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During the campaign, President Barack Obama pledged to create 1 million manufacturing jobs and expand exports. In NH, where the sector has been steadily sending jobs overseas, will manufacturing play a role in the state’s fiscal recovery?

The answer is yes. Employers, policymakers and educators say advanced manufacturing is the foundation for growing NH’s economy. In fact, many manufacturers have positions to fill, but say they can’t find skilled employees. “The only way you create wealth is to grow it, mine it or manufacture it. All other industry, like health care, just moves money around,” says Norm Fisk, director of The Regional Center for Advanced Manufacturing in Keene.

The latest data shows that in 2011 there were 78,000 people earning an average of $1,323 per week in advanced manufacturing in NH, says Dennis Delay, economist for the NH Center for Public Policy Studies. While impressive, that reflects a decline from 2001 when manufacturing accounted for 27 percent of all NH wages; it now accounts for 20 percent, according to Delay.

Still, NH’s manufacturers have added jobs since 2010, though not enough to make up for previous losses. The sector remains the state’s third largest employer. Of the top 100 private companies in NH (ranked by annual revenue), 33 percent are manufacturers.

And those jobs pay well. Manufacturing pays 21 percent more than the average hourly private sector wage. New Hampshire Ball Bearings, which designs and produces ball bearings and assemblies, employs 1,500 employees at its Peterborough and Laconia plants and generates a gross monthly payroll “just north of $50 million,” according to Gary Grocela, corporate manager of labor relations for the multi-billion dollar international company.

Manufacturers are also a vital link to the global marketplace. About 2,100 NH manufacturers and more than 1,600 high-tech manufacturers exported $4.3 billion worth of products in 2011, despite economic challenges abroad.

While NH’s exports have begun declining since hitting an all-time high in 2010, they remain higher than they were five years ago, according to NH Department of Resources and Economic Development (DRED). Lorna Colquhoun, communica-
Manufacturing's Ripple Effect

Manufacturing, Delay says, is the most important sector of the NH economy as it can have a greater economic effect on the state than other notable sectors like tourism or health care alone. Adding 100 manufacturing jobs creates $16 million in income for NH residents. That’s double the impact created by the same number of jobs in health care or four times more than tourism, he says.

“Jobs in manufacturing carry a fairly high wage, plus it draws money in from other regions or outside the U.S.,” Delay says. “This has a huge effect on our economic future because, simply put, if we have a growth in higher paying jobs, those people can buy homes, products and services. It brings about a positive ripple effect on New Hampshire’s entire economy.”

Delay says the ripple effect from the expansion and success of many manufacturing companies, like Albany Engineered Composites and Safran USA (advanced manufacturers who share a 275,000-square-foot facility in Rochester and plan to create 400 jobs), will be felt beyond Rochester.

“I expect that unemployment will decline in that immediate area, but the positive impact from that facility will also be wide-ranged,” Delay says. “I could see it impacting unemployment within a one-hour radius of Rochester. And you have to factor in the ripple effect of that too. Services will be needed to support the growing business. Employees will have the income to support spending. It is win-win for the economy.” If the sector is not cultivated, though, that too will have ripple effects.

“If manufacturing erodes rather than grows, the New Hampshire economy will be poorer, no doubt,” Delay says.

Bolstering Manufacturing

So what can be done to grow this critical industry? At the state level, legislators need to develop policies that attract new business, and educators must work with manufacturers to create a pipeline for talent, Delay says. He points to state programs and policies that are already helping.

The Research and Development Tax Credit offers a $1 million tax cap in support of research and development expenditures and was used by 111 businesses last year. Also in 2012, about 45 manufacturers and tech companies took advantage of the NH Job Training Fund grant that allocates $1 million per year in matching funds for workforce training.

Delay says NH is poised for development and economic growth, if it remains competitive. “New Hampshire has a large proportion of foreign direct investors with facilities in the state, and we have a lot that makes us attractive to these global companies.” Those companies include Freudenberg, which is German, and BAE Systems, the largest manufacturer in the state, which is British-owned.

Among those attributes is a highly skilled workforce, relatively easy environmental restrictions and proximity to major transportation centers, Delay says. But the state also has its share of challenges, many deficient bridges, a corporate income tax that is among the highest nationwide and higher utility costs, he says.

Creating a Talent Pipeline

New Hampshire manufacturers poised for growth say their main challenge is a shortage of qualified applicants for high-tech, high-skilled jobs. Groleau of NH Ball Bearings expresses concern about filling the 50 to 60 positions he expects to be available in the next six months. Even though those positions pay up to $30 per hour, Groleau cannot find enough skilled applicants. The problem can become so pervasive, he says, many companies may resort to stealing other companies’ talent.

