

Chrysalix Energy

Hydrogen & Fuel Cell Investment Opportunities in Today's Climate



Dr. Wal van Lierop

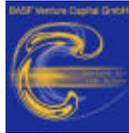
President & CEO

June 16, 2003



Limited Partners:

BALLARD®

BASF 

 **BOC**

 **Duke Energy**®

 Mitsubishi Corporation

 **Shell Hydrogen**

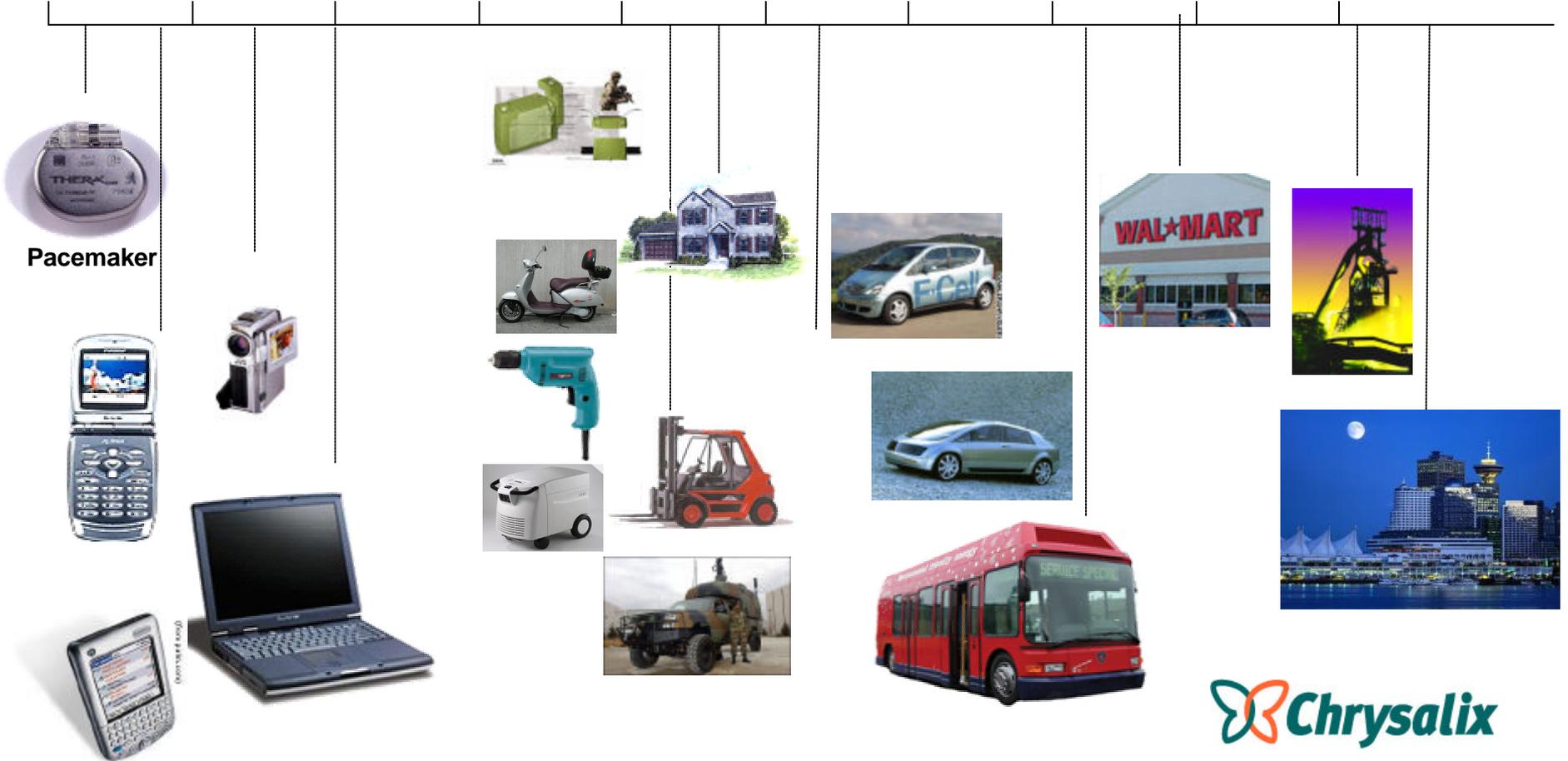
When Will Fuel Cell Companies Be Profitable?



