Before the United States House of Representatives
Committee on Science and Technology

Hearing on The Future of Manufacturing: What is the Role of the Federal Government in Supporting Innovation by U.S. Manufacturers?

Written testimony of:
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I. U.S. Manufacturing and Chemical Manufacturing must revive its growth trajectory.

II. Renewable Chemicals, defined as chemicals that are derived from renewable sources, should be an area of focus, to:

- (i) Increase manufacturing activity and promote growth of high-paying chemical jobs.
- (ii) Reduce our dependence on imported petroleum based feedstocks, i.e. foreign oil.
- (iii) Establish the United States as a leader in "petroleum-to-renewable feedstock" transition technologies.
- (iv) Promote the United States as a leader in a viable and sustainable manufacturing sector.

III. The Federal Government should focus its efforts in supporting small and medium-sized enterprises as well as large enterprises in their efforts to develop and commercialize viable technologies to manufacture renewable chemicals through:

- (i) Funding programs for the development of chemicals from renewable sources.
- (ii) Funding the development of pragmatic standards for the renewable chemicals industry.
- (iii) Coordinating the efforts of the various government entities to provide financial support to small and medium enterprises in their research and commercialization efforts.
- (iv) Providing financial support and incentives for investment in the production of renewable chemicals.

Mr. Chairman and Members of the Committee, on behalf of myself and PMC Group, I thank you for the opportunity to testify today on the important subject of the Federal Government's role in supporting innovation by U.S. manufacturers. My name is Debtosh Chakrabarti and I am President of PMC Group.

PMC Group ("PMC") is a growth oriented, diversified, global chemicals and plastics company dedicated to innovative solutions to everyday needs in a broad range of end markets including plastics, consumer products, electronics, paints, packaging, personal care, food, automotive and pharmaceuticals. Our company was built on a sustainable model of growth through innovation while promoting social good. We are dedicated to sustainability; over half of our raw materials are derived from renewable sources.

In our nation's history, Federal Government programs for scientific research and development have yielded the seeds of tremendous advances in the private sector. We must now refocus our efforts in our federally funded research to the most important and promising areas of growth, align them through central focal points that coordinate these programs and invest in the transitioning of these technologies to the private sector, especially to small and medium-sized enterprises.

PMC is a rapidly growing manufacturing enterprise. From our genesis in 1994 to today, we have experienced the challenges that come with growth and implemented workable solutions. This journey of ours gives us a fresh and real perspective on the issues facing U.S. manufacturers, especially in the chemical industry.

We are a U.S. based multinational innovator, developer and manufacturer of chemicals and have a significant interest in the growth and sustainability of the manufacturing industry in the United States. Accordingly, we appreciate the opportunity to share our views on the future of U.S. manufacturing and the role that the Federal Government can play in supporting the cornerstone of our sustainability – the continuation of our country's leadership in innovation and manufacturing.

The chemical manufacturing industry is one of the most important sectors of the U.S. economy. The chemical industry employs in excess of 840,000 employees with average hourly earnings 22% greater than the private sector average. Considering the indirect employment associated with supplier jobs and expenditure-induced jobs, the chemical industry is responsible for greater than 5.4 million jobs[1]. The products of chemical manufacturing are an integral part of our everyday lives and the industry provides high-paying jobs that utilize our country's skilled and productive workforce.

Despite its importance to the economy, the U.S. chemical industry has faced and continues to face challenges. The global spread of existing efficient manufacturing technologies, lower costs of operations and compliance elsewhere in the world, combined with freer global flow of investment capital has intensified the competitive landscape. Efficiency-improving manufacturing technologies are spreading faster than ever across the globe, rapidly reducing the productivity advantage that once compensated for higher costs of operations in the U.S. Lower barriers to the flow of investment capital has led to newer more efficient manufacturing plant investments to be installed elsewhere in the world. These challenges apply to the entire manufacturing industry. The gaps to our leadership are shrinking. Innovation must lead the pathway to the future if we are to maintain our leadership position.

