

# RSI Silicon

**Solar Grade Silicon  
Breakthru !**



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VP, Business Development  
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# Solar Grade Silicon

Most Si Plants make Electronic grade **8 Nine's** (99.999999%)  
Purity needed for semiconductors, using the **Siemens** process

Solar panels traditionally made from Semicon industry **waste**,  
but rapid Solar PV growth is using up **all Si** supply + Prime!

**NREL Study** found Solar Si purity only needs to be **6 Nine's**, with  
emphasis on **Boron, Phosphorus**, and metals

RSI has created a **NEW Proprietary LOW COST process** that  
makes **(only) Solar grade Silicon**, to fill this shortage

**RSI Silicon**

## Photovoltaic/Si Markets

- **Solar PV Mkt. = \$15B in 2006 – 35% growth**
- **Over 90% is Si based - \$5B annual market**
- **PV Industry growth limited by use of costly & obsolete Siemens Electronic grade Si process**

**NEW Proprietary RSI Solar grade process will Disrupt Si Industry, like Bayer process did to Al in 1888 ! (Al price dropped 99% in 15 years)**

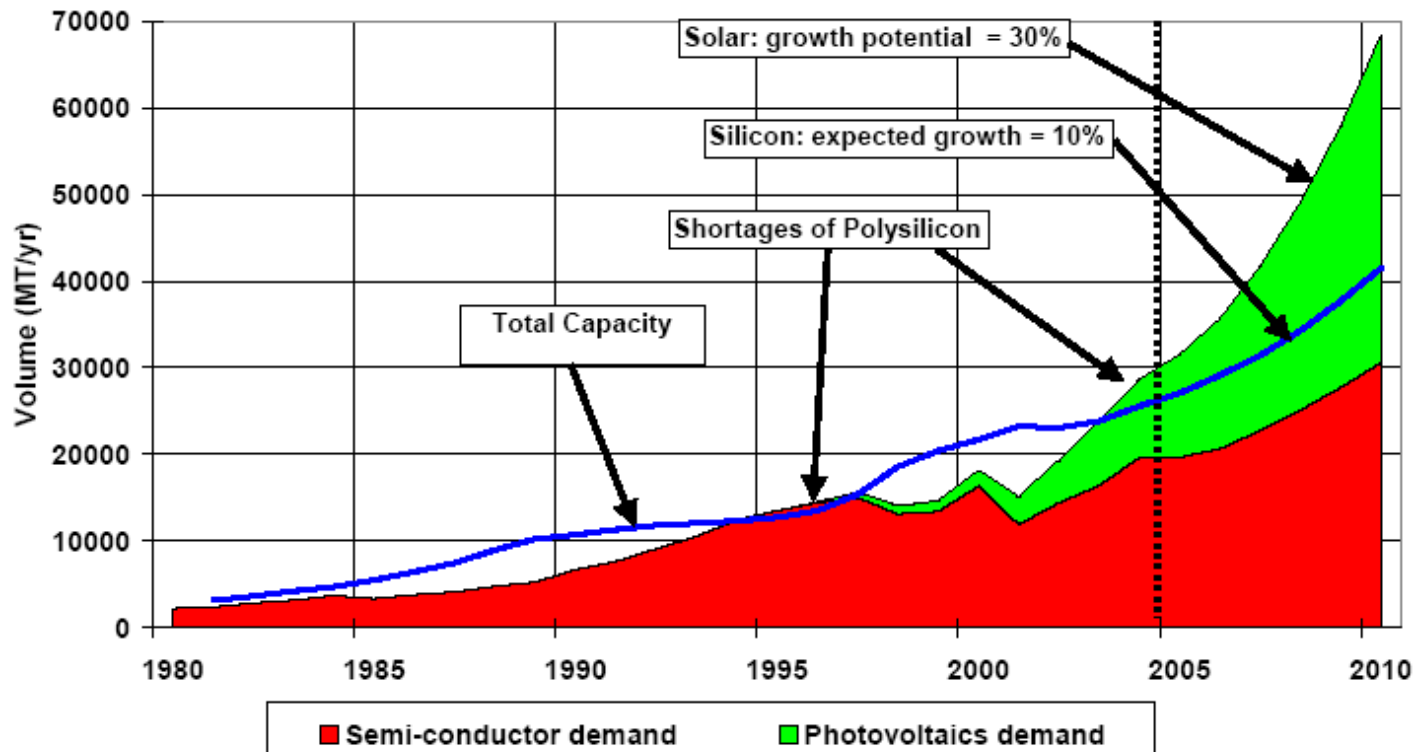
**Current Siemens Si mfg. cost = \$30 - 35/Kg**

**RSI Solar Grade Si cost = \$ 7 - 9/kg !**

# Si Supply - Demand Forecast



## Poly-silicon supply and demand



RSI  
Mkt.  
Oppt  
y.

