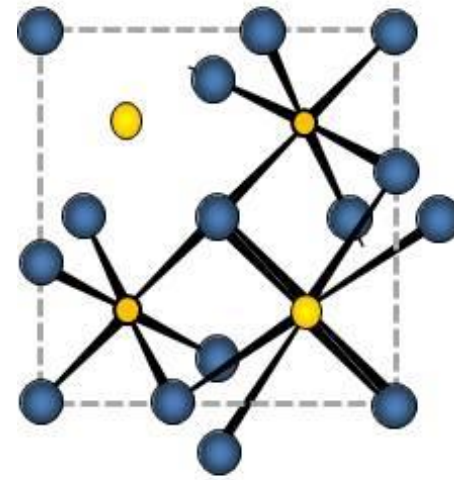


TransTech Conference

Jeffrey Harrison Ph.D.
President and CTO

November 7, 2013
Natural/Shale Gas Session



***Pyrochem
Catalyst
Company***

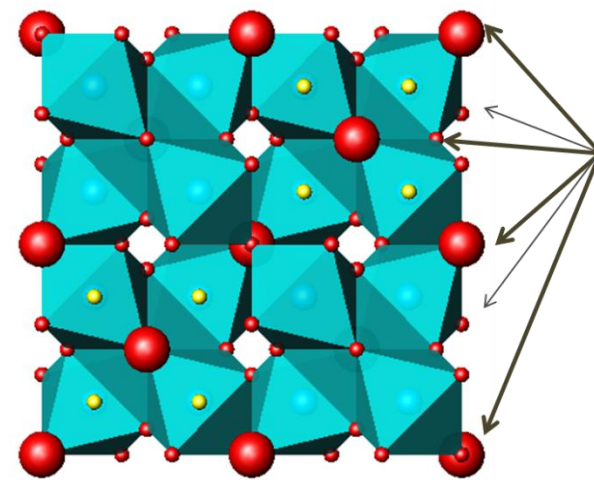
Pyrochlore Catalysts – An Enabling and Transformative Technology

Company Background

- Company Incorporated the State of Delaware in May 2011
- Exclusive License Agreement signed with National Energy Technology Labs
 - **US 8,241,600** *Pyrochlore catalysts for hydrocarbon fuel reforming*
 - **US 8,133,463** *Pyrochlore-type catalysts for the reforming of hydrocarbon fuels*
- Seed Funding through Innovation Works
 - Alternate Energy Translation Grant Agreement - \$50,000
 - Innovation Adoption Grant Agreement - \$100,000
- A-Round Financing through Crimson Hill Partners
- Six employees and advisors
- Partnership with NETL
- First start-up company based on NETL technology

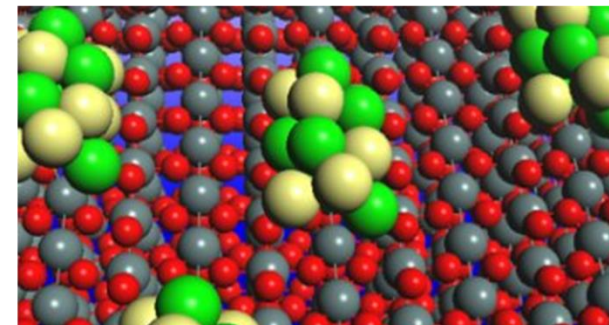
A Catalyst Facilitates Important Industrial Reactions

- Natural Gas + Steam for Refining Operations
- Natural Gas + Oxygen for Chemicals and Fuels Production