The U.S. chemical industry is in need of growth revival. We believe that two of the most important challenges facing our nation today are (i) how to increase the number of good, high paying jobs and (ii) how to reduce the dependence of our nation on foreign oil. We believe that increased development and production of chemicals based on renewable sources is a viable, sustainable pathway to further both of these objectives, while at the same time reducing our nation's carbon footprint.

Replacement of crude oil by renewable feedstocks through the chemical supply chain is a "real and now" possibility. By the virtue of their higher value based on more diverse applications, downstream chemicals from renewable sources can rapidly lead to reduction of imported crude oil and increased job creation. Those of us that are involved in renewable chemicals manufacture know that this is a near-term and realistic opportunity. Government programs to support small and medium-sized enterprises as well as larger enterprises in this effort have the ability to have a sustainable and catalytic impact. The foundation of this strategy should be our strengths, namely our large, existing chemical manufacturing and related infrastructure, and our deep base of skilled workers. However, the renewable chemicals industry faces challenges to get off the ground, these challenges lie primarily in the development and commercialization phase.

[1] Source: Bureau of Labor Statistics, Bureau of the Census, PMC Analysis

We believe that there should be three critical pillars to the successful development of a sustainable renewable chemicals industry:

1. **The development of new chemical products based upon renewable resources** to (i) reduce our dependence on petroleum, (ii) promote America as a leader in a growing manufacturing sector; and (iii) support the creation of high paying chemical manufacturing jobs. The petroleum based chemical industry has attracted decades of investment to adapt chemical technologies to produce products that touch almost every minute of our daily lives. Research and innovation in renewable chemicals should, in the near term, be focused on the adaptation and application of existing chemical processes on renewable feedstocks and, in the mid-term, be focused on the creation of new techniques to convert renewable feedstocks into valuable products. Sustainable efforts by private industry in this type of research should be supported by the Government through:

    a. Funding programs to support private and public research activities in the application of existing chemical know-how to produce chemicals from renewable feedstocks.

    b. Funding programs to support private and public research activities for developing new and novel chemical processes for converting renewable feedstocks.

    c. Creating a stable policy environment and incentives for manufacture of renewable chemicals.

    d. Introducing "jump-starting" legislature that calls for replacing petroleum-based chemicals in certain end-uses.

    e. Funding the development of pragmatic standard methodologies for identifying renewable chemical content, carbon footprint, and petroleum replacement content.

2. **Invest in retooling existing facilities to commercialize renewable chemicals**. Reconfiguring existing facilities to support the manufacture of new chemical products will require investment. Our infrastructure, skill base and manufacturing knowledge are our strengths. The access to commercialization phase investment capital, especially for small and medium sized enterprises, is a significant challenge to the early stages of transformation. The transformation of existing manufacturing infrastructure to support the growth of the renewable chemicals industry should be supported by our Government through:

    a. Funding programs to leverage private capital in the commercialization phases of transformed facilities.

    b. Implementing incentives for private investment in the production of renewable chemicals.

    c. Supporting small and medium-sized enterprises through capital access programs and through the development of a one-stop shopping approach to Government support programs.

    d. Elevating renewable chemicals to an important position in the nation's agenda, similar to biofuels.

3. **Maintain and extend our productivity leadership** through (i) retrofitting existing facilities with world-class measurement systems and process control to support productivity improvement to compete with newer facilities in other countries; and (ii) improving the access to best practices in manufacturing for

small and medium enterprises. The use of existing manufacturing infrastructure must be accompanied by investment in process control and measurement systems for productivity improvement. New manufacturing facilities in other countries are being built with state-of-the-art process control and productivity improvement systems. *(Recall what happened to our steel industry.)* The competiveness of American manufacturing must be supported by retrofitting our facilities with state-of-the-art technology for manufacturing productivity. The development of these systems will benefit the entire manufacturing sector. The government can support these efforts through the National Institute of Standards and Technology by way of:

a. Funding programs for renewable chemicals manufacturers to upgrade the competitiveness of their measurement systems and process control technologies.

b. Funding public and private research in new productivity improvement and process measurement systems.

c. Leveraging the existing efforts of the Manufacturing Extension Partnership to assist small and medium-sized manufacturers in implementing best practices focused on cost efficiency and productivity.

