Biomass Technical Advisory Committee
BioChemicals
Biobased Manufacturing

Jobs
Advanced Manufacturing
Innovation Economy
Sustainable Growth
Global Competitiveness

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November 14, 2012

LLC

Historic Opportunity to Reset Chemicals Industry… Transition to New Economy

97% of all products sold are derived from manufacturing of petrochemicals.

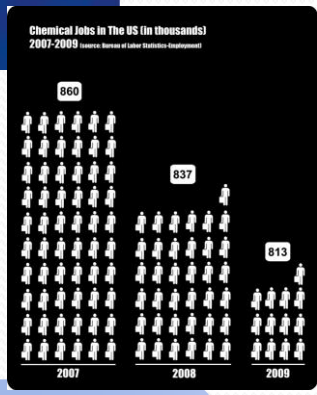
US Business Dependent on Chemical Industry accounts for about ¼ GDP, $3.6T

US chemical industry is the largest industry in the world, consumes 20% of US industrial energy supply.

US chemicals employment down 20% last 2 decades.

Between 1997 -2003, US trade balance in chemicals plummeted from $20B surplus to $10B deficit.

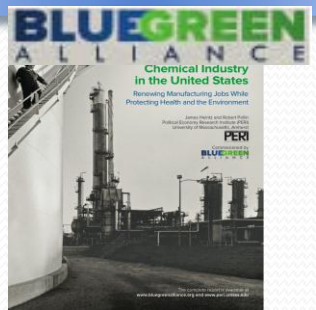
If US companies capture projected 19% of new estimated $1 trillion biochemical market, **could created over 237,000 direct US jobs in sustainable chemistry sector, while shifting the balance of trade in the chemical sector again to a surplus.**



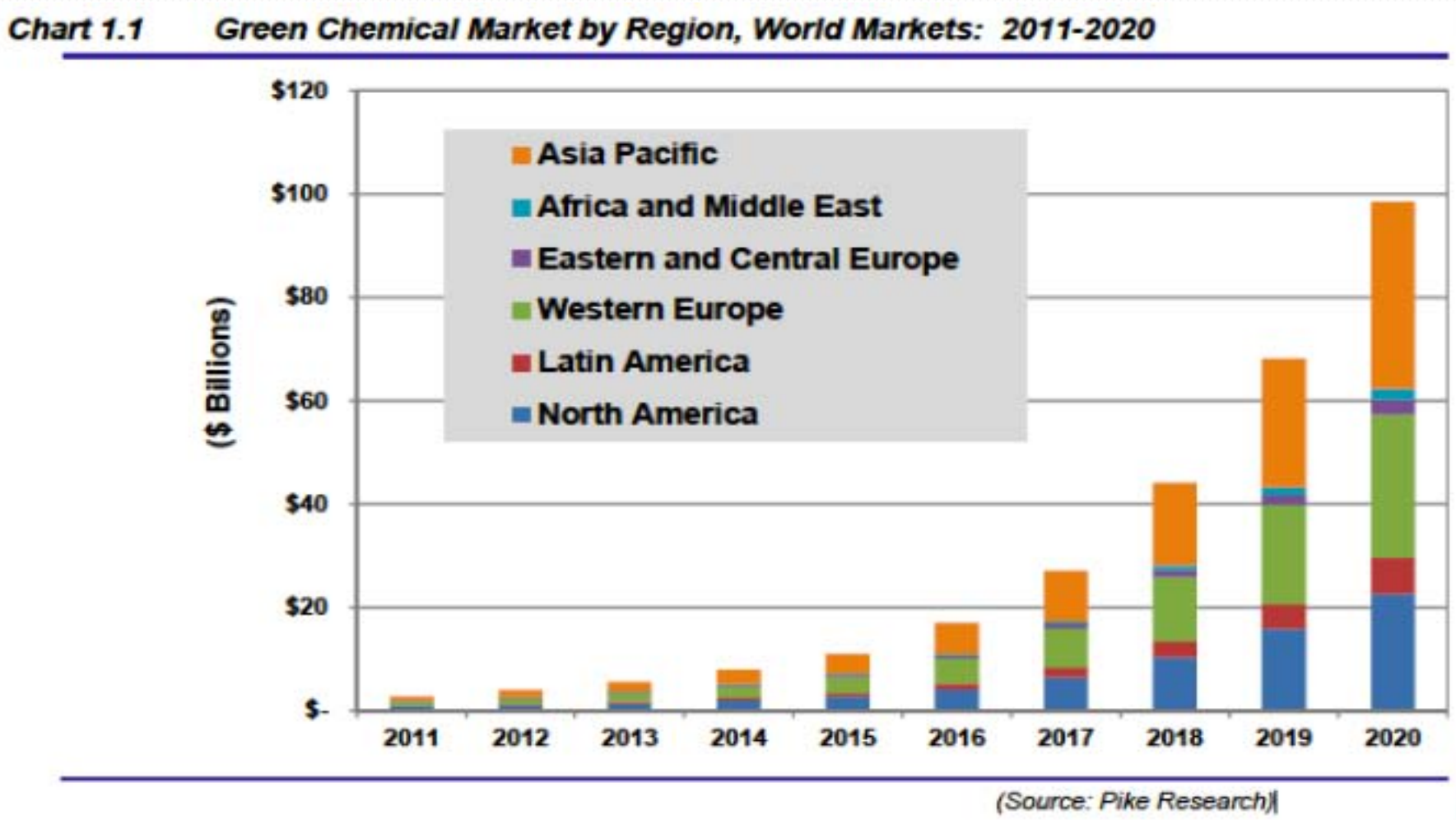
Green Chemistry, also known as sustainable chemistry, is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies across the life cycle of a chemical product, including its design, manufacture, and use.

