

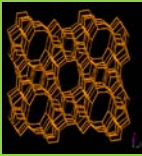


Anellotech

**University of Massachusetts-Amherst  
Clean Energy Connections  
October 20, 2010**

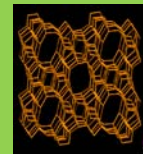
**David Sudolsky, CEO**

# Lowest Cost Producer of Commodity Petrochemicals (Green or Petroleum-Derived)

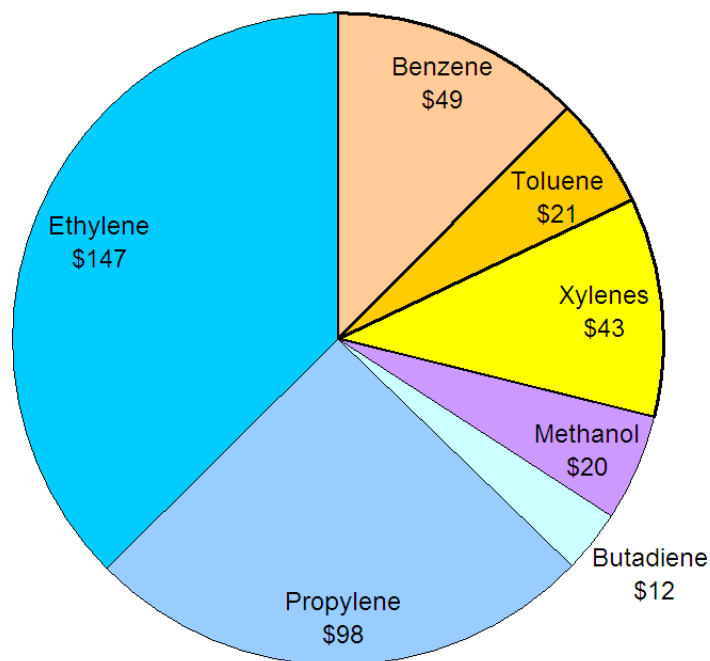


- Thermochemical catalytic platform technology for producing petrochemicals from cellulosic biomass
- Biomass To BTX (benzene, toluene and xylenes) is first application
- Patent-pending technology demonstrated on kilogram scale, implementation and scale up work is next
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# Huge Market, Broad Applications



