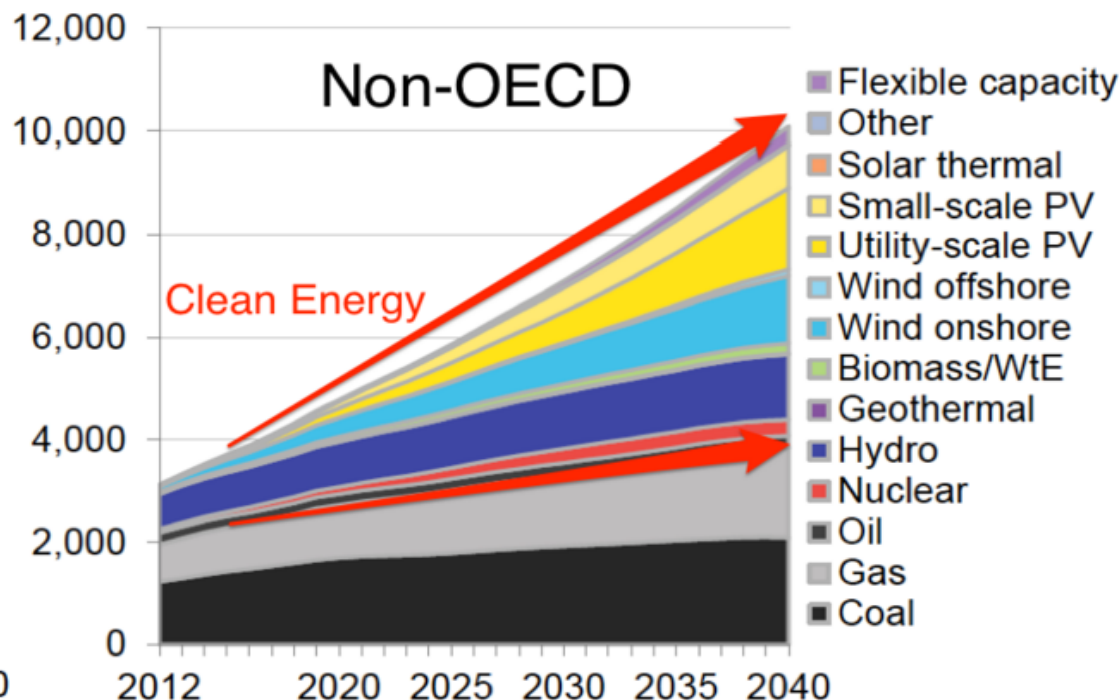
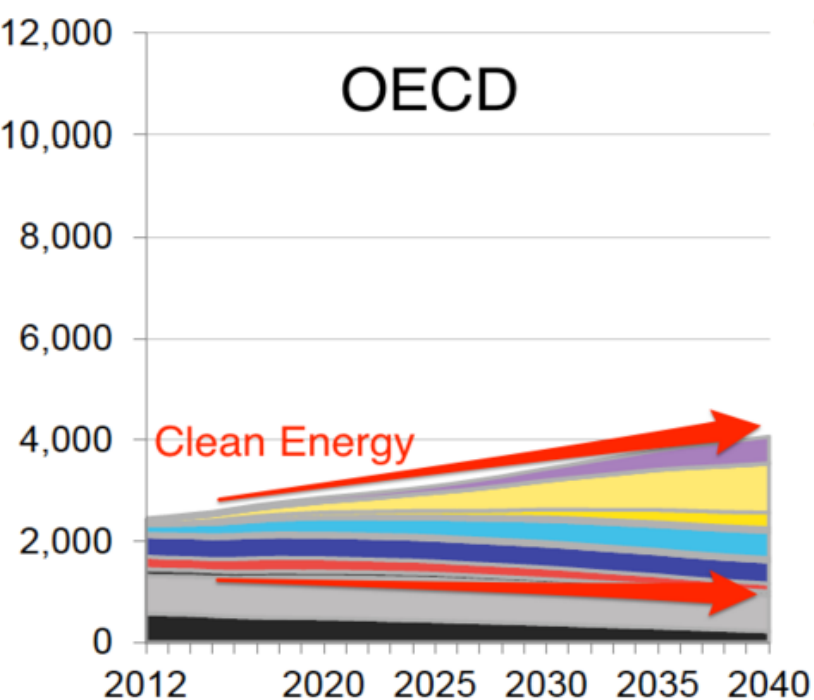
	OEMs	Major Models (PHEV, BEV)	Korean			Japanese				Chinese						
			LG Chem	Samsung SDI	SK Innovation	AESC	GS Yuasa	Panasonic	Toshiba	ATL	BAK	BYD	CALB	Lishen	Hefei Guoxuan	Wanxiang
Global OEMs	Audi	A3 e-tron, others in development	o	o				o								
	BMW	i3, i8, Active Series		x												
	Chevrolet	Volt, Spark	x													
	Chrysler	Fiat500	o	o												
	Daimler	Denza, Smart, B-Class electric	o					o								
	Fiat	500E		x												
	Ford	Focus, C-Max, Fusion	o	o				o								
	GM	Volt, Spark, Bolt	x													
	Honda	Fit, Accord					o	o								
	Hyundai-Kia	Soul	o		o											
	Mahindra	Scorpio		o												
	Mitsubishi	iMiEV, Outlander	o				o	o	o							
	Nissan	LEAF	o			o										
	Renault	ZOE, Fluence	o			o										
	Tesla	Model S, X						x								
	Toyota	Prius, RAV 4						x								
Chinese OEMs	Volvo	V60, C30	x													
	VW	e-Golf	o	o				o								
	BAIC	EV200, EV150/160, C50		o	o					o						
	BYD	E6, Qin										x				
	Changan	Fudo	o											o		
	Chery	EQ, Riich, QQ	o				o				o				o	o
	First Auto	Lavida												o		
	GAC	GA5R EV														x
	Geely	Zhidou, Emgrand EV	o										o			o
	Great Wall	PHEV model (2017)	o													
	Kandi	Panda											o	o		
	JAC	iEV4, iEV5, iEV6S		o											o	
	ROEWE	550														x
	SAIC	EP21, BP34, IP34	o	o												