. Sec Vilsack, MI Future Jobs Tour: "The biobased products sector brings together 2 of the most important economic engines for rural America: agriculture and manufacturing. Today, more than 3,000 **companies are producing more than 25,000 biobased products made from renewable sources grown here at home, and supporting 100,000 American jobs**

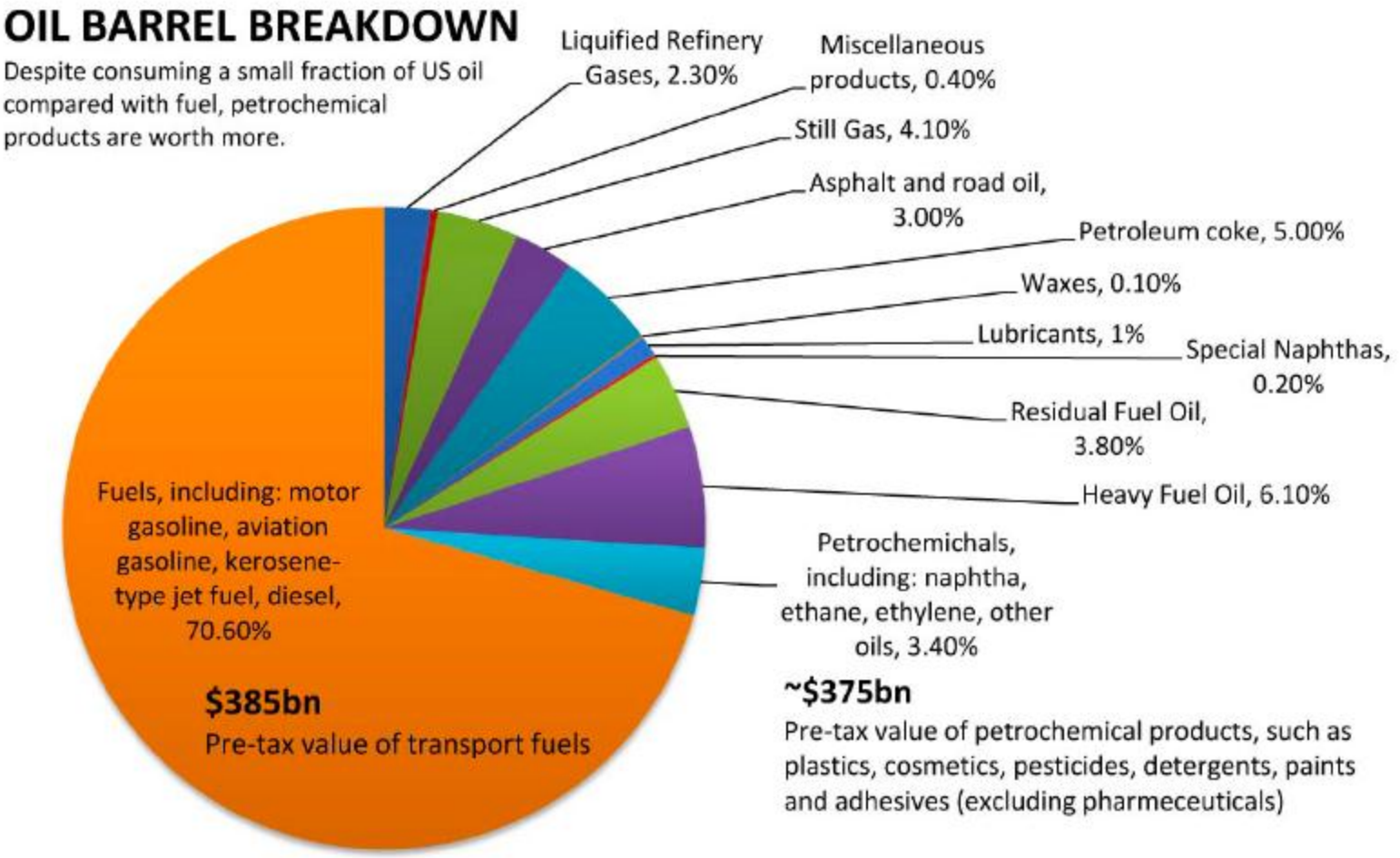
Development could help sustain U.S. manufacturing into the 21st century while preventing the further erosion **of good quality jobs…, the shift towards alternative approaches to chemical manufacturing will reduce toxic releases, lower health risks, decrease reliance on non-renewable resources, and improve our quality of life without compromising economic performance.**