28/9/2005

solar cell R&D seminar

Source: Wacker 2<sup>nd</sup> SoG-Si Workshop

www.ecn.nl

RSI Silicon

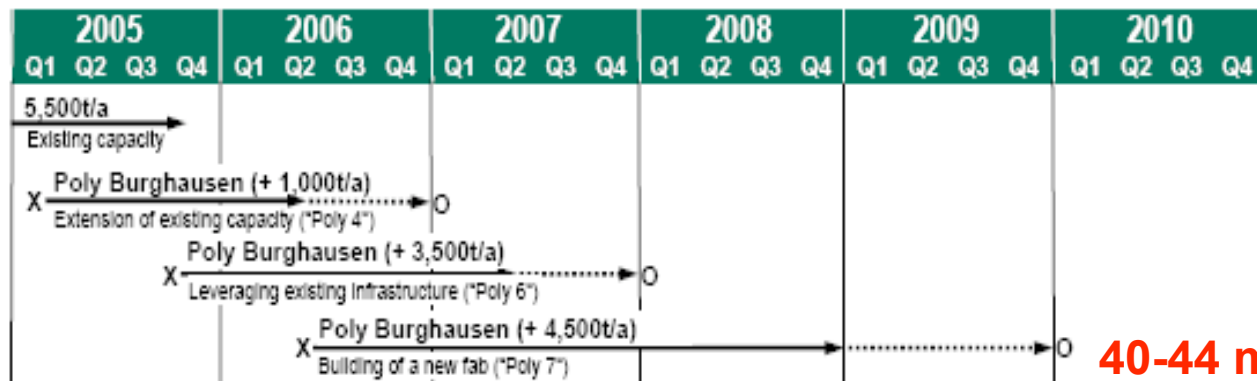
# Si Competition

## High CapEx & long Build Time hinder Si Supply

Company	Capacity	Plant cost	Fab Time	Si Cost
Hemlock	4500 MT		<u>\$450 M</u>	<u>32 Mo's</u>
				<u>\$27/kg</u>
Wacker	4500 MT		<u>\$400 M</u>	<u>40 Mo's</u>
				<u>\$25/kg</u>
REC	5000 MT		<u>\$450 M</u>	<u>36 Mo's</u>
				<u>\$26/kg</u>
MEMC	4000 MT		<u>\$400M</u>	<u>30 mo's</u>
				<u>\$25-28/kg.</u>
<b>RSI Silicon</b>				
<b>RSI Silicon</b>	<b>5000 MT</b>	<b>\$ 50M</b>	<b>15 Mo's</b>	<b>\$7- 9/kg</b>

# Wacker Si plant in Germany

## Siemens Process



40-44 mo's

# Unique RSI Technology Edge

## How does RSI achieve Low Cost SoG Si ?

- **Novel Methods** - Only make **SoG Si 6-Nine's** purity (vs. 8 Nine's) using Simple, proven equip/plants
- **3 Proven industry processes** – each proven at Scale
- **SAFE – NO Dangerous gases & emissions**
- **Low cost Raw materials** - **NOT** Metallurgical Grade Si
- Extremely **Low CapEX** – Std. Industry Equipment
- **Fast Plant Fab. Time** - **Easily Scaled UP**

