R & D Tax Credit Aspects of the U.S. Manufacturing Renaissance

By Charles R. Goulding, Andrea Albanese and Charles G. Goulding

Charles R. Goulding, Andrea Albanese and Charles G. Goulding report on the growing number of manufacturers that are moving their operations back to the United States and discuss possible technology drivers that could qualify for federal R & D tax credits.

The U.S. manufacturing sector is experiencing a renaissance. As we visit U.S. manufacturers big and small, we are witnessing the tremendous pride felt by these companies that know they are beginning to effectively compete against non-U.S. manufacturers.

A survey conducted earlier in 2012 by Boston Consulting Group[1] found that one third of U.S. manufacturing companies with sales exceeding a billion dollars are planning to bring production back from China to the United States.

There are a variety of economic and technologic drivers supporting the return and resurgence of U.S. manufacturing. Federal R & D tax credits are available for many of the new technology drivers.

The Research and Development Tax Credit

Enacted in 1981,[2] the federal Research and Development (R & D) Tax Credit allows a credit of up to 13 percent of eligible spending for new and improved products and processes. Qualified research must meet the following four criteria:

- new or improved products, processes, or software
- technological in nature
- elimination of uncertainty
- process of experimentation

Eligible costs include employee wages, cost of supplies, cost of testing, contract research expenses and costs associated with developing a patent.

On January 2, 2013, President Obama signed the bill extending the R & D Tax Credit for 2012 and 2013 tax years.[3]

U.S. Manufacturing Economic Drivers

Chinese manufacturing labor costs have risen 15- to 20-percent per year since 2005. In contrast, U.S. labor costs increased 1.4 percent in 2011. Currency swings have greatly increased Chinese manufacturing costs since the Chinese currency has gained 33 percent versus the dollar since 2005.

A long distance supply chain greatly increases costs including inventory, shipping and fuel costs. Inventory costs increase because the inventory purchaser must hold on to a larger quantity of safety stock due to the extra time to replenish stock from

Charles R. Goulding, Attorney/CPA, is the President of Energy Tax Savers, Inc., an interdisciplinary tax and engineering firm that specializes in the energy-efficient aspects of buildings.

Andrea Albanese is an Analyst with Energy Tax Savers, Inc.

Charles G. Goulding is a Senior Analyst with Energy Tax Savers, Inc.

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the longer supply chain. When a supplier is local, a U.S. purchaser can use "just-in-time" (JIT) inventory processes to greatly reduce inventory costs.

The United States has a reliable infrastructure. In contrast, the inadequacy of India's electrical utility system and highway system has greatly inhibited manufacturing growth in that country.

Lastly, tremendous new accessible natural reserves are encouraging large chemical processors and other large fuel users to expand here.[4]

Dow Chemical recently applied for a federal permit to build the company's biggest ethylene plant based on cheap natural gas. Dow is investing $4 billion in Texas and Louisiana through 2017 to increase the production of ethylene and propylene.[5]

Chevron Phillips Chemical and Exxon Mobil Corp. are also making large ethylene plants known as "crackers." Hydraulic "fracking" has increased the supply of natural gas liquids such as ethane and propane, which are converted into ethylene for use in plastics, antifreeze, and many other products.

These facilities support U.S. manufacturers of replacement pumps, valves, bearings and filters that are often needed on an immediate basis and reoccurring.

Shell Oil Co. is set to open its fifth petrochemical plant in Beaver County, Pennsylvania. Scheduled to be completed sometime in the next few years, this Pennsylvania location is convenient because of its access to rivers, railways and highways. The site is above a region of "wet gas," which contains valuable natural gas liquids such as ethane.[6]

A recent PricewaterhouseCoopers study indicates that new abundant natural gas resources could introduce 1 million U.S. jobs by 2025.[7]

Technology Manufacturing Returns to the United States

Recent years have shown that an increasing number of companies are re-shoring jobs back to the United States. Companies in the electronic, automotive and medical device industries have been returning to America, bringing the supply chain closer to U.S. consumers.

In October 2012, the Chinese company Lenovo announced plans to open a computer manufacturing plant in North Carolina. The facility which will mainly produce desktops and tablets is expected to open in early 2013 and create more than 100 jobs in the United States.[8]

Apple has also announced its plans to begin manufacturing Macs in the United States. The news came in early December 2012 that Apple will invest $100 million into producing some of its Mac components in the United States.[9]

General Electric will be opening new assembly lines in Louisville, Kentucky, bringing jobs back to the United States from China and Mexico. In addition to their existing facilities in Louisville's Appliance Park, these new assembly lines will mainly build refrigerators, water heaters and washing machines.[10]

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Over the next few years, General Motors Co. will be bringing some of its tasks back to the United States as well. GM will hire about 1,000 workers to fill high-tech positions in a new technology center just outside of Atlanta, Georgia. The company will be hiring software developers, project managers, database experts and business analysts for the new facility, which will concentrate on research and development.[11]

U.S. Manufacturing Technology Drivers

U.S. Manufacturers have made great strides with lean manufacturing process changes. Lean manufacturing, originating from the Toyota Production System, is a production strategy that focuses on efficiency and creating the shortest possible cycle time. This is achieved by eliminating waste, optimizing work flow and reducing incidental work.

Once the lean process is executed at a manufacturing plant the facility typically has excess capacity and the knowledge and expertise to re-source key processes back to the United States or commence entirely new value added manufacturing processes for either existing products or new products.

During the economic downturn many U.S. manufacturers used the opportunity to greatly increase automation, and including robotics supported by large stimulus provided bonus deprecation tax savings.[12] U.S. manufacturers are also quickly implementing new 3D printer design systems which enable them to design new and more complicated products and

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subcomponents at a fraction of previous new product design costs.[13] Virtually every manufacturing plant we visit has already purchased a 3D printer and is often in the process of buying more of them.

Conclusion

As this article goes to press, the U.S. auto industry has strongly rebounded and is operating at the highest capacity levels ever achieved. Ron Harber, of consulting firm Oliver Wyman, said "There has never been a time in the U.S. Industry that we've had this high a level of capacity utilization".[14] A strong auto manufacturing sector has led to the revitalization of auto parts suppliers, including electronics part suppliers and employee benefit providers, especially medical insurance. The increasing percentage of new, high tech electronic equipment is supporting innovation in that sector.[15]

The Boston Consulting Group forecasts that American companies will repatriate between 2 million and 3 million manufacturing jobs and add $100 billion to economic growth by 2020. Tax advisers knowledgeable about the U.S. R & D tax credit can help accelerate this important development which is crucial to our nation's future.

Endnotes

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