Expanding Global Markets…US Opportunity or Lose

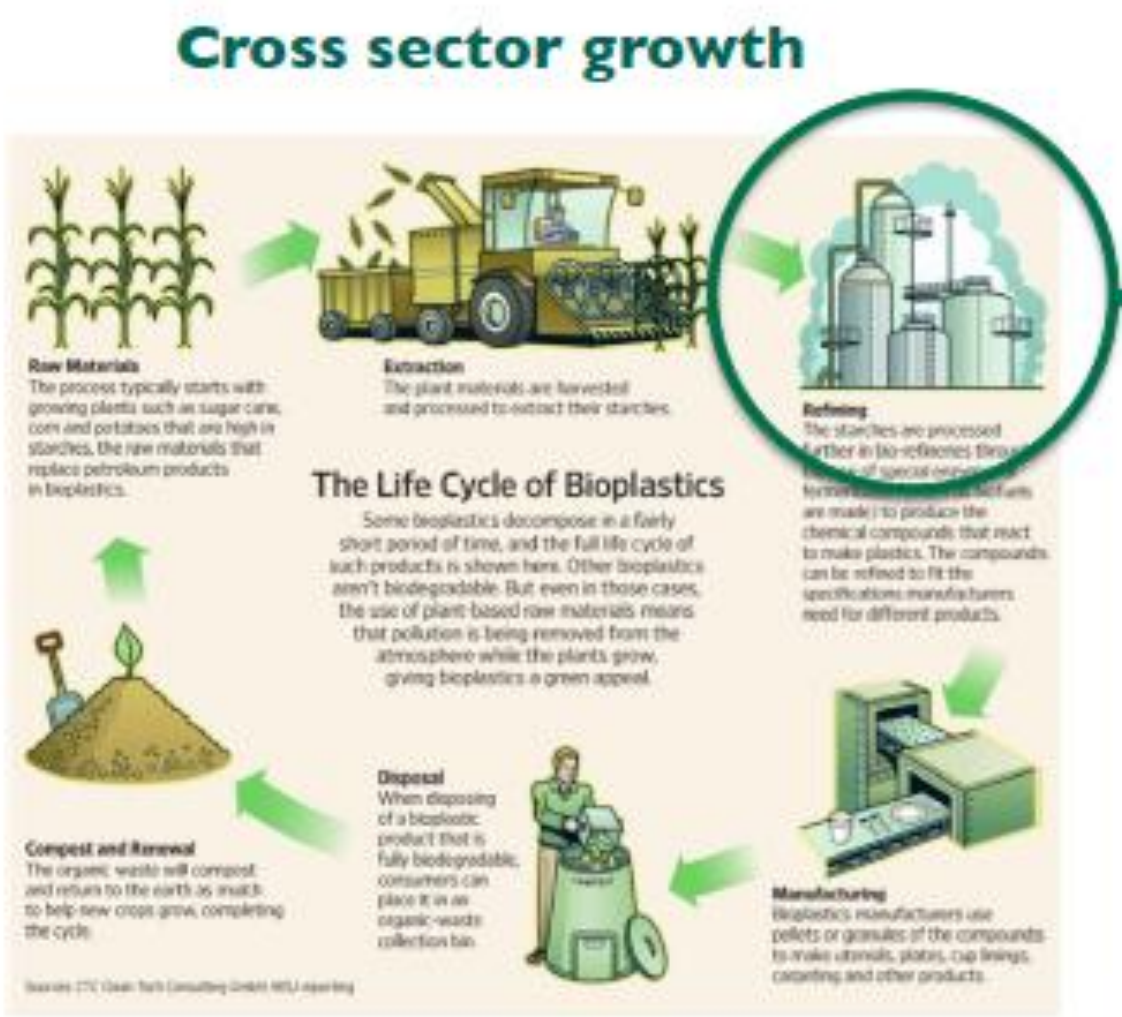


Why…Chemical Added Value
Increase in ROI Over Fuels, Sustainable Economics



SOURCE: U.S. DEPARTMENT OF INDUSTRY 2005, AMERICAN INSTITUTE OF CHEMISTRY

Advanced Manufacturing Cross Sector, Full Value Chain Jobs…
Innovation Hubs, Cluster Development, Community Lifelines



Transportation
Fuels, oxygenates, anti-freeze, wiper fluids molded plastics, car seats, belts, Hoses, bumpers, corrosion inhibitors

Industrial
Corrosion inhibitors dust control, boiler water treatment, gas purification, emission abatement, specialty lubricants, hoses, seals

Textiles
Carpets, fibers, fabrics, fabric coating, foam cushions, upholstery, drapes, Lycra, spandex

Safe Food Supply