## 2008 Global Petrochemical Market \$390 billion



Source: Chemical Economics Handbook, ICIS

## Products Made From BTX



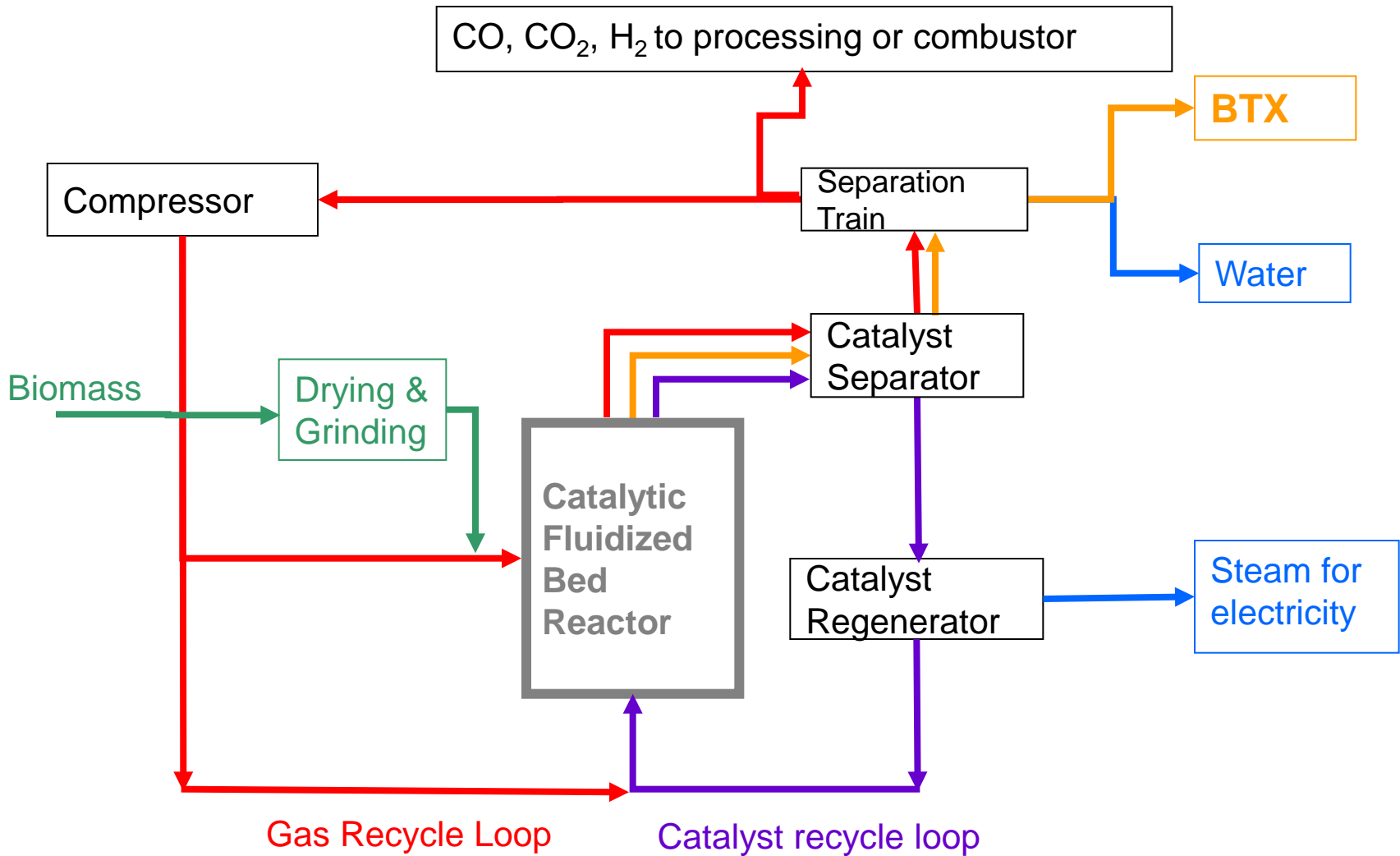
# Multiple Feedstocks



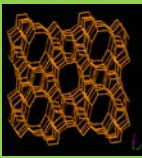
- Broad array of non-food feedstocks



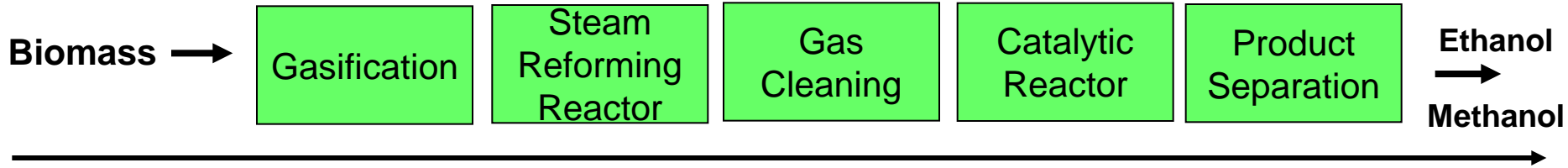
# Anellotech's Process Uses Known Chemical Engineering Operations with Unique Reactor Design, Catalyst and Operating Conditions



