

Manufacturing

Manufacturing remains a major component of Virginia's economy with over 295,000 people working in this sector in 2005. While this represents Virginia's third largest sector, its future health is fragile. Between 2000 and 2005, the sector lost 66,000 jobs which constitutes nearly one-fifth of all manufacturing jobs in Virginia.

The future of manufacturing in Virginia lies with the rapid adoption of modern technological and process improvements. High tech manufacturing processes drive productivity. Between 1995 and 2005, U.S. manufacturing output per person increased more than 50 percent due to improvements in productivity gained from automation and other process developments.

High tech manufacturing requires two key ingredients: automation coupled with a skilled workforce to operate an automated manufacturing process.

The ability for a Virginia manufacturer to compete globally is directly tied to adopting the most advanced manufacturing processes. This requires substantial capital resources to automate processes and constantly modernize tools to ensure that the most advanced - and productive - processes are in place to compete in a global market. State level policies are required to encourage the spending of capital to modernize facilities.

Currently, the machinery and tools tax is applied to all tangible property "used directly" in manufacturing. This rate is determined at the local government level. This tax is a disincentive to modernize and automate manufacturing facilities. A recent study by the General Assembly, SJR 361, found manufacturers have a higher effective tax rate than agriculture, retail, professional services, or information sectors.

Virginia's tax structure should be encouraging a healthy environment for manufacturing to remain in Virginia and generate high quality, high wage and high tech manufacturing jobs.

Information provided by: Commission Draft, *Impact of Regulations on Virginia's Manufacturing Sector*, October 10, 2006, Joint Legislative Audit and Review Commission)

RECOMMENDATION: Legislation should be introduced in the 2007 session of the Virginia General Assembly which addresses the adverse impact of the machinery and tools tax on Virginia's manufacturing sector. This legislation should address exemptions for technology-based investment, efforts to implement advanced manufacturing techniques and processes, and hence to stabilize the economic climate for technology lead manufacturing within the Commonwealth. This legislation should also address local authority over machinery and tools taxation, in that the Commonwealth should insure a higher level of consistency in tax policy among its political sub-divisions, and should call upon the Virginia Department of Taxation to develop a standard schedule for machinery and tools depreciation that shall be adopted by each political sub-division of the Commonwealth.

Based upon research compiled from the National Center for Manufacturing Sciences (NCMS) there is, indeed, a global transition to nanomanufacturing. However, challenges exist for Virginia companies evaluating how nanotechnology can make their respective enterprises more competitive. Some of the Commonwealth's leading manufacturers are developing their own strategies for products that can have nanotechnology applications.

One of the greatest challenges associated with nanomanufacturing is the raising of capital to make needed infrastructure adjustments to incorporate nanotechnology into their manufacturing process. To keep Virginia manufacturers competitive, the Commonwealth should provide incentive funds in the form of matching grants for such transition needs.

RECOMMENDATION: The Manufacturing Extension Partnership should be charged with the task, by request from the General Assembly, to survey in collaboration with the Virginia Manufacturers Association and other interested parties, the existing manufacturers of the Commonwealth to determine the potential applications of nanotechnology to their production processes. Such an assessment should entail developing a cost estimate for needed transition tasks, and discussions on how nanotechnology can enhance the overall competitiveness of that given industry.

As the NCSM final report determined, it is unlikely that in the field of nanotechnology that there will be levels of real maturity in our lifetime. This justifies the case for sustained long-term government investment in nanotechnology. To accelerate the pace of success and direct application of positive nanotechnology advances, public-private partnerships must be developed between industry and supporting academic research institutions. This will hasten societal and governmental support for near-term Virginia and national concerns, such as: increasing productivity and profitability in basic manufacturing; improving energy resources and utilization; environmental remediation measures; enhancing healthcare; improving agriculture and food production; and expanding computational and information technologies.

Virginia can lead the nation in defining and funding a collection of Commonwealth priorities as it applies to nanotechnology, and create a concise set of incentives for growing prospective and existing nanotechnology enterprises, in addition to existing manufacturers needing a competitive edge in the global market place.

RECOMMENDATIONS: 1) Establish the "Virginia Nanotechnology Manufacturing Partnership Act" which would be initially capitalized by \$25 million from the Commonwealth, which by legislative budget language would have to be matched by \$25 million from the federal government, or other non-state resources. To access these funds from the Virginia Nanotechnology Manufacturing Partnership Act, a Virginia based research institution MUST be teamed with a private sector employer from within the Commonwealth to address new product development or applications of nanotechnology to research needs within that given industry; 2) Add nanotechnology to the list of eligible uses for financing from the Virginia Small Business Financing Authority; 3) Consider adjusting the eligibility requirements for accessing the Governor's Economic Opportunity Fund for nanotechnology enterprises that may not meet current employment and investment criteria;

4) Create the Virginia Nanotechnology Supply Chain Network, through the Virginia Department of Business Assistance, that would work to expose existing and prospective Virginia manufacturers to the capabilities of Virginia nanotechnology businesses, and means by which they can address applications of their technologies to enhance manufacturing competitiveness.