

# Biofuels Center of North Carolina

## ORGANIZATION OVERVIEW AND IMPACT

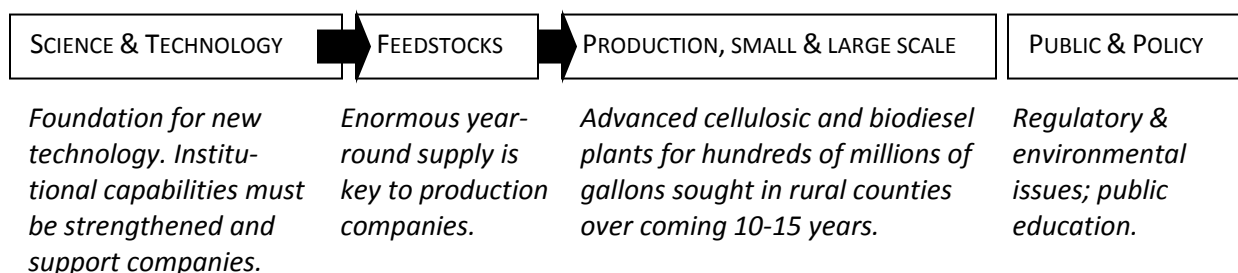
### 1. MISSION & PROGRAMS

**Mission:** Promote the development of the cellulosic biofuels industry and the increased production of biodiesel as an economic engine resulting in employment in agriculture, forestry transportation, production of biofuels in large refineries, and distribution of biofuels while increasing county tax bases and general fund tax revenues. Cellulosic feedstocks are not corn- or food-based. To satisfy this mission the Center must:

- Assist industry in identifying feedstock suppliers and financiers, researching and solving problems, and navigating the regulatory arena to develop a large new sector and technology.
- Target biofuels to economically disadvantaged rural areas and employment.
- Establish NC as a credible national site for feedstocks and production facilities.
- Implement the 2007 legislatively-mandated NC's *Strategic Plan for Biofuels Leadership*.

Biofuels will also play a key role in ensuring our state's and nation's energy independence. In 2007, the North Carolina biofuels industry was essentially non-existent, with few resources, no national presence, and no large production company interest. The 2007 *Strategic Plan* laid out a numerical goal of 500+ million gallons by 2017, useful as focal point but soon proven overly optimistic and challenging to reach. The biofuels sector, nationally and internationally, has developed cellulosic technology more slowly than expected.

The Center is the nation's only agency working comprehensively over time in every aspect of biofuels development. Work addresses a task of unprecedented complexity, in NC and nationally: merge science and technology, crop and forest agriculture, large acreage, production large and small, logistics, enormous investment, and policy to gain fuel, economic return, and energy independence. A new sector based on technology and agriculture is not quickly or easily developed. Each activity supports the Center's goal of building large capacity; in total, all must make NC a competitive location for production companies. The Center addresses its work by addressing the key stages of technology development:



By state policy, NC's biofuels initiative is not based on corn. As such, the Center is focused on identifying other crop and forest feedstocks. Large volumes of feedstock are essential for the biofuels industry; without assured year-round supply, no production company will locate in a state.

**Programs**, external and staff-based, support the above stages, in particular feedstock supply for company production. Among key representative 2008-2012 Center activities:

- Serve as the state's lead agency for biofuels development and assistance.