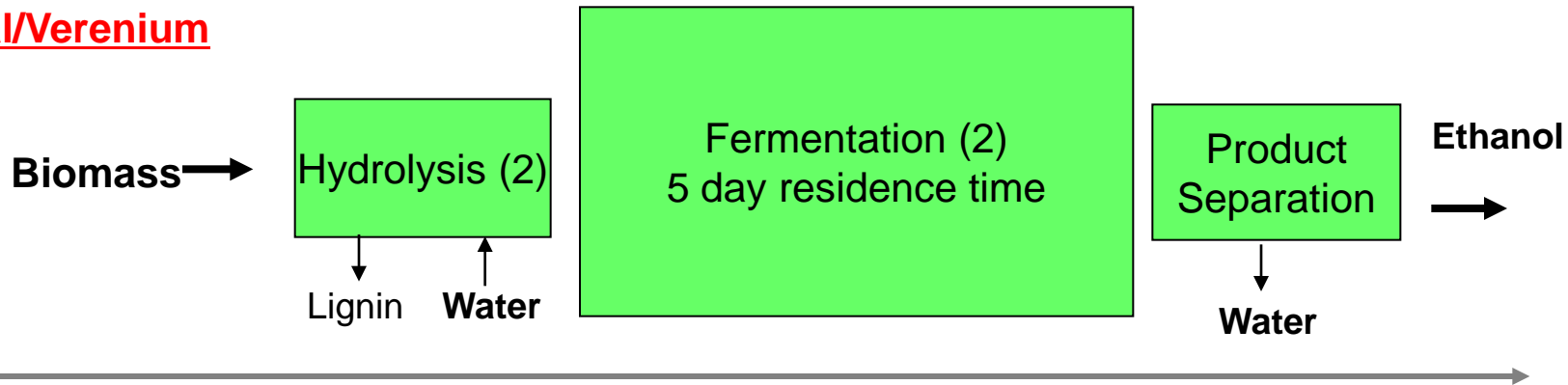
# Simpler Process vs. Competitors– Much Lower CAPEX, Operating Costs, Complexity