Food Packaging, preservatives, fertilizers, pesticides, beverage bottles, appliances, beverage can coatings, vitamins

Environment
Water chemicals, flocculants, chelators, cleaners and detergents

Communication
Molded plastics, computer casings, optical fiber coatings, liquid crystal displays, pens
Pencils, inks dyes, paper products

Housing
Paints, resins, siding, insulation, cements, coatings, varnishes, flame retardants, adhesives, carpeting

Recreation
Footgear, protective equipment, camera and film, bicycle parts & tires, wet suits, tapes-CD's, DVD's, golf equipment, camping gear, boats

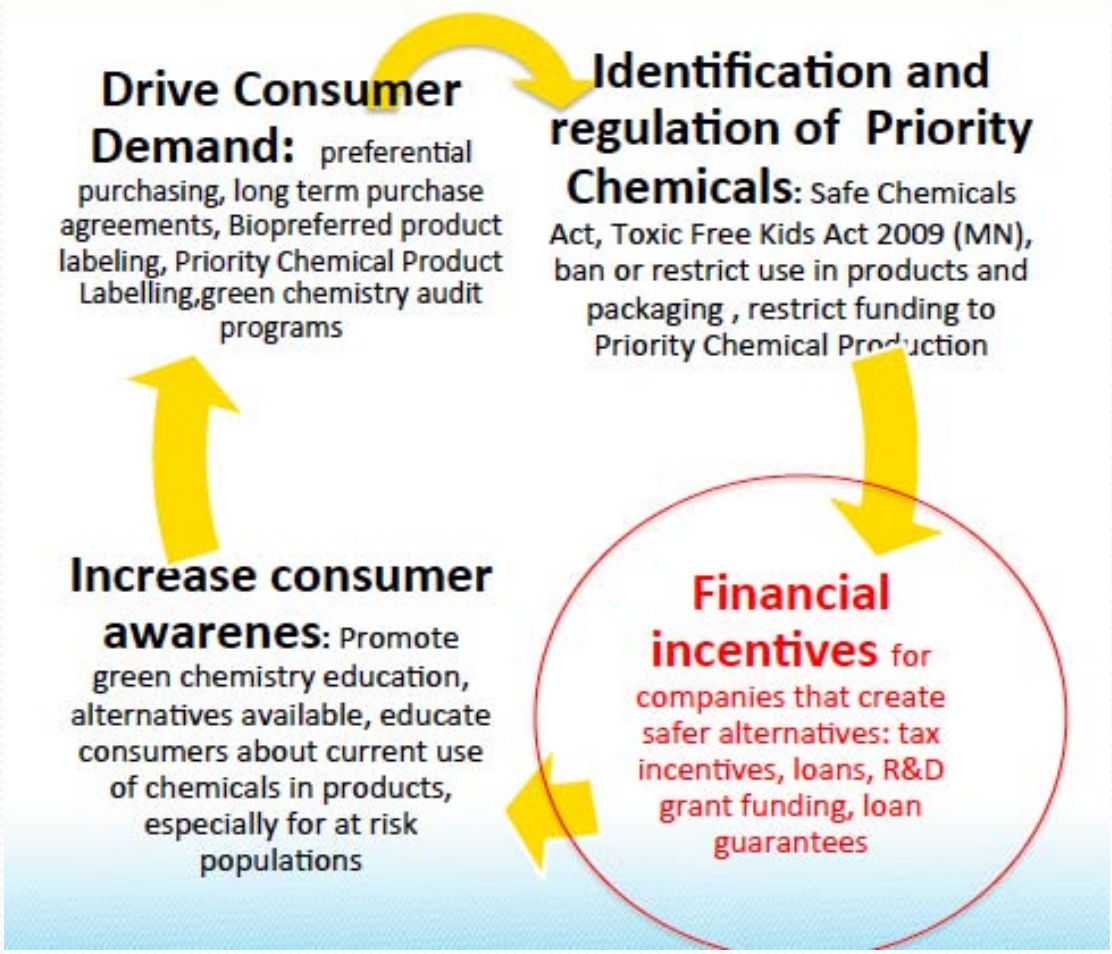
Health and Hygiene
Plastic eyeglasses, cosmetics, detergents, pharmaceuticals, suntan lotion, medical-dental products, disinfectants aspirin