- Visited or met with 35+ international and national advanced biofuels or agricultural companies evaluating new sites for biofuels growing, production facilities, or Southeastern headquarters.
- Identified, recruited and supported the Chemtex facility in Sampson County, as described below.
- Grow and evaluate 15 different crop, energy grass, and forestry feedstocks at 16 sites statewide in cooperation with the NC Department of Agriculture (NCDA) and NC State University (NCSU).
- Expanded the Williamsdale Biofuels Farm in Duplin County as site for NCSU feedstock growing.
- Analysis of forestry use and capacity in NC's seven regional economic partnerships, yielding 14 sites for wood-based fuels production – a competitive advantage for the regions and the state.
- Identified crop and wood feedstock resources meeting bank financeable terms to attract and support multiple large-scale biofuels production facilities.
- Evaluated and conducted research on swine industry sprayfields to verify utilization for growing of energy crops; work with industry integrators to position feedstock growing on their lands.
- In conjunction with state agencies developed Best Management Practices for new energy crops.
- The *Business of Biofuels* study, in partnership with the Kenan Institute for Private Enterprise at UNC-Chapel Hill, analyzed through modeling and an IMPLAN framework the job potential and economic impact – conservatively, \$1billion annually – of a biofuels sector statewide.
- Developed with matched federal funding the Biofuels Business Accelerator and a plan for a national biofuels company campus on the NCDA's Oxford Tobacco Research Station, Granville County. With the NCDA, developed the small scale Oxford Biodiesel Plant at the Station.
- Funding Novozymes-Piedmont Biofuels technology to lower feedstock cost for production gain.
- Strengthened company production and demonstration capabilities: Piedmont Biofuels, Foothills Bio-Energies, Blue Ridge Biofuels, and at the Southern Research Institute for the TRI company.
- Implement statewide public outreach and education campaigns, including 3,481 federally funded television public service announcements.
- Funded, through 109 peer- reviewed grants or Center project: trial growing of feedstocks; research on agronomic data; economic models; feedstock and natural resource evaluation; technology development; educational projects; and support of local or regional projects.

### *Approach and National Competition*

North Carolina's strategic and policy commitment to biofuels is highly attractive to national and international companies. These companies monitor state commitment and assistance before they make hundreds of million dollar investments. The Center's comprehensive approach works for long-term economic return from and for the industry. The approach leverages appropriations, gaining partners to assist in expensive biofuels development. Such leveraging is necessary in an increasingly competitive national sector. Other Southern states have appropriated larger sums to capture biofuels: Tennessee, \$70.5M+; Florida, \$51.1M+; Mississippi, \$75M+. The Center has been appropriated \$21.8M since 2007.

## **2. CUSTOMER/ TARGET POPULATION**

Programs and funding assist and strengthen the many parties involved in biofuels development statewide: researchers, landowners and growers, technology and agricultural providers, transportation programs, schools and universities, biodiesel and ethanol producers, technology agencies and institutes, related companies, regulators, local governments, and state agencies: Commerce, Agriculture, DENR, Cooperative Extension, universities, and economic developers.

## **3. ORGANIZATION INCEPTION**

The Center was established by the Legislature in June of 2007. Work and staff began on 3 January 2008.

## **4. FOOTPRINT**

Programs and funding are directed statewide. Based on agriculture, biofuels growing and production will largely develop in and benefit rural counties. As NC has large varied crop and forest capacity for conversion to fuels, the sector offers promise in multiple regions, with first large scale commercial outcomes in Eastern counties.