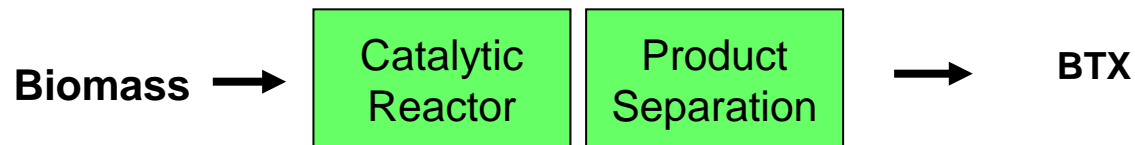
## Gasification/Range Fuels



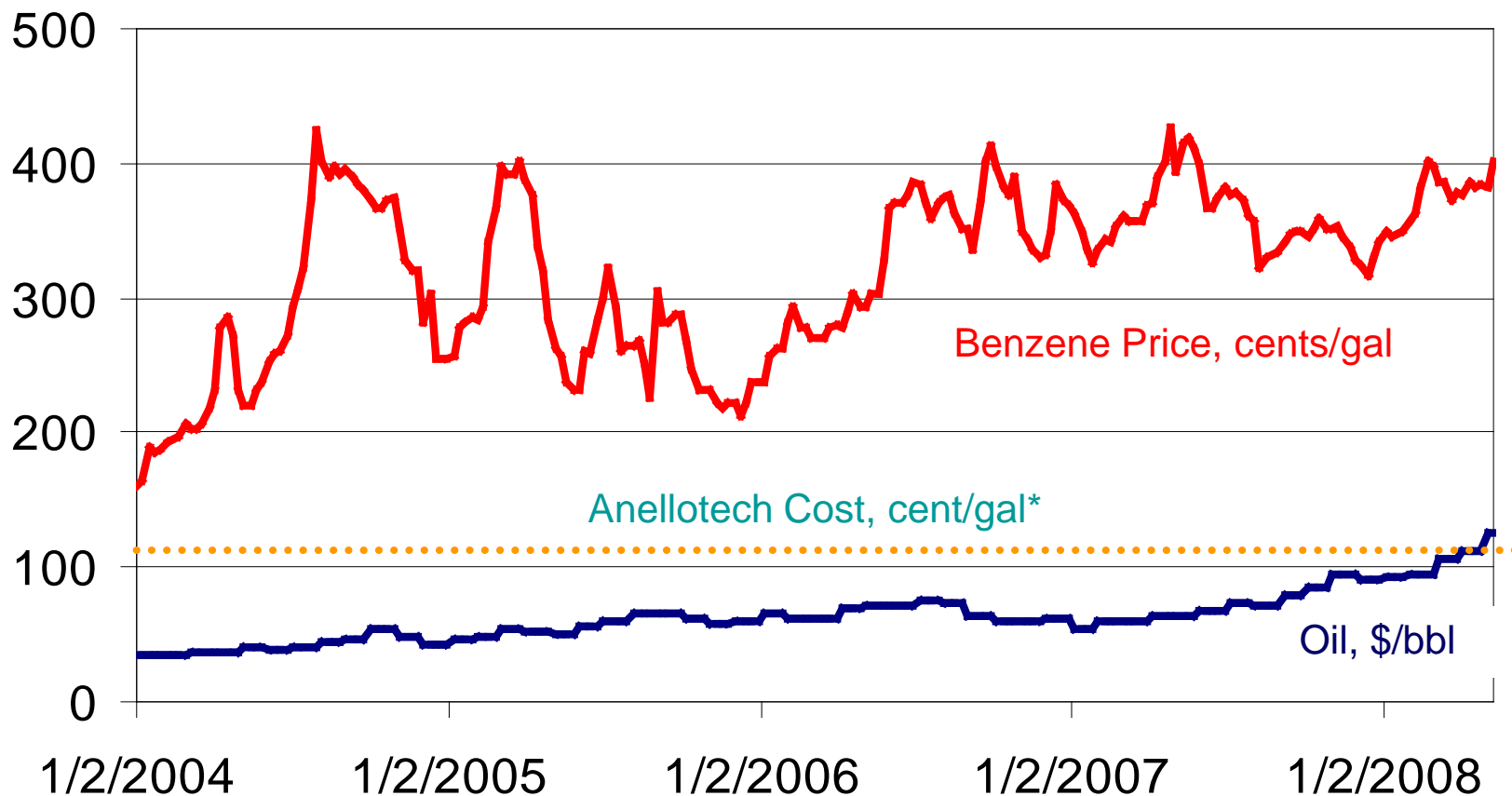
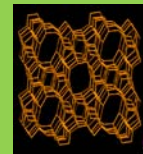
## Biological/Verenium



## Anellotech/Catalytic Fluidization



# Anellotech's Costs Are Very Competitive



\*Assumes \$50/dry ton delivered feedstock cost

# Anellotech is the Exclusive Global Licensee



- Univ. Massachusetts Patent Application covers the process, products, and catalyst
- R&D at Amherst supported by \$4 million NSF, DOE and DARPA grants
- Patent application under review by patent office. Favorable international search report issued
- Anellotech has option rights to technology improvements

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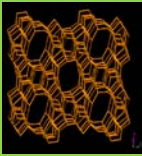
October 19, 2010

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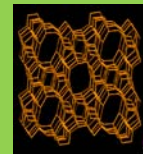


- Univ. Massachusetts, Amherst patent application covers the process, products, and catalyst
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# 10 Kg/Day Feed Reactor Shows Viable Yields