Some Market Segments More Attractive Than Others



1 W 10 W 100 W 1 KW 10 KW 100 KW 1 MW 10 MW 100 MW



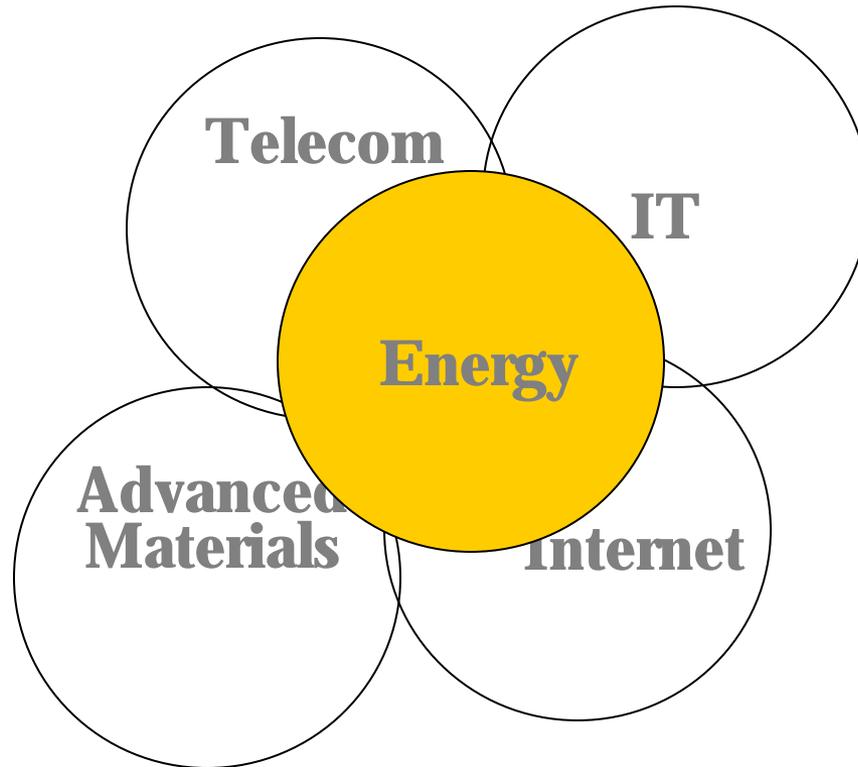
Micro Power:

Significant Investment Opportunities Close At Hand

Potential Markets	  
Drivers	+ Short-term customer demand for wireless applications + Battery problems in commercial products already available
Beta Testing & Demos	Extensive: first commercial launches announced
Early Markets	2004 – 2007
Mass Rollout	2007 – 2010
Major Commercialization Issues	⇒ Size reduction ⇒ Thermal management ⇒ Cost reduction

In Micro Applications ENERGY Is The Last Missing Link

Thru Wireless Economy will be the result of multi year convergence of related markets.....



... with implications probably nobody can yet dream of.

Compact Portable Applications: Growing Number Of Opportunities For Early Returns

Potential Markets	
Drivers	<p>+ Customer demand driven by economic differential with incumbent technology: deep cycle batteries and small electric or 2 cycle engines</p> <p>+ Fuel cell performance and convenience</p>
Beta Testing & Demos	<p>First commercial products available (e.g. Ballard's AirGen); many Beta units in the field</p>
Early Markets	<p style="text-align: center;">2003 - 2005</p>
Mass Rollout	<p style="text-align: center;">2005 - 2009</p>
Major Commercialization Issues	<ul style="list-style-type: none"> ➤ Start-up reliability ➤ Environmental operating conditions ➤ Cost reduction

Mobile Applications:

