

Northwest North Carolina Advanced Materials Cluster, Inc.

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Mission: The Northwest North Carolina Advanced Materials Cluster, Inc. is a 501C-3 economic development, public/private partnership focused on research, education, job growth and infrastructure for driving economic competitiveness.

Executive Overview

Since January 2004, the northwest region of North Carolina started thinking differently about economic development and created a new way of thinking about sustainable economic recovery programs. The collaborative leadership across the triple helix of government, industry and academia spurred an innovative approach to regional development. Many successes have been achieved and we now have opportunities to develop new policy that will change the way North Carolina and rural regions can impact the State's economic prosperity.

Policy Development Needs

1. In an effort to level the playing field for rural economies, economic development policy allowing two or more jurisdictions to partner to develop a regional cluster initiative would encourage the creation of multi-jurisdiction partnerships to develop regional initiatives for rural counties. The policy would provide a financial mechanism for counties, municipalities, and townships to start a regional cluster initiative that would help distressed counties compete against larger urban areas to aid in addressing poverty rates, education attainment, and the distress of rural communities.
2. Develop a multi-jurisdiction economic development incentive policy for shared revenue sources enabling a region to recruit a company with the respective regional partners providing cross-border incentives that present a regional package to a perspective company.
3. Develop an economic development incentive policy focused entirely on entrepreneur development companies, i.e. those companies that develop and create new jobs based solely on start-up ventures, new technology, and/or innovative manufacturing concepts to commercialization. Economic

development incentive policy focused on entrepreneurs would provide regions the capacity to spur innovation with financial incentives to small business development for advanced materials companies.

4. Develop an economic development incentive policy allowing local governments to partner with their community college to provide a new equipment incentive to the company. This policy would provide an opportunity to build capacity for human resources while serving as an incentive to the company. For example, if a local government did not have the finances to offer incentives to a company creating 100 new jobs, then this incentive policy would allow an equipment incentive to be presented to the company through the community college. Upon completion of the training period, the equipment would be purchased by the company at fair market value and the funds reverted back to the original revolving fund at the State Office for future projects. This policy allows for government to operate at the speed of business to encourage new technology development for a region.

Closing Remarks

Traditional economic development policy has been an effective tool and while these tools are effective, they are not innovative. Legislators, government and academic leaders need to become entrepreneurs. Now is the time for new ways of thinking about policy development, the future of North Carolina and the poverty levels that continue to widen our socio-economic gaps.

North Carolina has a significant opportunity to strengthen its effort and focus on the advanced materials industry. There is strong evidence in our State and in the nation that advanced materials are thriving and are moving our traditional materials to another transformational change in technology. The way we fabricate and manufacture products are undergoing momentous change. To be successful in the advanced materials sector, we must change the way we think about and the way we practice economic development. We must provide our businesses/industries, educators and government with the policies, resources and tools to succeed in the new economy, the development of the above economic development policy tools will help to ensure our success.

To provide information in support of a Business/Industry Economic
Development Program for the North Carolina Emerging Advanced Materials
Industry

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Background

Northwest North Carolina Advanced Materials Cluster

Since 2004, the Northwest North Carolina Advanced Materials Cluster, Inc. (Cluster) and the region's rural communities have achieved success while initiating various partnerships. Success includes the development of an entrepreneur start-up business, a fifty thousand dollar (\$50,000) funding commitment by the North Carolina Rural Economic Development Center, a one-hundred and twenty thousand dollar (\$120,000) funding commitment by The Duke Endowment, a twenty-one thousand dollar (\$21,000) matching contribution by the Wilkes, Ashe and Alleghany County Governments, and a \$1.2 million-dollar funding commitment by The Golden LEAF Foundation. The energy and enthusiasm radiating from the region's economic and workforce developers are substantial.

The Cluster has made considerable progress on our stated priorities of developing an economic foundation to support emerging companies, building entrepreneur programs, developing community college and university partnerships, creating a cluster-based business climate, and spreading the benefits of the Cluster across North Carolina.