Smaller manufacturers face the same issue. Jeremy Baron, vice president of the 50-employee Baron Machine Company Inc. in Laconia, says that he hires about four to five employees per year for his global fabrication company, but it has become increasingly difficult to find qualified applicants. “I have seen a bigger challenge in the last three to four years in finding the right skilled labor to fill our positions. And the company has plenty of opportunity to grow,” Baron says. “If I could, I would hire three people right now and would often do more hiring because I have the long-term contracts to support it.”

Many manufacturers say the lack of labor hasn’t hindered their growth yet. But they are concerned it will as new contracts come in. While companies receive numerous applications
for open positions, many only fit entry-level positions.

The Community College System of NH (CCSNH), which has 27,000 students, has partnered with industry leaders to alter curriculum to better fill the labor gap. Chancellor Ross Gittell says its seven colleges across the state have made equipment and technology upgrades with direct input from regional manufacturers to better tailor curriculum to provide certificate programs, create shorter paths to employment and create a qualified workforce.

It’s part of the $2 billion, four-year nationwide grant program approved by President Obama in 2010. Of that, $19.9 million was funneled into CCSNH’s seven campuses through a federal Trade Adjustment Assistance Community College and Career Training grant. The program won support from manufacturers in industries as diverse as aerospace, medical and automotive. BAE, a global manufacturer of defense and electronic systems with microelectronics facilities in Nashua and Merrimack, is one participant.

“The average community college graduate earns $51,000 a year, but this new path creates an opportunity for graduates to enter a field, with many open positions, and earn an average of $70,000 a year, and to be part of a growing industry with room for advancement and a future,” Gittell says, adding the Community Colleges are working with more than a hundred companies.

Hypertherm, a multi-million dollar company located in Hanover and Lebanon that produces advanced metal cutting products, is one of them. It added 60 positions in 2012 with another 30 to 40 positions slated for the near future. Hypertherm employs 1,100 NH associates, but needs help finding these associates. So Hypertherm partnered with River Valley Community College (through the federal grant) to create an accredited class where participants can graduate with a certificate and a machine technician job at Hypertherm. The company even established its own training center, Hypertherm Technical Training Institute, which offers nine weeks of intensive paid training at the end of which 85 to 95 percent of participants graduate with a certificate in Advanced Machine Tool Technology, which earns them 28 credits towards an Associate’s Degree at River Valley Community College. The Institute has graduated and employed about 366 associates since opening more than three years ago.

“Manufacturing is very important to the overall economic health of the state. If we can’t fill manufacturing jobs because of an unskilled workforce, then those jobs may move elsewhere,” says Barbara Couch, vice president of corporate social responsibility. “Hypertherm has implemented its own solution to this issue for now, but the problem is still there and requires the attention of major stakeholders from around the state.”

Another collaboration funded through the federal grant is Great Bay Community College’s Advanced Technology and Academic Center in Rochester for Safran Aerospace Composites and Albany Engineered Composites that is expected to open next month. It will train students in composites manufacturing for work at the plant, which will produce engine technology to be used in Boeing aircraft and is slated to open this summer.

“It is very exciting for us because we will be working with them long-term and supplying their workforce in a growth plan that spans to the year 2017,” says Will Arvelo, president of Great Bay Community College in Portsmouth. “And once we have accomplished this I can see Safran-Albany becoming the nucleus for many other companies that will see their success and skilled workforce and choose to come to New Hampshire to do business.”

Michael Rigalle, general manager in charge of the expanded Safran facility, says he’s confident that with access to an efficient training process, Safran will grow from its current 50 employees to 60 by the end of 2013 and by more than 400 over the next three years. “Sometimes we do struggle to find the right employees with the right skill level. The learning curve in aerospace is long,” Rigalle says. “But one of the advantages to being in New Hampshire is that so far, we have seen a work ethic of stability. Having employees who are with you long term is important and is what we have found here.”

Overcoming Stigma and Disinterest

At the 50-year-old Hollis Line Machine Company Inc. in Hollis, John Siergiejewicz Jr., who manages the family-owned business which specializes in precision machining and fabrication, says being connected to local colleges is key to finding skilled labor.