Return Opportunities To Ramp Up Later This Decade

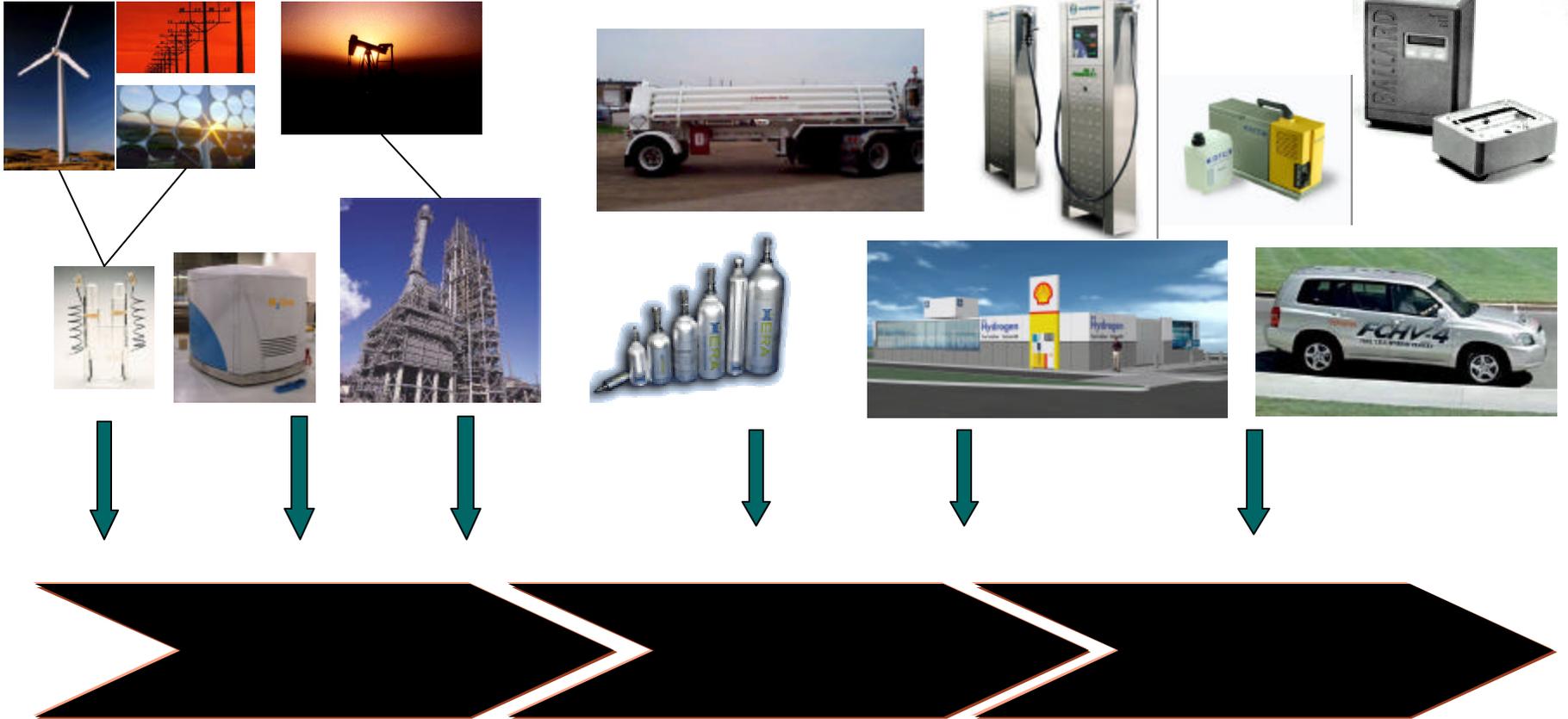
Potential Markets	
Drivers	<ul style="list-style-type: none">+ Environmental Issues- Satisfaction with incumbent technology- Non-availability of H2 and the 3 liter caro Hybrids
Beta Testing & Demos	Many Beta Units in Field
Early Markets	2006 - 2010
Mass Rollout	2010 - 2015
Major Commercialization Issues	<ul style="list-style-type: none">⇒ Cost reduction⇒ H2 availability⇒ Reliability⇒ Regulatory issues

Stationary Applications:

Post-Enron Utility Scare Providing Selective Opportunities

Potential Markets	  
Drivers	<ul style="list-style-type: none"> + Independence through Distributed Generation + Energy Security - Push back by utilities less willing to experiment than a few years ago
Status of Beta Testing & Demos	<p>More than 300 Units in operation; new energy parks/demos announced</p>
Early Markets	<p style="text-align: right;">2005 - 2009</p>
Mass Rollout	<p style="text-align: right;">2009 - 2012</p>
Major Commercialization Issues	<ul style="list-style-type: none"> ⇒ Cost reduction ⇒ Lifetime and reliability ⇒ Grid connection