A complementary initiative that the Cluster is now embarking upon is the development of an Advanced Materials Center (AMC). The Center, according to industry representatives, would be unique in providing two-year associate degrees, research and development, four-year bachelor degrees, and entrepreneur development resources. Significant economic opportunity exists with the establishment of a state-of-the-art advanced materials research and development center, inclusive of training and education for advanced materials industries.

The manufacturing of high strength nickel alloy, fiber reinforced polymers, thermoformed plastic components, and the transitioning of traditional materials to advanced materials products is an ideal industry for North Carolina. It creates clean, safe, high-paying jobs and those jobs can be located in a State built upon cooperative competitiveness. Efforts in the State to develop jobs based on applied sciences and advanced materials are being aided by new partnerships beyond the northwest region. Other counties are becoming interested in partnering with the Northwest North Carolina Advanced Materials Cluster. This expanded region is working to identify statewide niche opportunities, assess and strengthen local capacity, recruit and grow companies, and facilitate interactions between academics, industry, economic developers and government.

Since January 2004 Wilkes Community College, as the leader of the Cluster, has developed partnerships with local, state and regional educators, government, and business leaders to develop and sustain the operations and developments of the partnerships. This exemplifies the visionary leadership exhibited by the Cluster Executive Committee. The Executive Committee's commitment and dedication to collaboration, interconnected relations and shared missions are clear definitions of *regionalism*. The Cluster has strategically and collectively made decisions regarding organizational structure, programs and partnerships. This has enhanced the State's competitive advantage while developing public/private partnerships. This new way of thinking has allowed the region to position itself to create and secure jobs in the advanced materials industry. The Advanced Materials Center is a natural outgrowth of the foundation built over the past three years.

Statement of Need for Policy Development

North Carolina policymakers and practitioners should create and promote economic conditions that enable advanced materials companies to locate or emerge in North Carolina. Such an environment might, for example, support entrepreneurship, new firm formation, availability of capital and knowledge creation, economic development policy should focus on nurturing and growing emerging technologies in advanced materials manufacturing that will drive the 21st century economy and support the development of industry clusters.

Economic developers and policymakers need to understand that advanced materials are an umbrella concept, not a precisely defined term, and that advanced materials vary across industries and geographic locations. Policymakers need to work toward a more widely shared, multidimensional approach for characterizing different types of advanced materials. They should combine quantitative and qualitative methods. Ultimately, economic development incentives should evolve to become a creative and instructive fusion of art and science that helps academics, policymakers, and citizens better understand the diverse workings of their regional economies.

Considering the above, the emerging advanced materials industry Statement of Need consists of (but is not limited to):

1. **A focus on entrepreneurs:** An approach on new firm and technology development includes taking risks on smaller companies by providing start-up performance based incentives with regional and state governments contributing to the development of the respective company. *“If you grow them, they will stay”!*
2. **Knowledge of regional economies:** Regions should develop in-depth and ongoing understanding of the economy, including the major economic sector effects and the region's economic strengths and weaknesses.
3. **Community colleges and universities as a unified force:** These academic institutions should partner in targeted industry training and development (including applied research). Education and training should stay ahead of the ever-changing economy and “move at the speed of business” rather than being reactive. The Legislature needs to provide flexibility in curriculum development and allocate substantial equipment funding so respective colleges and universities can transition curriculums to match industry needs promptly.
4. **Policy creation for small industry investment:** There is a need for annual investment in new advanced materials companies with growth opportunities but that lack the capital to expand to larger operations. Identify needs and adapt to these needs to create secured investments in the statewide economy.

5. **Develop an industry marketing plan:** The recruitment of advanced materials companies utilizing existing companies' strengths should be undertaken through targeted marketing.
6. **A dynamic K-12 system (long-term development):** A quality K-12 program produces better workers and is a key amenity in drawing knowledge workers to the state. To ensure a state's success in the New Economy the K-12 program must be comprised of the following:

Hold all students to high standards: School districts should adopt value-added assessment systems that control demographic variables for students and evaluate individual teachers and schools on how much they teach the children over the course the year. If implemented properly, high standards and meaningful assessments mean real accountability for school systems, administrators, teachers, and students.