PCC Catalyst

Individual surface atoms in the PCC catalyst impart unique properties

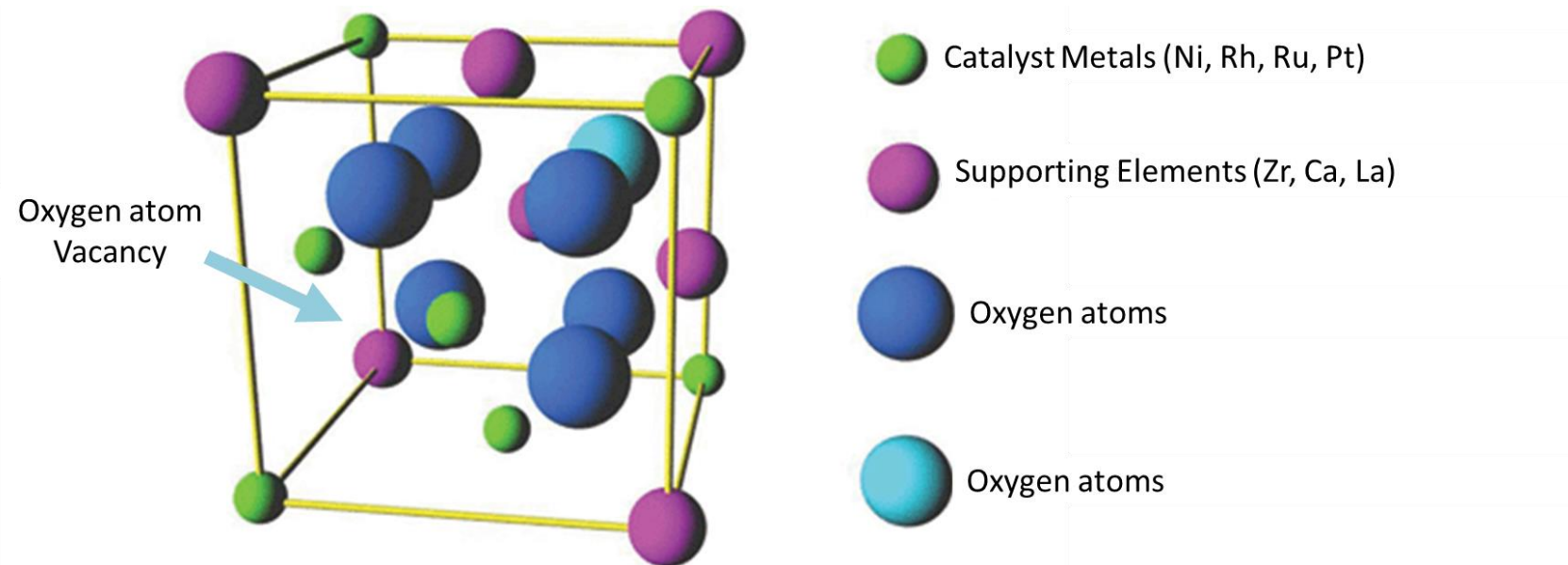


Conventional Catalyst

PCC Catalyst – Need to Know:

- Cost of materials are substantially less than conventional catalysts
- Allows reactions to occur under conditions that save energy
- Outlasts conventional catalysts
- Stable performance under extreme conditions
- Assimilate carbon dioxide into chemical reactions

Value Proposition for Customers



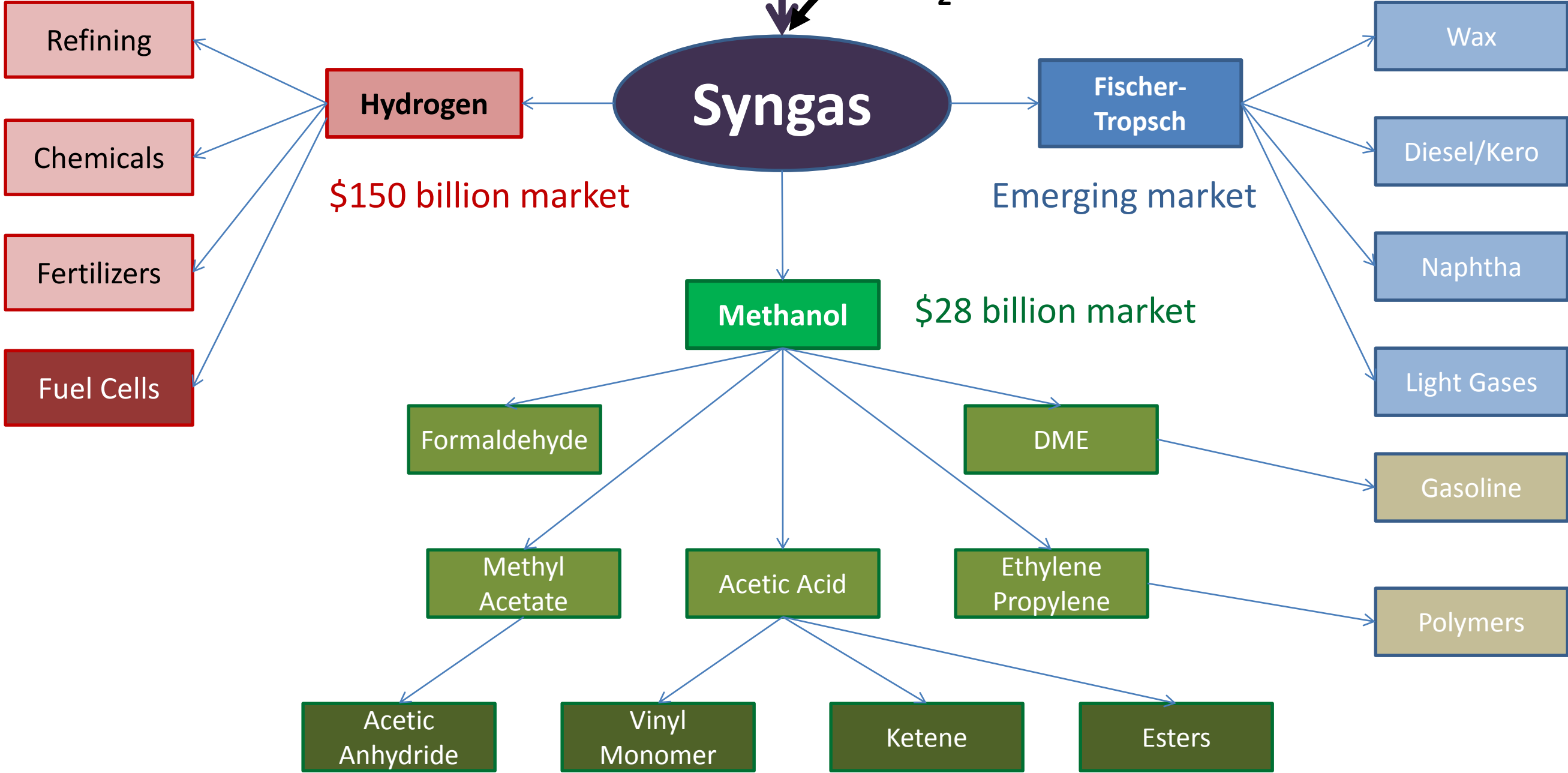
- Lower cost catalyst = lower operating cost
- Reduced steam requirements = lower energy cost and lower emissions
- Long term operating stability = fewer shutdowns and operating stability
- Catalyst longevity = lower maintenance and replacement costs
- Use of CO₂ = smaller carbon footprint and emission credits