Infrastructure Support: Providing Additional Investment Opportunities



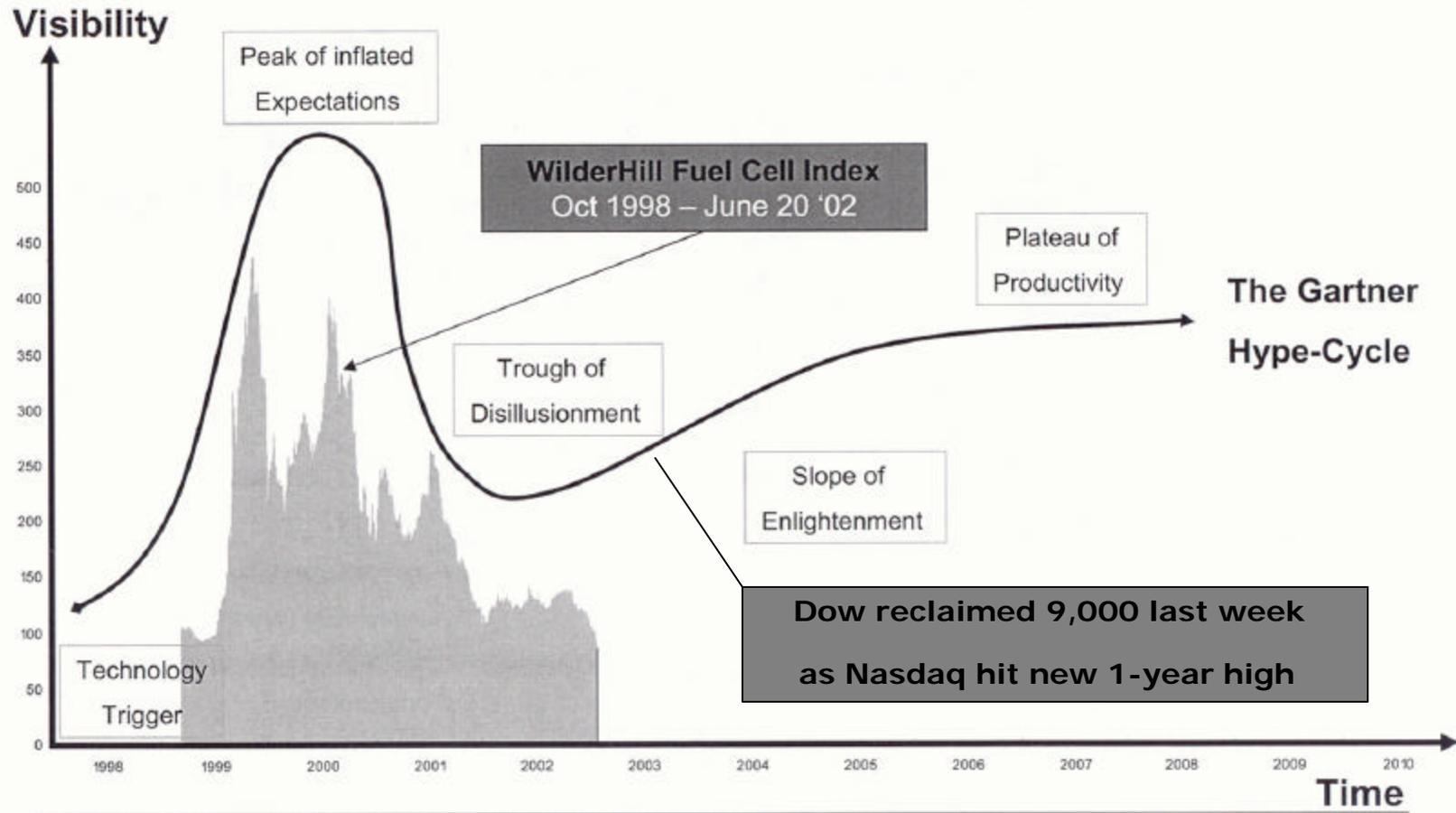
- All Happening Now -

Show Me The Money!

- ⇒ **Venture capital markets hurt by the “dot com” fallout**
 - Poor recent venture capital returns
 - Exit opportunities reduced; prices low
- ⇒ **Many investors currently focused on cash preservation**
 - Rather than on achieving attractive future returns
- ⇒ **Fuel cells have forever been the next promising thing!**