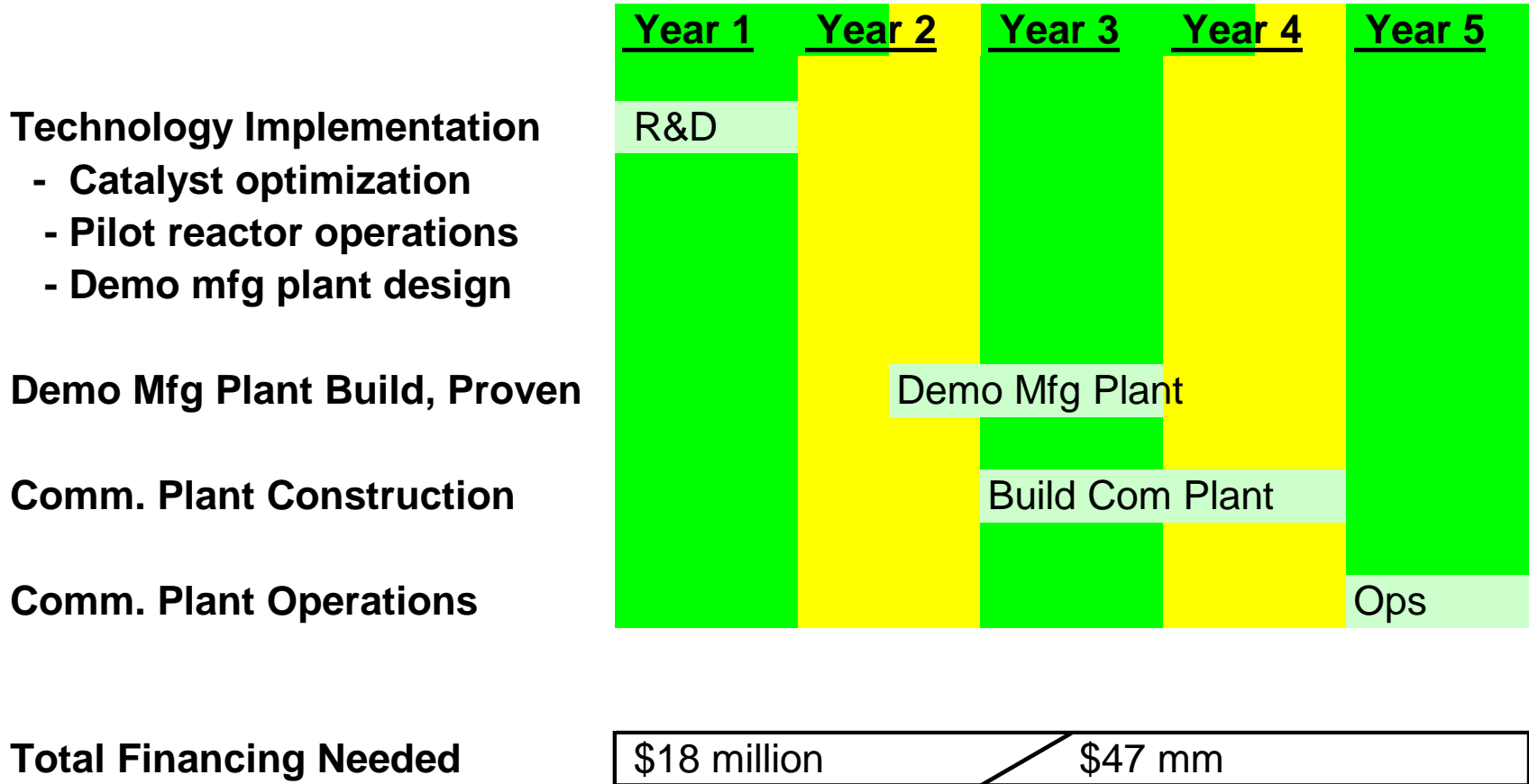


- 2" diameter reactor

- Screening catalysts, feedstock and operating conditions

- Next step: 12" diameter  
2 ton/day pilot reactor

# Four Years to Commercial Operations



# Rapid Path To High Valuation



- Substantial corporate partnership after completion of demonstration plant phase (2012)
  - Chemical companies generally make major investment decisions based on pilot plant operations
  - The chemical industry has decades of experience scaling up fluidized bed reactors [contrast with biotech processes]
- Profitable Small-Scale Commercial Plant on line in 2014
- Substantial licensing book established rapidly thereafter

