

TESTIMONY
SENATE SPECIAL SESSION COMMITTEE ON ENERGY POLICIES
Special Session SB 1
November 14, 2007

Madam Chairman, Members of the Committee:

I am Stephen Costantino, Vice President, Technology Commercialization Group of the Ben Franklin Technology Partners of Southeastern Pennsylvania. In addition to my activities there, I am serving as the Coordinator on energy issues for the four Partners.

We appreciate you recognizing the value that the four regional Ben Franklin Technology Partners and our networks bring to the energy independence effort.

BACKGROUND

Created by the Legislature in 1982 to lead the transformation of Pennsylvania's industrial-based economy to a technology-based economy, and supported by five successive Administrations and by the General Assembly, Ben Franklin has evolved into a dynamic resource that is helping develop and grow the Commonwealth's technology industries. *By linking talent, expertise, and capital BFTP helps convert Pennsylvania ideas, and Pennsylvania innovations, into highly-paid Pennsylvania jobs.*

Operating through four (4) strategically located centers (Philadelphia, Lehigh Valley, State College and Pittsburgh), BFTP's services are available throughout the Commonwealth's 67 counties. The Partners collectively seek to increase the new technology enterprise success rate by providing the highest potential companies with access to risk capital, business and technology expertise, and specialized third-party resources. BFTP also helps devise and implement productivity improvement strategies for established firms through technological innovation and process improvement.

Taken together, BFTP's investments, services, and access to resources comprise a comprehensive support structure that helps emerging companies succeed, existing companies to innovate and grow, and supports the development of a vibrant entrepreneurial culture. BFTP also partners with the Commonwealth's universities, as well as public and private research centers, working to identify

and support the development and commercialization of technologies that will become the foundation for tomorrow's new enterprises. Our philosophy is to operate within a collaborative environment, drawing upon a range of complimentary resources provided through federal, local and state organizations.

BEN FRANKLIN'S RECORD

In 1999, BFTP, working in conjunction with the Department of Community and Economic Development, retained an independent economic research organization to conduct an objective evaluation of the overall economic impact of the program for the period 1989 – 1996. This study broke new ground in using state maintained data as the basis for determining job creation and incomes, rather than relying on client-reported data and addressed the “but for” question by comparing a group of companies we supported with equivalent companies not receiving support. The Legislative Budget and Finance Committee sanctioned the results of this study during their 2000 assessment of the impact of the program. In 2003 the study was extended an additional five (5) years to cover the period 1989 through 2001 and demonstrated the following results:

- The BFTP boosted the state's economy by \$8 billion during the period 1989-2001.
- Every public dollar invested in BFTP yielded almost \$23 of additional income in the state, for a return on the state investment of 23 to 1.
- As a direct result of the program Pennsylvania garnered over \$400 million in additional state tax revenues during the period, more than covering the cost of the program over the same period of time.
- BFTP jobs were in industries that paid roughly 28% more than the statewide average salary.
- A total of 93,105 job-years were created between 1989 and 2001 at a cost to state taxpayers of \$3,342 per job-year. [A job-year is defined as the number of jobs created that lasted a full year or more times the number of years they have existed to date. This method provides a much more accurate measure of employment impact than a “jobs created” statistic.]

The impact study demonstrates that companies throughout the Commonwealth have reaped real benefits from the assistance provided by the BFTP. Portfolio companies have developed new products, assembled management teams, established production capacity, identified new markets, and increased their

sales and profitability as a direct result of the services offered by the BFTP. More importantly, these programs have generated substantial *public* benefits in terms of a significant increase in employment and income in Pennsylvania, along with an expansion in the Commonwealth's tax base.

ENERGY INITIATIVE

The Ben Franklin Technology Partners have a long standing, positive track record in economic development through supporting numerous technologies spanning a wide bandwidth of market sectors. Whether it's biotechnology, information and communications, advanced materials or nanotechnology...our demonstrated capability to identify and support the latest innovations has benefited the Commonwealth by ensuring that it is active at the cutting edge, investing in technology innovators across Pennsylvania.

Having our finger on the pulse of technology development, we also recognize when significant opportunities develop and the timing is right to undertake more comprehensive, sector focused initiatives. We partner to better serve and fulfill high potential opportunities for the state. We see the "Clean Tech" sector, addressing critical issues related to energy independence and climate change, as a prime example of such an area. We will focus on this area as an element of our broader mission to help lead the transformation of Pennsylvania into a 21st century clean/alternative energy technology epicenter.

We see a tremendous opportunity here. As it relates to alternative energy and other clean technologies, we believe that *Pennsylvania is second to none in terms of the unique combination of assets and strengths* that can be built upon to make our state a leader, both in technology and economic opportunity in this sector. We possess a wealth of indigenous natural resources, a strategic geographic location, an abundance of world-class research and development facilities and institutions, as well as both long standing and newer anchor companies with significant clean technology resources.

Several of our universities are already recognized as "world class" in one or more areas of long standing research programs directly related to clean technology. As just a few examples Penn State, through their Institute for Energy and the Environment, is recognized as one of the premier overall clean technology research institutions in the nation. Lehigh University is well recognized for their work in catalysts, and work at Carnegie Mellon in solar technology has led to the formation of an exciting new company located in the Pittsburgh area. Drexel University is well known for expertise in powder grid technology. They are now expanding their efforts by working with key PA based industry partners in the area of integration of sustainable energy sources.