Use technology correctly: Technology can play a role in boosting educational achievement, but only if used correctly. The key to this is ensuring that teachers are well-trained in how to effectively use technology in the classroom and integrate it into their teaching. The goal of technology policy in education should be to enhance learning and leverage greater results, not simply increase the amount of computer hardware in classrooms and schools.

Pay for performance: State policy for school districts must experiment with innovative ways to reward high-quality teachers to attract and retain the best teachers.

Create math and science innovative high schools specifically focused on serving disadvantaged students: K-12 education needs to give students the math and science skills they need to succeed in the New Economy. North Carolina should encourage students that have not traditionally gone into science and engineering fields - including minority and low-income students. The State and school systems need to target their efforts.

Basis for Advanced Materials Focus in North Carolina

- Existing advanced materials supplier base in North Carolina - PPG, Reichhold, 3Tex (41 companies are members of the American Composite Manufacturer's Association)
- Existing base of North Carolina end-users -- marine, transportation, construction, aircraft, military, pipe, architectural, furniture
- Transitory shift in textiles and materials related to textiles engineering
- Enhance and broaden the depth of education and training programs that impact advanced materials - NCSU (textiles; engineering - mechanical, civil, chemical, aerospace; design; agricultural); NC A&T - aerospace, advanced materials; WCU getting into; Wilkes, Catawba Valley, Western Piedmont CC's - expanding into various aspects. Other institutions that could contribute to development of advanced materials include additional community colleges and universities targeted toward marine and construction.
- Define the existing and future the market segments in NC, SC, VA and TN (utilizing NWNC Advanced Materials Cluster with existing cross-border partnerships with TN and VA)
- Define the contributors in same region (i.e., like industry sectors and strengths of regions to share resources with other NC regions)
- Survey above as to needs
- Develop an Emerging Industry Forum or conference focused on how to grow
- Define 'missing links' that could serve above and as focus for economic development
 - * Probable needs:
 - Training through community colleges - convert relatively low skill, task oriented, mechanistic personnel to multi-task capable, current skill personnel
 - * Target and recruit for needs identified or potential areas
 - * Consideration of financial packages for start-ups and capacity expansions
 - * Expand definition of venture capital funds
 - * Encourage entrepreneurship

Opportunities for Recruitment of Advanced Materials Industries

Through the Northwest North Carolina Advanced Materials Cluster, three opportunities are within reach related to economic development. Two of these opportunities would be new developments while the third would be focused on enhancing an entrepreneur effort to build an existing business.

Project 1.

| | |
|----------------------|--|
| Type of Development: | New Industry Recruitment (expansion to NC) |
| Existing Location: | Modesto, CA |
| Needs: | Capital, facility, upward mobility |
| Type of Industry: | Cast Urethane Defense Contracts Marine, Construction, Transportation, Aerospace |
| Preliminary Needs: | R&D (applied technology development) Connections to NC Advanced Materials companies |

Issue: What does NC have to offer this company to come to NC? Why should they choose NC for their advanced materials industry? What services can the NWNC Advanced Materials Cluster provide? Is this enough? What tangible incentives does NC bring to the table?

Project 2.

| | |
|----------------------|--|
| Type of Development: | New Industry Recruitment |
| Existing Location: | Start-up |
| Needs: | Capital, facility, upward mobility |
| Type of Industry: | Hybrid Engines – Composite Body Vehicles Transportation, Automotive |
| Preliminary Needs: | R&D (applied technology development) Connections to NC Advanced Materials companies Engine component manufacturers Automotive manufacturers |

Issue: What does NC have to offer this company to come to NC? Why should they choose NC for their advanced materials industry or in this case their engine that powers an advanced materials product? What services can the NWNC Advanced Materials Cluster provide? Is this enough? What tangible incentives does NC bring to the table? Is NC ready to invest in hybrid technology companies as it relates to advanced materials? What other relationships can be developed for this company?