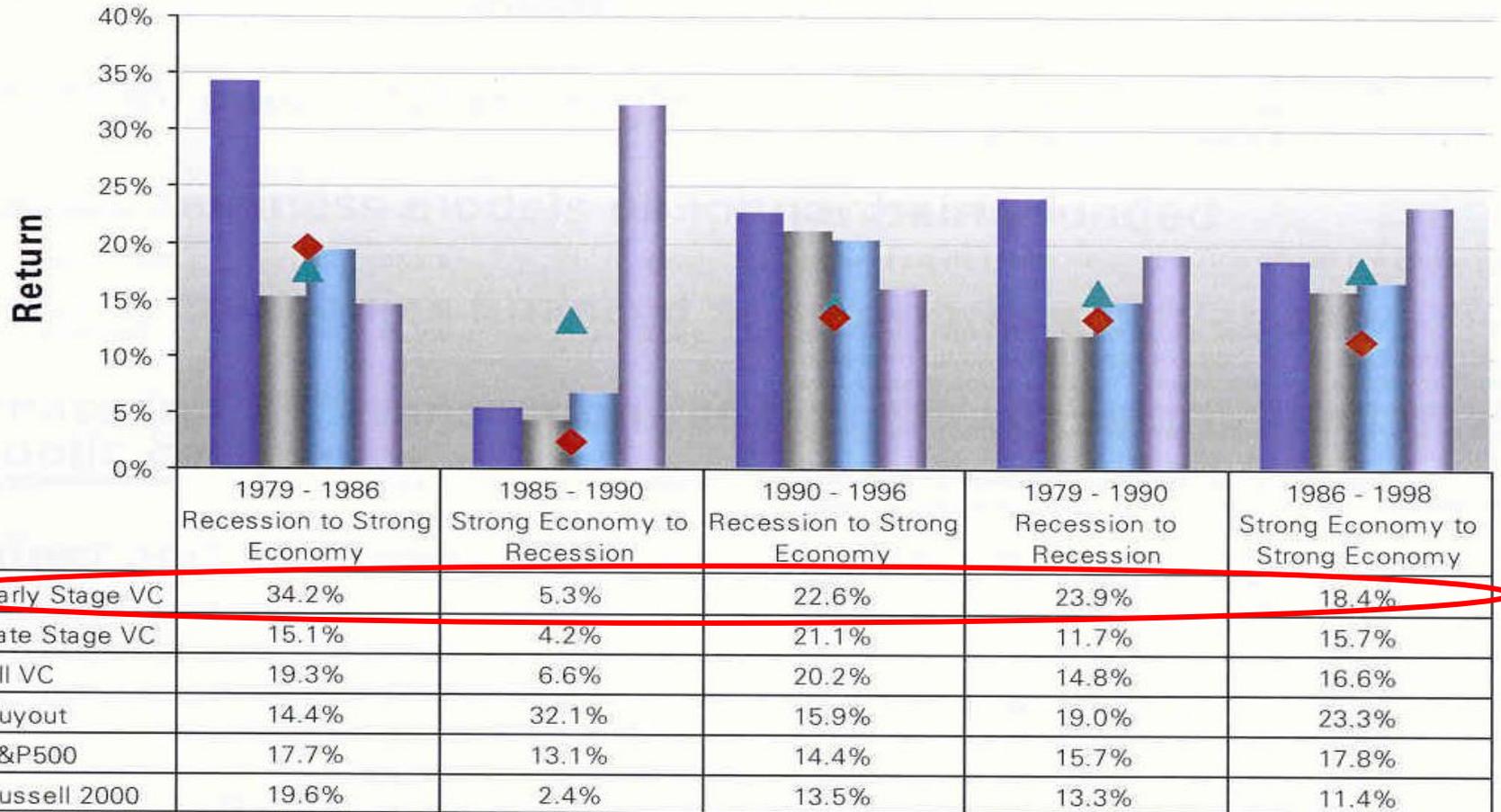
Combined = Investor Skepticism

Emerging Technology Hype Cycle – (Gartner)



Source: Adjusted from Core Technology Ventures LLP

What Role Does The Economy Play?



Source: WestAM, Barra

Energy Technology Investments: Gaining In Popularity

YEAR	TOTAL VENTURE INVESTMENTS (US\$ BILLIONS)	ENERGY TECHNOLOGY INVESTMENTS (US\$ MILLIONS)	ENERGY TECHNOLOGY PERCENTAGE OF VENTURE TOTAL
1998	\$22	\$204	0.90%
1999	\$59	\$442	0.70%
2000	\$103	\$1,200	1.20%
2001	\$41	\$774	1.90%
2002	\$21	\$488	2.30%

Q1-03	NA	\$350	5%
03	NA	\$1.5-2B	>5%

1 out of 15 VC backed deals in past 18 months in NA where clean tech

*Source: PriceWaterhouseCoopers/Venture Economics/National Venture Capital Association
Money Tree TM Survey, Nth Power, Clean Edge, Inc., and Rockport*