# RSI's Simple Process Equipment



Low cost Industrial  
Process Equipment

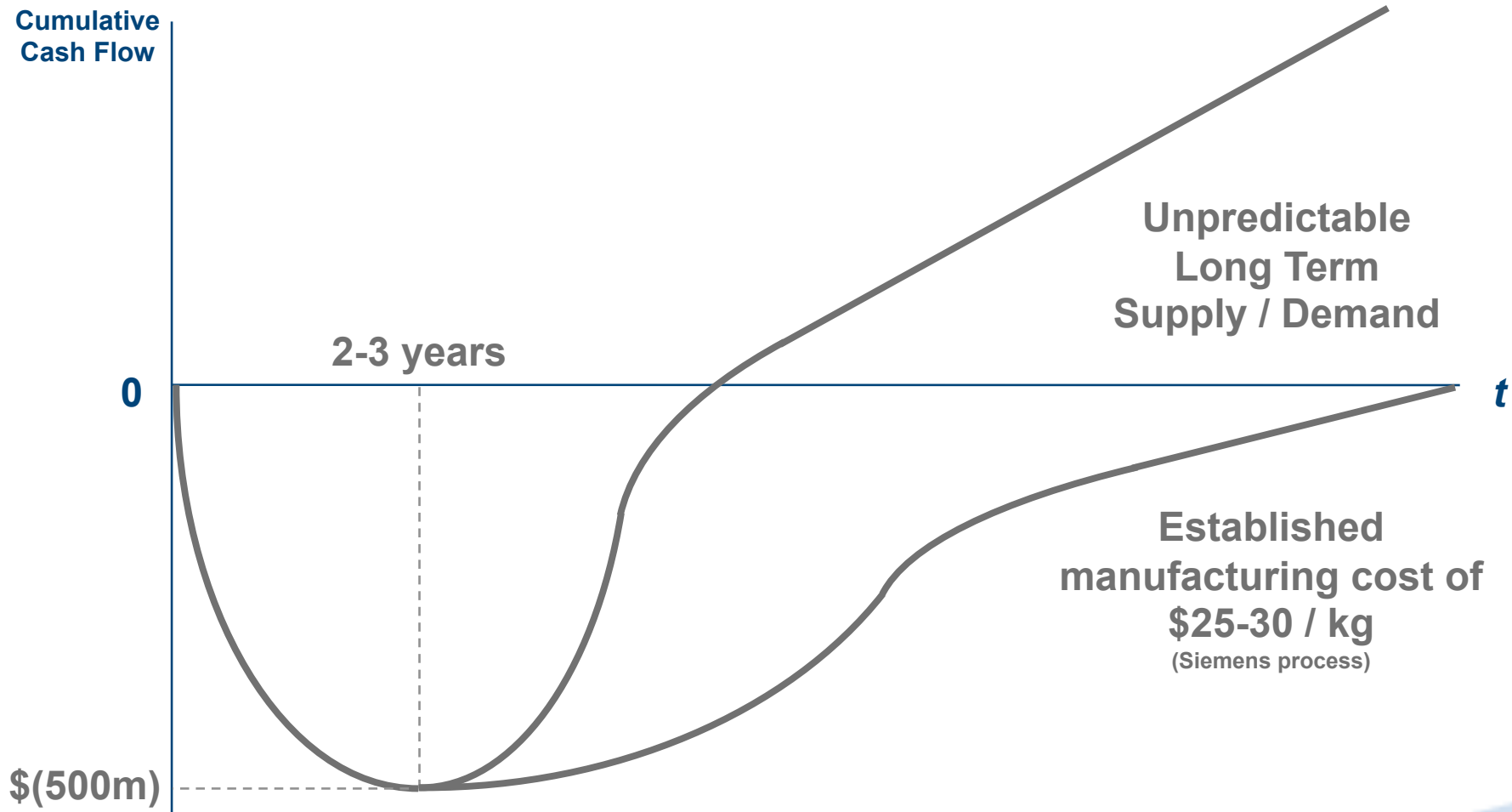


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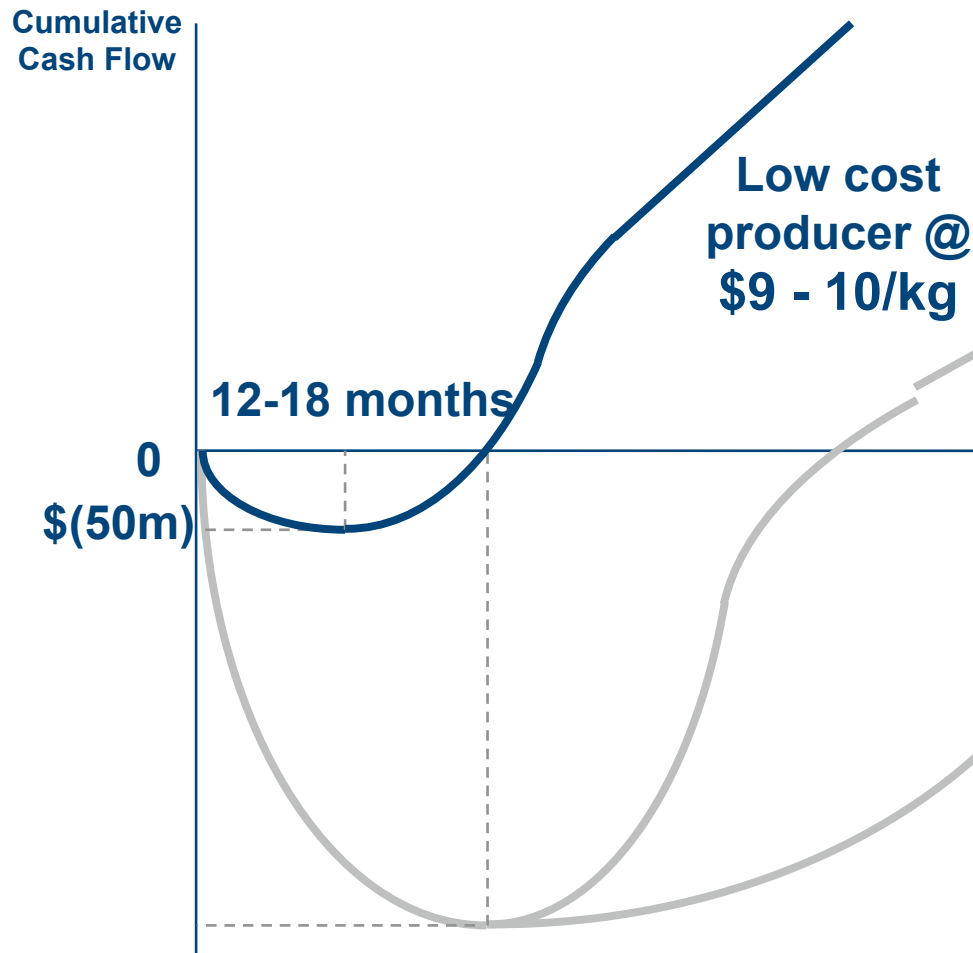
# The Si Manufacturing Challenge

## 5000T Si Plant