Note o: in partnership
x: in exclusive partnership

Source: SNE Research and Bernstein analysis.

Power Shifts to Emerging Markets

Cumulative Capacity (GW)



Source: BNEF

Beware parabolic moves



A few key points in your analysis

PRICE IS NOT THE MOST IMPORTANT FACTOR

Can a company meet or beat the producer's low cost of production?

A few key points in your analysis

IS A BINDING OFF TAKE IN PLACE? ARE THE PARTNERS LEGIT?

This is an absolute necessity.

A few key points in your analysis

HOW DEPENDENT IS CHINA ON DEMAND?

“Later cycle” commodities are better positioned.

eg: lithium, cobalt, scandium

A few key points in your analysis

KEEP AN EYE ON TECHNOLOGY

New battery chemistries are emerging all the time.

Will lithium ion be the eventual winner?

The jury is still out.

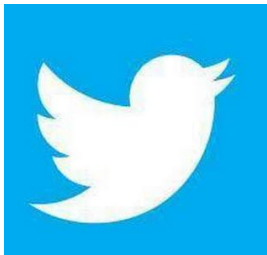
Who Will Win the New Great Game?



Here's to an exciting future!

www.discoveryinvesting.com

My email: cberry@house-mountain.com



[@cberry1](#)



Disclaimer

The material herein is for informational purposes only and is not intended to and does not constitute the rendering of investment advice or the solicitation of an offer to buy securities. The foregoing discussion contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (The Act). In particular when used in the preceding discussion the words “plan,” confident that, believe, scheduled, expect, or intend to, and similar conditional expressions are intended to identify forward-looking statements subject to the safe harbor created by the ACT. Such statements are subject to certain risks and uncertainties and actual results could differ materially from those expressed in any of the forward looking statements. Such risks and uncertainties include, but are not limited to; future events and financial performance of an investment which are inherently uncertain and actual events and / or results may differ materially. In addition from time to time I discuss investments that are not registered in the U.S. or Canada. In no way, shape, or form are discussions of companies here meant as recommendations to buy or sell securities. I own no shares in any of the companies mentioned.

You absolutely must perform your own due diligence and consult your financial advisor before considering investing in companies discussed this presentation.

Data derived from various sources including the IMF, IEA, EIA, World Bank, Bloomberg, the Economist.