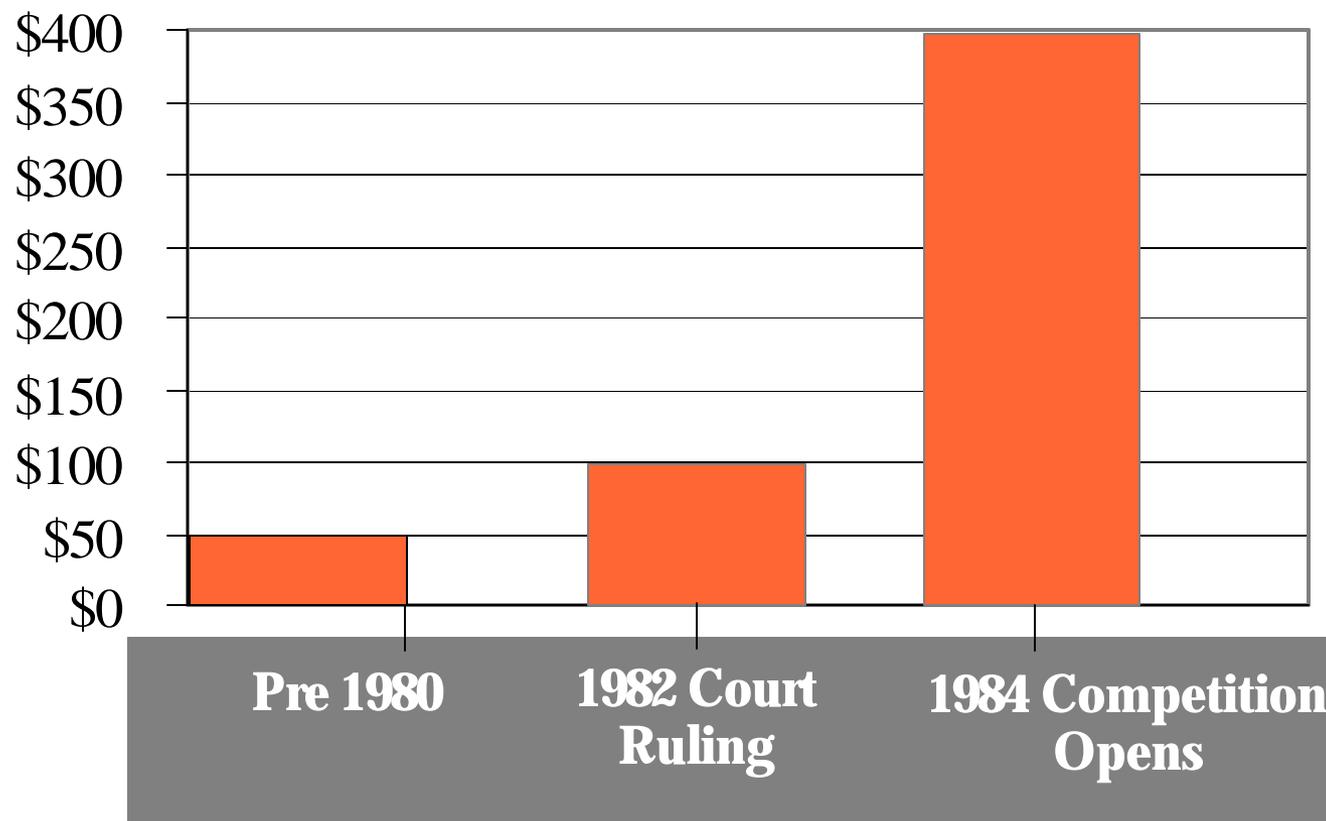


Wake-up Call For Investors



Huge Opportunities Were Identified When Telco Market Opened

Effect on Telecom VC Investments (in million)



Why Invest Now In The Hydrogen Economy?

Smart positioning could bring investors significant early returns

- ⇒ Investment Cycle - on upward slope
- ⇒ Venture investing remains attractive - especially early stage
- ⇒ Current valuations low
 - Today's economic conditions comparable to when present technology giants like Microsoft, Dell, IBM and others got their starts
- ⇒ Fuel cells aren't a fad
- ⇒ Market potential is huge
- ⇒ Domain-focused funds provide additional upside opportunities
 - Even if they are first-time funds
- ⇒ You're not alone

Pacific Northwest Energy Technology



National Research
Council Canada

Conseil national
de recherches Canada

Pacific Northwest National Laboratory
...delivering breakthrough science and technology



Thank You

For More Info:

www.chrysalix.com