**RSI Silicon**

# The RSI Solution 5000T Plant



## Novel Process offering:

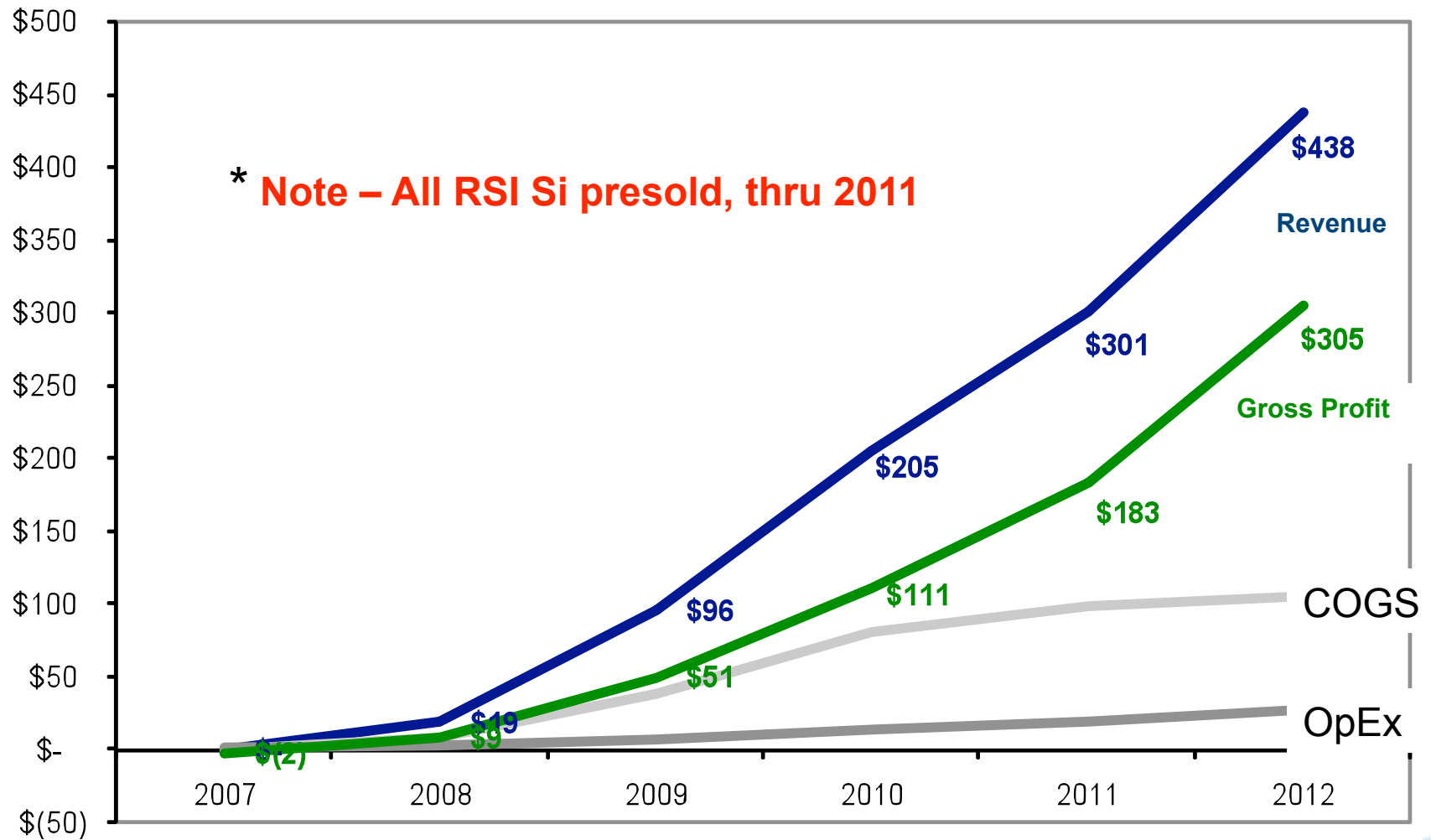
- 1/10 the initial Capital Investment
- 1/2 the time to complete plant, generate revenue & break even
- 1/3 of competing Si production costs /kg.