Project 3.

| | |
|----------------------|--|
| Type of Development: | Entrepreneurial Company (existing business) |
| Existing Location: | Yadkinville, NC |
| Needs: | Capital, facility, upward mobility |
| Type of Industry: | Nano-Technology Utilizing nano-materials for development of aerospace, medical and bio-technology applications |
| Preliminary Needs: | R&D (applied technology development) Connections to NC Advanced Materials companies |

Issue: What does NC have to offer this company to grow its business in NC? Why should expand in NC for their advanced materials industry? What services can the NWNC Advanced Materials Cluster provide? Is this enough? What tangible incentives does NC bring to the table? What other relationships can be developed for this company?

Conclusion

The Northwest North Carolina Advanced Materials Cluster has developed key elements for the economic foundation for its region. Those fundamentals include collaborative partnerships among industry, education and government, cluster strategies for cooperative competitiveness, concept development for an advanced materials center, and interconnected relationships across county and state lines.

The Cluster focuses on entrepreneurial development, human resources, and training/education to build a foundation now beginning to successfully support the emerging advanced materials industry. However, there is a gap to the next level of cluster activity. A critical need exists in developing cluster strategies for economic development policy and procedures to complement the efforts of the Cluster and to ensure the success of the emerging sector of advanced materials industries. This policy and strategy development process will require local, state and multi-jurisdiction cooperation and collaboration to ensure success.

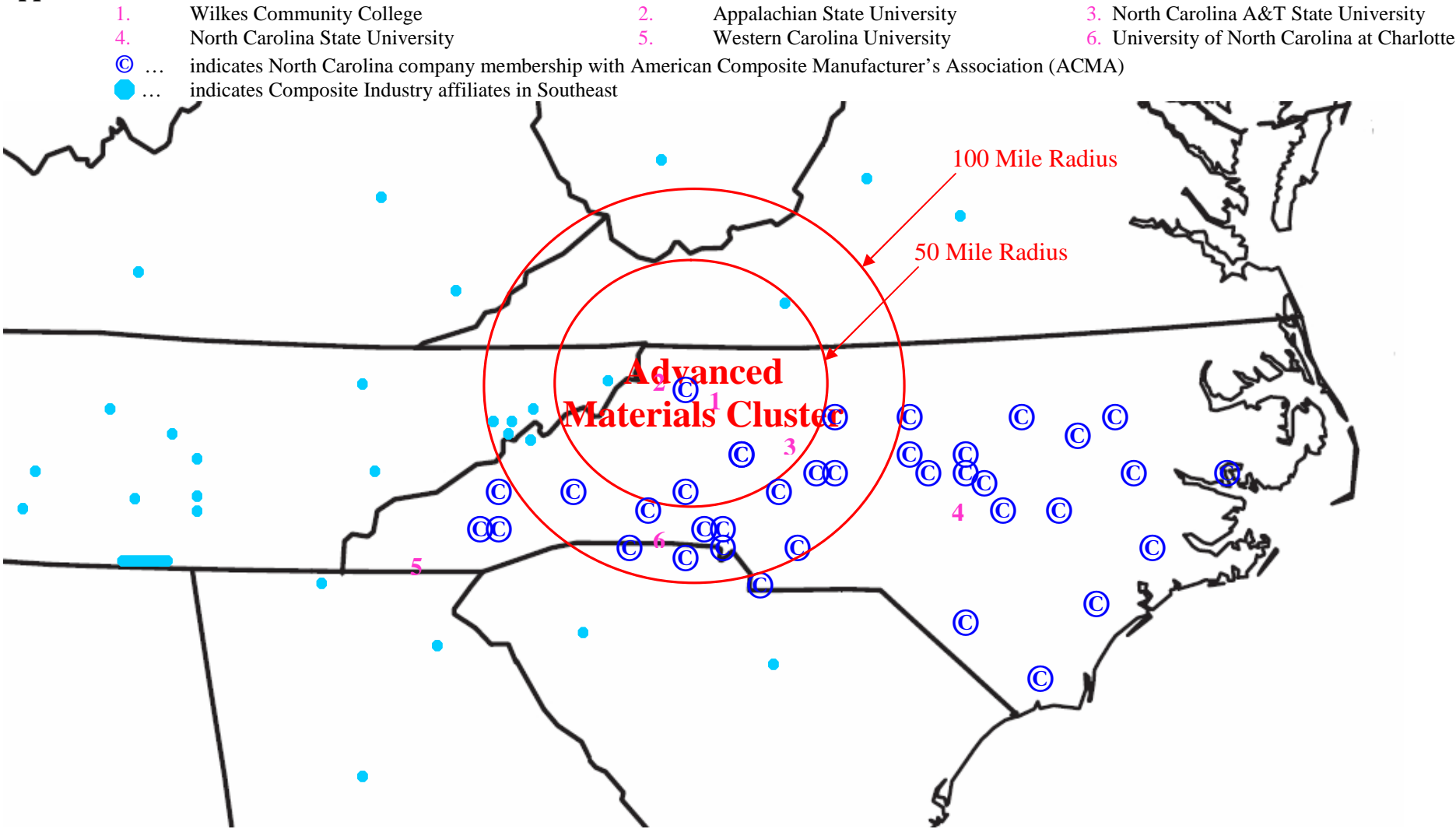
Regionalism must remain the central focus in developing strategies for attracting advanced materials companies to North Carolina. Conceptual ideas for consideration are stated below based on the aforementioned information:

1. Develop a NC Advanced Materials Industry Association to encourage common purchasing interests to enable leveraging or requirements so as to contribute to cost reduction/margin enhancement
2. Develop access to capital through special rate, special consideration to entrepreneurial loan funds including business support (seamless system: business plans, marketing, market development and, for new firms, legal and accounting)
3. Invest in entrepreneurial incentives and/or small business development incentive programs
4. Innovate new ideas for establishing small entrepreneur companies within one facility utilizing shared space/resources/technology, etc., creating an emerging industry development center (not an incubator) --- a warehouse type space with multiple small companies under one roof working in advanced materials
5. Develop technical processing assistance in terms of more environmentally friendly and/or economical processing (margin enhancement)
6. Establish clearing house of needs, interests and opportunities and assist in matching those elements appropriately
7. Implement a plan for growing existing NC advanced materials companies
8. Develop a marketing plan to implement statewide and then target US regions and international companies

9. Implement strategies for recruiting new advanced materials business to the North Carolina
10. Develop a concept for implementation of regional tax incentives
11. Provide on-demand financial resources for community colleges and universities to immediately support new industry and existing industry
12. Market NC as Advanced Materials State as well as a Bio-Tech State
13. Encourage the implementation of economic development policy training for local administrators and local elected officials with a focus on regionalism
14. Encourage and support cluster-based economic development curriculum in university public administration programs

North Carolina has a significant opportunity to strengthen its effort and focus on the advanced materials industry. There is strong evidence in our State and in the nation that advanced materials are thriving and are moving our traditional materials to another transformational change in technology. The way we fabricate and manufacture products are undergoing momentous change. To be successful in the advanced materials sector, we must change the way we think about and the way we practice economic development. We must provide our businesses/industries, educators and government with the policies, resources and tools to succeed in the new economy, i.e. we must develop those policies and procedures to ensure that success.

Appendix A – Advanced Materials in NC and the Southeast



Appendix B – Future Advanced Materials Statewide Opportunities – Expand Statewide to encompass Marine, Aerospace

Advanced Materials Center – Western Region (Wilkes Community College Service Area)

Advanced Materials Center – Eastern Region (Craven Community College Service Area)