Price Differential Creates Opportunities

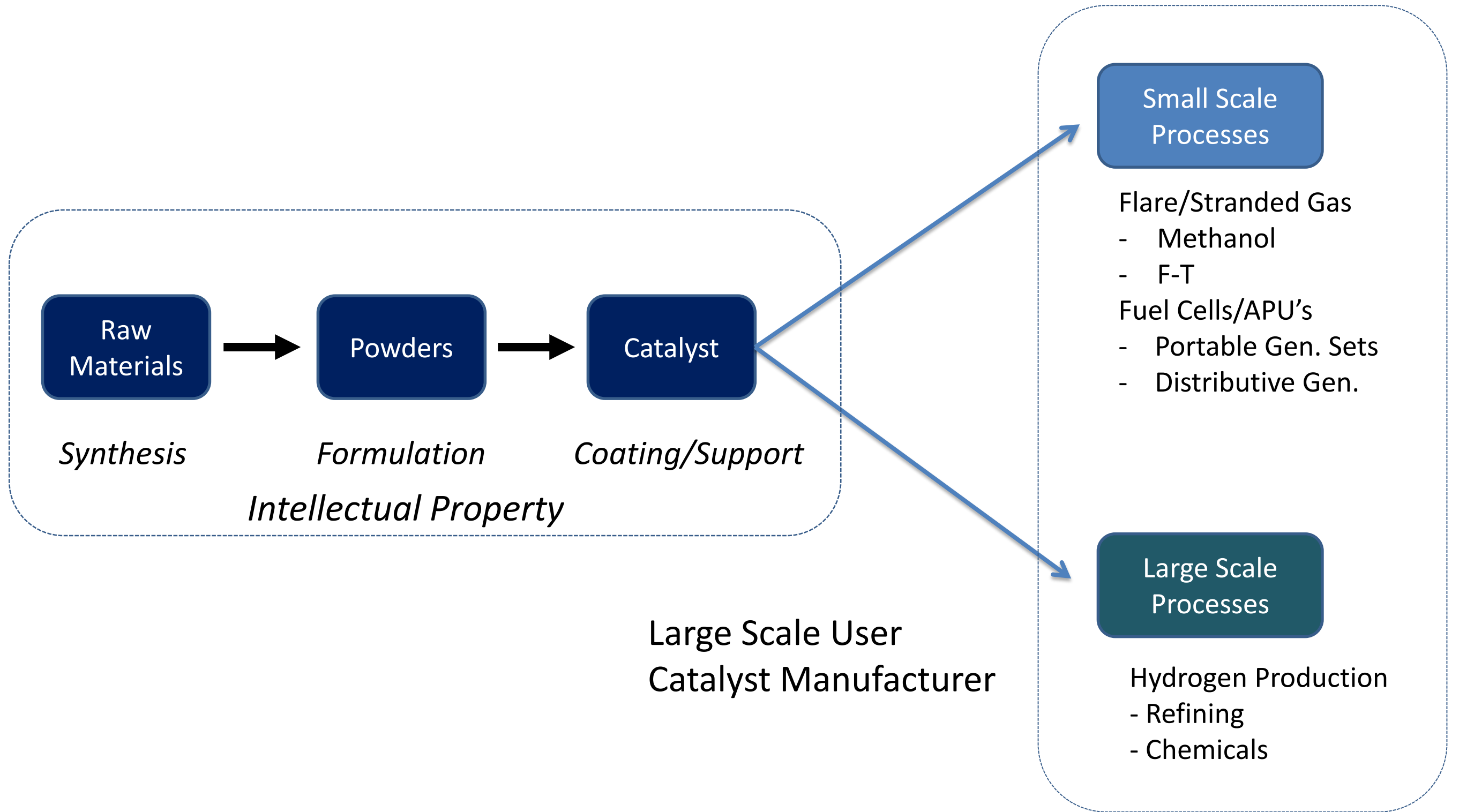
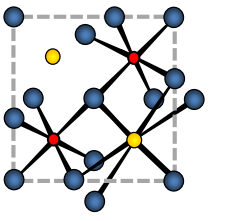
Gas Conversion to Fuel and Chemicals