**RSI Silicon**

# Technology/Business Validation

- RSI's Proprietary process **Demonstrated** on small scale
- Process confirmed by leading Princeton scientist (MIT PhD)
- Process and Cost Estimates validated by **Black and Veach**
- **Patent filed** on key elements of process
- Future customers placing **Orders** - BP Solar (\$120M/yr)  
- New Order (\$200M)

# Financial Forecast – Single Plant 5000 MTons



# Core Team

- **Experienced Team**

- **Dr. Steve Amendola, CTO**
  - Founder of Millennium Cell (NASD: MCEL) – Chemist/Metal
- **Lyle Rawlings\*, VP Marketing**
  - President of largest solar installer in Mid-Atlantic, PE,
- **James Dunn\*, VP Ops & Biz Dev**
  - Tech. Commercialization veteran
  - NASA, IBM, laptop, 4 startups

**David Pelley** – Matrix Partners, MIT Physics, Harvard MBA, Solar Exp.

**Olaf Bleck** – MIT EE/Aero, Solar Exp.

Hal Stuhler – Mfg. Mgr. - TIAX

Tim Lomma – Eng. Mgr.- BSME

- **Key Hires (underway)**

- **CEO**
  - From Solar Industry or Si side - REC, Tokuyama, Hemlock etc.
- **VP Manufacturing**
  - From REC, Tokuyama, MEMC, Hemlock, GT Solar, etc.
- **Consultants & Advisors**
  - Furnace Experts
  - Silicon Experts

\*Note: Founding team has invested \$300k to-date

# Key Activities: 2007-08

	\$ (m)	Status	2007				2008			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Eng Study validation	0.2	Done	◆							
File Utility Patent	0.1	Done	◆							
Demo Process	0.4				◆					
Finalize Orders		\$350M		◆	◆					
<b>Close Series A</b>	<b>7.5</b>				◆					
Build Pilot Line	3.5					◆				
Begin Mfg	1.0							◆		
Locate 5000T Plant	0.1							◆		
Close Series B	50.0								◆	
Build 5000T Plant	50.0									◆

# Summary

- **RSI Breakthru in \$5B SoG-Si industry**
  - **1/10<sup>th</sup> the CapEx cost**
  - **1/2 the Plant Fab Time**
  - **1/3 the final Si Cost !**
- **Talented, cohesive founding Team**
- **Extremely Favorable Growth Market ...**
  - **\$350M/yr. conditional Orders In hand – Fortune 50 Co.**
- **3 Proven Industry Scale processes**
- **Lowest cost Si Mfgr. – HUGE ROI**