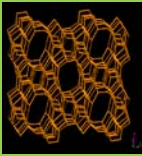
# 44% IRR for Large-Scale 2,500 mton/day \$220 million Commercial Plant with \$50/dry ton-delivered Feedstock



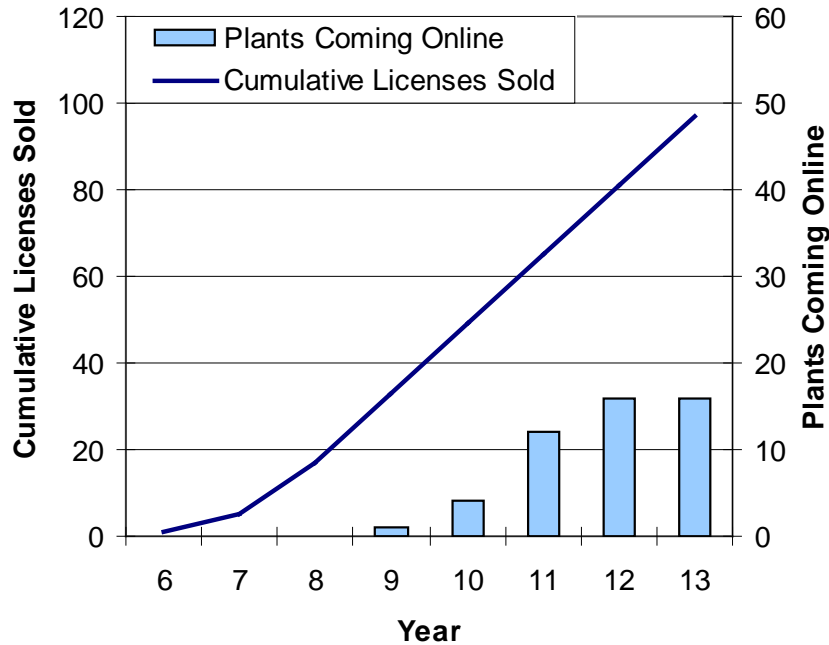
<b>Revenue</b>	<b>(\$ million)</b>				
BTX	192				
Byproducts	<u>17</u>				
Total Revenue	209				
<b>Expenses</b>					
Feedstock	44				
Other operating Costs	<u>38</u>				
Total Expenses	82				
<b>Net Profit</b>	127				
BTX Production Volume	62	million gal/yr			
BTX Production Cost, \$/gal*	\$1.05				
*(Total Expenses minus Byproducts Revenue)/BTX Production Volume					

• *Analysis excludes leverage, subsidies and tax credits*

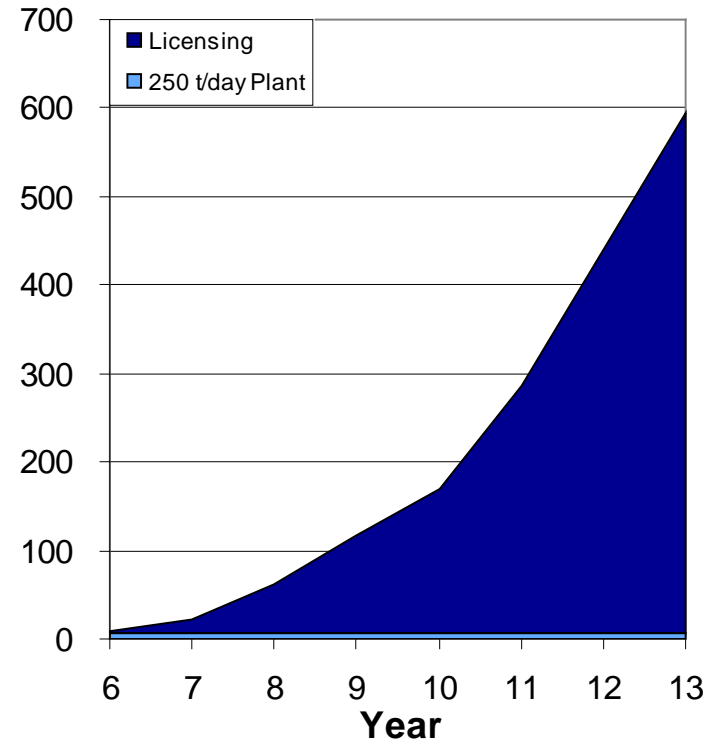
# Aggressive Licensing and a 250 t/day Plant Generates \$300 Million Pre-Tax Profit 5 Years After 250 ton/day Plant Start up