Finally, we appreciate the opportunity to share our views. Our Government should continue and expand its roundtable programs to create a dynamic process for feedback from small and medium-sized enterprises to ensure that the most effective programs and policies are advanced.

At PMC, renewable chemicals are a substantial part of our growth strategy. We have committed to this strategy because we believe that it is a sustainable pathway for manufacturing growth. The challenge that we face along with other U.S. manufacturers is in accelerating the commercialization of these technologies. In an uncertain economic environment, companies normally take a conservative approach to investment. Prudent Government policies and standards are required to change this mindset. Efficient and pragmatic government programs supporting the renewable chemicals industry would accelerate the transformation of ideas into increased employment and decreased reliance on foreign oil.

PMC Group Vision and Commitment

Vision

The vision of PMC Group is to create a new kind of global corporation – a corporation with a soul and one that acts as an engine for regional economic growth and exists primarily to promote common good by creating social values. This engine is fueled by its profit but it derives its power from its ability to innovate and from the quality of service it provides to its customers.

Commitment

PMC Group is committed to providing the very best of products and services to its customers. In doing business with PMC Group you will be helping to build a new model for a global corporation that can grow rapidly, create jobs, promote social responsibilities, and generate the profits necessary to do these functions well. We appreciate your patronage in this journey of ours.

PMC Group Key Values

Commitments: Innovation, Quality and Service

Focus of Commitments: Customer

Citizenship: Global

Loyalty: To Society, Employees and Shareholders

Unassailable Factors: Health and Safety of our People

Prized Assets: Integrity and People Working as Teams

Style: Swift and Prudently Aggressive

Profile: Lean and Agile

Treasured Philanthropy: In Promotion of Education

PMC Group Renewable Chemicals Highlights

- Investment in Memphis, Tennessee manufacturing facility (February 2008) for the production of chemicals from renewable feedstocks – PMC Biogenix, Inc. The facility is a world-scale integrated manufacturing site dedicated to the production of chemicals from renewable feedstocks.

- Commissioned the PMC Center for Renewable Chemistry in Memphis, Tennessee (January 2010). The 16,000 square foot facility, which houses product development laboratories, application laboratories and pilot plant, is dedicated to the research and development of renewable chemicals.

- PMC Advanced Technology, LLC, is a research subsidiary focused on the development of new technologies for, amongst other things, next generation renewable chemicals and biofuels.

About Mr. Debtosh Chakrabarti

Debtosh Chakrabarti is the President of PMC Group. In this capacity, he is responsible for the North American based operations and businesses of PMC Group. In addition, he serves on PMC's corporate committee responsible for overall corporate management of the global group. PMC Group is a growth oriented, diversified, global chemicals and plastics company dedicated to innovative solutions to everyday needs in a broad range of end markets including plastics, consumer products, electronics, paints, packaging, personal care, food, automotive and pharmaceuticals. The Company was built on a sustainable model of growth through innovation while promoting social good. Dedicated to sustainability, PMC derives over half of its raw materials from renewable sources and operates from a global manufacturing, innovation and marketing platform with facilities in the Americas, Europe and Asia. Mr. Chakrabarti has been instrumental in the growth of PMC from a single site manufacturing operation to a global chemical company. Born on June 11, 1973 in Wayne, New Jersey, he attended primary and secondary schools in New Jersey and Pennsylvania. He received his Bachelor of Science in Chemical Engineering from Massachusetts Institute of Technology and is a graduate of the Advanced Management Program at Harvard Business School. He currently resides in Moorestown, New Jersey with his wife, Juliana, son, Deven and daughter, Asha.