## 5. BUDGET

Description	FY 2008-2009 July - June	FY 2009-2010 July - June	FY 2010-2011 July - June	FY 2011-2012 July - June	FY 2012-2013 July - June
<b>Revenue:</b>					
State Appropriation	\$ 4,550,000	\$ 950,000	\$ 4,825,000	\$ 4,500,000	\$ 2,063,035
Prior Year Carry-over	\$ 3,290	\$ 776,834	\$ 224,326	\$ 230,419	\$ 185,363
Operating Reserve	\$ 1,350,000	\$ 675,000	\$ 167,209	\$ 500,000	\$ 400,000
Interest Income	\$ 23,858	\$ 6,593	\$ 29,740	\$ 24,999	\$ 20,000
Funding Program Refunds					\$ 94,400
Golden Leaf Foundation	\$ 200,000				
ARRA (American Recovery and Reinvestment Act)			\$ 801,812	\$ 273,259	
US Department of Energy			\$ 123,946	\$ 135,693	
TVA Settlement Funds					\$ 2,240,000
Miscellaneous			\$ 550	\$ 2,019	
<b>Total Revenue</b>	<b>\$ 6,127,148</b>	<b>\$ 2,408,427</b>	<b>\$ 6,172,583</b>	<b>\$ 5,666,389</b>	<b>\$ 5,002,798</b>
<b>Expense:</b>					
Salaries and Benefits	\$ 955,894	\$ 1,350,086	\$ 1,500,170	\$ 1,515,259	\$ 1,637,643
Funding Programs	\$ 2,944,824	\$ 173,215	\$ 2,551,423	\$ 2,595,458	\$ 533,000
Activities, Education, and Outreach	\$ 250,849	\$ 119,254	\$ 78,196	\$ 110,772	\$ 152,772
Professional Services	\$ 127,737	\$ 158,020	\$ 133,569	\$ 117,716	\$ 159,806
Technology and other	\$ 196,010	\$ 216,317	\$ 251,029	\$ 238,469	\$ 221,676
Golden Leaf Program Expense	\$ 35,000	\$ 214,631			
ARRA Program Expense			\$ 801,812	\$ 273,259	
US Department of Energy Program Expense			\$ 123,946	\$ 135,693	
TVA Settlement Funds Program Expense					\$ 2,240,000
<b>Total Expense</b>	<b>\$ 4,510,314</b>	<b>\$ 2,231,523</b>	<b>\$ 5,440,146</b>	<b>\$ 4,986,626</b>	<b>\$ 4,944,897</b>
<b>Carry-over</b>	<b>\$ 1,616,834</b>	<b>\$ 176,904</b>	<b>\$ 732,438</b>	<b>\$ 679,763</b>	<b>\$ 57,901</b>

## 6. SALARY COMPLIANCE

*State-supported positions with annual salaries above \$120,000 and funding sources.*

W. Steven Burke, President and CEO, is paid \$175,000, as set by the board of directors upon his hiring in March 2009. \$120,000 comes from state appropriation and \$55,000 from interest income.

*Other employee benefits provided.*

Medical, dental, vision; retirement; life insurance; 15 days of vacation and 12 of sick leave; NC holidays.

## 7. LOBBYING SERVICES

*Firm (s) contracted, to represent your organization in the General Assembly: Williams Mullen, Raleigh.*

*Funds spent by your organization over the past 12 months to employ these services: \$8,000*

*Employees within organization that are registered lobbyists and their compensation package.*

President, W. Steven Burke:

Salary: \$175,000. Retirement: \$17,500; healthcare: \$14,655; life insurance: \$1,434.

## **8. KEY PERFORMANCE INDICATORS**

Center performance indicators towards the goal of developing a new sector are challenged in the short-term by the reality of technology and sector development: neither happen quickly or easily. Neither are like standard economic development or company recruitment. A 20 or 50 million gallon ethanol facility cannot be readily recruited, for it needs thousands of acres, hundreds of thousands of tons of biomass, enormous capital investment, research assistance, supportive regulations, multiple involved agencies, and assurances that feedstocks can be gained close by and reliably year-round. No other new economic sector valuable to NC is as complex to bring about. While NC is well matched to biofuels growing and production requirements, it is still an emerging sector. The state's long term commitment is positioning it as a leader which will lead to eventual large-scale production. Gain is realistically possible and not based on unfounded optimism or risk. Large return on investment will come in the long-term, however.

### *Outcome Metric: First Large Evidence*

The 2012 announcement that Chemtex/Beta Renewables will build a large production facility in Clinton, Sampson County, validates NC's biofuels approach and resource capabilities. In brief:

CHEMTEX	A subsidiary of the privately owned Italian M&G Group. With annual revenues of just under \$4 billion, the company is a world leader in production of polyethylene plastics, and now seeks worldwide leadership in biologically-based fuels and materials in places supportive of its goals.
PRODUCTION	20 million gallons annually of ethanol from cellulosic, non-corn, biomass
EXPECTED GROUNDBREAKING	Summer 2013
EXPECTED OPENING	Early 2015
CAPITAL INVESTMENT	\$175 million+
DIRECT EMPLOYEES	65
AVERAGE ANNUAL SALARY	\$48,000
INDIRECT EMPLOYEES	280 in feedstock growing and harvesting, maintenance, and logistics
REVENUE TO LOCAL GROWERS	\$15M million+ annually
CELLULOSIC FEEDSTOCKS	Energy grasses: sorghum, arundo donax, switchgrass, miscanthus. Soft hardwood tree species.
LAND REQUIREMENTS	Up to 30,000 acres per year, based on volume and yield of feedstock.
VOLUME REQUIREMENTS	Up to 300,000 dry tons annually.
USDA LOAN GUARANTEE	\$99 million – strong verification of company technology

Company leadership has stated to the Center's board, to local and legislative leaders, and to US Agriculture Secretary Vilsack during his May 2012 visit to the Center: *Chemtex expects this to be the first of a number of biofuels or bioproducts facilities to be placed in Eastern NC in coming years.* Leadership has also affirmed that the Center's causal impact on positioning this facility is direct: over two years of work and problem-solving, around financing, regulations, best management practices, gaining land and growers, and shaping a regional feedstock supply chain of different crops and forest resources. Value of this company to NC is a key first metric for meeting the Center's large capacity goal. The \$170 million capital investment alone represents an 8-fold return on the \$21.8 million appropriated the

Center. Gain to growers, tax revenue, and employment – multiplied annually over years – will increase the return, for this and for every additional production facility. Such gain is rare for rural counties. Such direct return on investment was minimal in the Center’s first years of building a sector and NC credibility to companies. Without such groundwork, however, Chemtex would have not turned attention to NC. Following its decision, other large production companies targeted by the Center are also considering the state. The recent \$110million commitment of Novozymes to an equity stake in Chemtex further shows NC to now be a lead site for biofuels and advantaged by having both companies here.

## **9. SIMILAR ORGANIZATIONS**

No other agency is tasked with long-term state policy to develop all aspects of the biofuels sector. The complexity of the task led the General Assembly in 2007 to establish a single responsible entity. Because biofuels is so large a sector and involves science, transportation, energy, agriculture, and economic development, it increasingly finds place in varied agencies and organizations, including: NCSU Solar Center; Appalachian State University Energy Center; the Dept. of Commerce and its State Energy Office; DENR; the Dept. of Agriculture & Consumer Services; seven Regional Economic Development Partnerships; the North Carolina Biotechnology Center; and local governments. Each of these entities provides specific support to biofuels development as appropriate to its mission and is often a partner to the Center. Because biofuels is adjunct to the larger mission of any other agency, loss of the Center as partner, catalyst, and coordinator would diminish both agency contributions and overall state development.

## **10. BUDGETARY IMPACT**

### *Impact and Mitigation of Reductions*

With reductions, the Center has been less able to target all aspects of biofuels. Attention has then narrowed to the core requirement of feedstock growing, analysis, and conversion. Perhaps the largest impact from is seen from companies considering NC. Impressed with state commitment to support biofuels, they wonder if the state is backing off.

### *Generating Revenue from Other Sources*

While the Center can and has gained funding for specific projects, as seen above, large reliance on external revenues is challenging or risky. Playing to funding programs usually forces activities less likely to meet the state’s goals. Not a place for research or production, the Center is not readily eligible for most federal monies. No funding source gives monies for administration or for passed-on grants programs.

### *Movement to Self-Supporting and Reimbursement Rather Than On-going Funding*

The Biofuels Center was established by the Legislature and assigned a large task. The mission has been valuable to farmers, researchers, financiers and biofuels companies.

The Center’s long-term mission continually requires adaptability to an evolving sector, responsiveness to company needs, and a staff directed as service agents in specific content areas. Work is necessarily recurring and “on-going” and will be until a stable mature sector is well established. While goals can be set and prioritized, the Center – like any funded organization – cannot support itself until reimbursement comes after accomplishment.