Shale Gas → **Natural Gas** ← Bio/Digester Gas (Methane & Carbon Dioxide)

This is CO_2 *magic happens*
\$2 billion catalyst sales

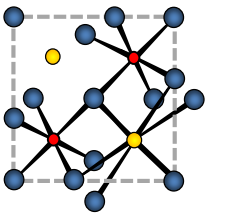


Company's Business Model



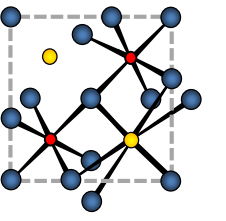
Broadly license the catalyst technology for multiple applications

Competitors Can Be Allies, Partners or Customers



- Johnson Matthey
- BASF
- Clariant / Sud Chemie
- Albemarle
- Haldor – Topsoe
- CRI / Criterion
- Carbon Sciences
- Catacel
- R3 Sciences
- Precision Combustion Inc.
- Oxford Catalysts/Velocys

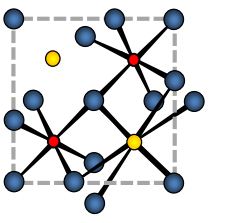
Funding



- Ask: \$1,000,000

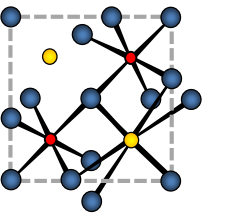
- Funding toward
 - Putting catalyst in the hands of our potential customers/partners
 - New hire for Business Development
 - New Hire for Catalyst Development/Application/Scale-Up
 - Buildout of Labs and Offices
 - Acceleration of manufacturing scale-up

Revenue Projections



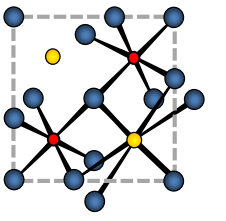
	2013	2014	2015	2016	2017	2018
Number of Sales/Transactions	3300	10000				
Avg. sales price/rate	Powder + Monoliths	Powder + Monoliths	Royalties/ Licensing	Royalties/ Licensing	Royalties/ Licensing	Royalties/ Licensing
Below in (\$000s)						
Total Revenues	\$142	\$303	\$1,980	4,220	9,300	22,000
Total Projected expenses	\$176	\$862	\$1,477	1,850	2,200	4,500
Total External Funding required	\$150	\$500	\$500			
Profit	(\$34)	(\$559)	\$503			

Management Team

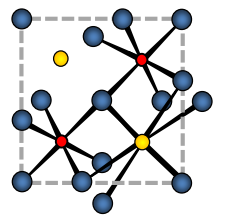


- Jeffrey Harrison – President and Chief Technology Officer
- Steve Gallo – Chief Executive Officer
- Dave Berry – NETL Director & Technical Advisor
- Tim Fogarty – Business Advisor & Board Member
- Tim Appleberry – Business Advisor
- Jeff McDaniel – Innovation Works

Recap



- The PCC Catalyst is a transformative and enabling technology
- Applications to Specific Fuels and Chemical Process
- Large Markets – entrenched. Smaller markets – first adopters
- Strong and experienced Management Team and Advisors
- Funds target the company expansion and scale of operations



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919-491-0913