Not Just Jobs…Careers for New Economy

Job Classification	Number of Employees	Base Rate ($/hr)	Multilpier for Benefits	Hours Worked per Year	Annual Wage & Benefits
Plant Manager	1	$79	1.3	1,920	$197,184
Operations Mgr	1	$60	1.3	1,920	$149,760
Services Mgr	1	$45	1.3	1,920	$112,320
Logistics Mgr	1	$45	1.3	1,920	$112,320
Chief Engineer	1	$60	1.3	1,920	$149,760
Shift Supv.	5	$30	1.3	1,920	$374,400
Operators	15	$20	1.3	1,920	$748,800
Maintenance	5	$20	1.3	1,920	$249,600
Analytical	2	$30	1.3	1,920	$149,760
Administrative	3	$20	1.3	1,920	$149,760
Total Labor	35				$2,393,664

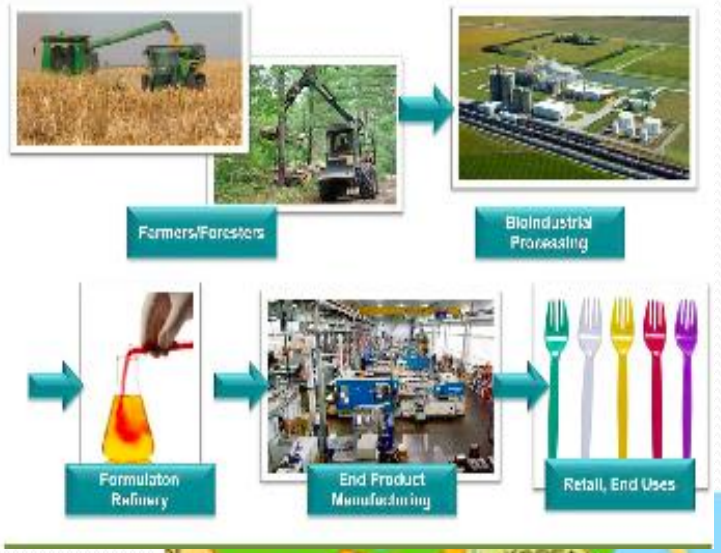
Drivers…

Incentives Missing Link to Maintain Global Competitiveness



Connect Dots with White House BioEconomy, Advanced Manufacturing Initiatives…

Grow It Here, Build It Here, Make It Here



Tax Proposals

- PTC: S 3491, HR 4953
- ITC: S 1764

USDA,

-- B&I,REAP Loan Guarantees High Priority Projects

-- Farm Bill,

S 3240

- §9003 Loan Guarantees
- §9008 Biomass Grants

Grants from White House Initiatives:

Advanced Manufacturing & BioEconomy Blueprint

- **DOE (Biomass**, AMO, ARPA-E)
- **USDA (Biomass**, Critical Ag Materials)
- Commerce NIST
- DOD (DARPA, SERDP/ESTCP)

Thank You
Corinne Young LLC

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