“In manufacturing the one thing that is constant is the fact that things change, and [you need to] be ready for it. In the last 25 years, we have worked with the colleges and the high schools to set up apprentice programs,” he says. “We have over 60 employees with a starting wage of $400 per week.
**Top Five Commodities Exported from NH (November 2012 Year-to-Date)**

1. **Industrial machinery (including computers)**
   - **$951,217,805**

2. **Electronic machinery for sound and television equipment**
   - **$704,315,603**

3. **Medical devices**
   - **$387,574,144**

4. **Plastics**
   - **$149,774,589**

5. **Vehicle parts**
   - **$73,454,737**

Source: NH International Trade Resource Center

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(for) entry level to a high [of] $2,300 per week. And we have new hires planned and we must be able fill them.”

According to the NH Department of Education, more than 20 high schools and 24 colleges in the state offer vocational programs related to manufacturing. Gittel says the problem is not a lack of programs, but a lack of interested students and a drop in enrollment in advanced math and science programs. He says the focus has changed from manufacturing to health care. Another big problem is the stigma attached to manufacturing—a perception it is a dirty and dying industry.

Arvelo says CCSNH is reaching out to K-12 educators to place more emphasis on advanced math and science, and to inform students as early as middle school about career choices in manufacturing (even bringing them to manufacturing facilities to see job opportunities first hand). CCSNH is also working with the NH Department of Employment Security and adult education facilities to promote certificate programs and other pathways to advanced degrees.

Freudenberg North America, a global multi-billion dollar company, is teaming with the Lakes Region Community College to attract students to manufacturing. Freudenberg, which produces seals, special lubricants and vibration control technology for aerospace, automotive, pharmaceutical, construction and energy industries, participates in the Pathways to Success-Lakes Region program. That program will offer students tours of its Northfield plant and educate them about manufacturing careers. The plant will also serve as a “hands-on lab” when it launches its advanced manufacturing certificate program, which is expected soon.

“It shows real-world proof that there are good paying jobs for the well-educated student,” says Leesa Smith, president and regional representative for Freudenberg North America.

Freudenberg has 1,300 NH associates (representing 25 percent of their total nationwide) with locations in Northfield, Bristol, Ashland, Belmont, Manchester and Londonderry. It is planning to expand its Bristol and Londonderry facilities by 2014.

“We are a 160-year-old company that has been in this state 60 years, and we stayed here because of the strong workforce ethics we have experienced here. But recently, we realize we need to pursue strategies to make our expansion here possible,” Smith says. “We partnered with the Department of Economic Development and the Community College System to end the disconnect in what educators thought employers need and what we actually do need.” That included providing input into curriculum development.

**Investing in Training**

Training employees is critical to NH manufacturers remaining competitive. Earlier this year, Phase 2 Medical in Rochester received a NH Job Training Fund Grant, worth $17,598, to further train the company’s 120 associates.

Phase 2 President Adam Prime says the grant program has been an essential resource for his expanding company, which provides material procurement, new product development and manu-
facturing, testing, packaging, shipping, and sterilization services to the single-use disposable medical device market.

"To be successful now and to compete on the global market, this training and education is key," Prime says. "We have found the workforce in our area to be well educated, but to extend further training is what keeps us ahead of others and able to change with the times."

At Phase 2 Medical, founded in 1995, revenues have increased annually for the past five years, including a 32 percent spike in 2012. The company also recently expanded its plant by 9,000 square feet. Prime attributes his company's growth, in part, to its adoption of lean manufacturing practices. (For more on lean manufacturing, see story in the Biz Bits section.)

However, Prime is concerned about finding skill employees to replace his experienced workers who will begin retiring in the next 10 years. He estimates about 20 percent of his current workforce will retire by 2023. The other, more imminent concern is competing with nearby Albany, Safran, which will be hiring hundreds of similarly skilled employees in the next few years.

"We are working with the state to develop a partnership with the University of New Hampshire to bring in talent for our positions. The difficulty comes when filling the higher technical positions," Prime says.

Recognizing the importance of manufacturing to the local economy, key players in the Monadnock Region came together to form the Regional Center for Advanced Manufacturing (RCAM). Launched two years ago, it is a consortium of the Greater Keene Chamber of Commerce, Keene State College, Keene School District (through its Keene Community Education program), and River Valley Community College. Its goal is to provide training opportunities for new and incumbent workers in the manufacturing sector. The center includes a machine laboratory located in the new Technology Design and Safety (TDS) Building at Keene State, though classes are also taught at the Community College.

"About 50 percent of the students already work in industry and are sent to us by their company to receive certification of some level," says RCAM Director Norm Fisk. RCAM also helps companies connect with students headed for course completion or graduation to help fill open positions.