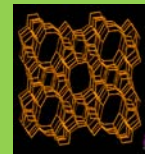
### Anellotech Licensee Ramp Up



### Anellotech After-tax Profit (\$MM)



# Management



David Sudolsky

*Founder and  
President & CEO*

- CEO/officer of four biotech/bioprocessing start-ups, one was sold for \$1.8 billion
- Ex-Dura Pharmaceuticals, Union Carbide, Booz-Allen
- Chemical engineer, MBA from Columbia University

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Dr. George W. Huber

*Founder and  
Chair of the SAB*

- Armstrong Prof of Chemical Engineering at U. Mass-Amherst
- Biofuel research licensed by Virent Energy Systems
- Scientific American July 2009 cover story

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Dr. Anne Gaffney

*VP Research*

- Former VP Technology at Lummus, ex-Arco, Rohm & Hass
- 30+ years experience in developing catalytic processes

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Dr. Dennis McCullough

*Business Dev. Consultant*

- Former president Badger Licensing (Shaw/Exxon JV)
- 30+ years business development experience with Shaw Group, ABB Lummus Global, Bechtel, Litwin, and Eastman Chemical

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Dr. Cawas Cooper

*VP Process Eng*

- Air Products (Chemicals division), Catalytica
- 30+ years experience in pilot plant process engineering

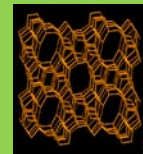
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Jeffrey Whiting

*VP Operations*

- Monsanto/Solutia chemicals business
  - 30+ years experience in construction, start-up and operations of pilot to commercial scale chemical plants
-

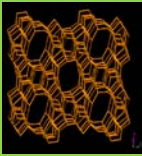
# Advisory Board



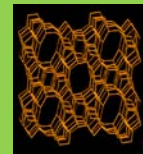
<b>Dr. Edward Wolynic</b> <i>R&amp;D, Catalysis</i>	<ul style="list-style-type: none"><li>• Former Engelhard CTO and Group VP Strat. Tech</li><li>• Former UOP VP R&amp;D</li></ul>
<b>Dr. Steven Lerner</b> <i>R&amp;D, Industrial Gases</i>	<ul style="list-style-type: none"><li>• Former CTO Praxair, 25+ years R&amp;D management experience</li></ul>
<b>Carl Bartoli</b> <i>Engineering &amp; Construction</i>	<ul style="list-style-type: none"><li>• Former President &amp; CEO, Foster Wheeler USA</li><li>• Engineering &amp; construction of HC, coal gasification and infrastructure facilities</li></ul>
<b>Dr. Fred Pesa</b> <i>R&amp;D, Fluid Bed, Catalyst</i>	<ul style="list-style-type: none"><li>• R&amp;D Head, BP USA</li><li>• Teams pioneered several fluid bed cat processes</li></ul>
<b>Dr. Andrew Swanson</b> <i>Chemical Markets</i>	<ul style="list-style-type: none"><li>• Global Business Manager, CMAI</li><li>• 20 years chem company mgmt experience , ICI</li></ul>
<b>Dr. Lanny Schmidt</b> <i>Prof, ChE and MS&amp;E, U Minn</i>	<ul style="list-style-type: none"><li>• Reactor, Catalyst, Biofuels Expert, Member National Academy of Engineering</li></ul>



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# Anellotech

*Petrochemicals from Biomass*

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New York, NY 10013

917-664-4540

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