We are also seeing a greater number of our universities applying their strong talents, resources and capabilities in this area, including a general movement from individual projects toward more comprehensive interdisciplinary and even multi-institutional programs. Examples here include The University of Pennsylvania's newly formed Energy Research Group, and the Pennsylvania Green Growth Partnership, which includes integral participation of seven universities from across the state, working in the areas of energy efficient buildings and sustainable design

Our large anchor firms now include SunTechnics and Gamesa, world leaders in solar and wind energy respectively. Evolving from our strong chemical industry base, we are centered in the emerging hub for the development and commercialization of the key chemicals and components that go into advanced fuel cells. Companies of note here include Air Products, Arkema, HydroGen and Johnson Matthey.

We are seeing the signs of increasing momentum in entrepreneurial and start-up activity in each of our regions. An exciting example is Plextronics, located in the Pittsburgh region, who is commercializing a novel technology (originating out of research at Carnegie Mellon) that is directed toward more economic solutions for high efficiency solar cells. This new company has received pivotal support from our BFTP of Southwestern Pennsylvania (known as Innovation Works) in the areas of start-up business management resources and seed investment.

We also have a percolating sector-focused venture capital community, including EnerTech Capital and DFJ Element, who are developing two of the largest sector-focused funds in the nation, along with a robust network of non-profit advocacy and entrepreneurial support organizations

Not among the least, in terms of Pennsylvania's assets, is our geographic location. We are positioned within the heart of the highest energy consumption center in the nation and possess major transportation routes and ports. The combination of geographic location and our natural resources bodes particularly well for our potential in various sub-sectors, including both wind energy and biomass fuel production.

In putting all of these assets together, we are poised to pioneer cutting-edge commercial applications in key areas such as corn-based and cellulosic ethanol, wind and solar power, fuel cells, hydrogen, and clean coal, as well as the development of green materials and sustainable design.

Within the realm of Clean Tech, there is a broad range of existing and potential commercial applications that require technological advancement. The common

view among the experts is that there is no one “silver bullet” to address our energy independence and climate change issues, and at the core of most of the potential solutions is technology. In the attachment, you will see a chart that originated from Lawrence Livermore National Laboratory (with some additions which I included related to relevant technology plays) that summarizes and strongly supports this point.

So, with all these assets and all this potential, then why is there a need for an organization like Ben Franklin Technology Partners to play a role?

Realizing the significant potential here will take a concerted effort from organizations with the right capabilities that serve the broader interest of the Commonwealth, including those engaged and knowledgeable in technology-based commercial development.

We have a demonstrated successful track record in facilitating the transition from “potential” to “economic reality” in the technology arena. Programmatically, we do this through what we like to refer to as a “commercialization continuum”, where we support activity from early stage research through early stage commercialization. This includes a complementary and inter-related set of programs and services encompassing various stages of applied research support, incubation facilities, start-up management expertise, and pre-seed financing.

We provide applied research support through innovative proof-of-concept and translational research mechanisms and programs that also engender university-industry collaboration. While we already are seeing some relevant success stories evolving from university translational research in this sector, the significant potential here is largely untapped.

Our nationally-recognized, award winning programs in incubation and start-up management are also part of the nurturing environment that we offer. We provide initial start-up enterprises with suitable space for technical and business development, as well as the all-so-critical business and operational management experience and expertise. These resources position the new company for an early infusion of capital, including our pre-seed funding programs.

SB 1 says “. . . shall be used for commercialization and acceleration of the development of emerging alternative or renewable energy technologies in this Commonwealth to include funding of the costs associated with capital investment, translational research and other costs.” This approach matches well with our capabilities and would serve as an effective “tool-kit” in executing on our part of the mission to build upon Pennsylvania’s existing strengths in this sector.

We would selectively support efforts targeted at both nearer term technology solutions, such as smart grid-related power utilization efficiencies, and certain approaches to alternative fuels, as well as those that may be longer term, but with potentially high impact such as in cellulose based fuels, portable and stationary fuel cells, and novel solar technologies.

We also envision a comprehensive approach among the Partners, which would include both coordinated regional focus areas and programs, as well as those that stretch across regions, including statewide. Our intent here is to maximize our ability to leverage the resources (Talent, Expertise and Capital) that we can bring to bear as part of the added value that we intend to bring to this initiative.

As a result of the notable, increasing activity in Clean Tech around the state, our organization has already been engaged in this sector and is becoming increasingly more knowledgeable. Each of our four Partners is already actively involved with companies and research programs in this sector. Additionally, in order to better assess how we can most effectively serve this sector, each Partner is engaged in an asset mapping and SWOT analysis for their respective regions. As an example, I have included in the attachment, a portion of the preliminary mapping analysis that was done for the five county Southeastern region.)

These efforts to date have identified a number of strengths and opportunities within the commonwealth that could also lead to cross-regional collaborative efforts. Examples include: (as indicated above) the existence of a national industrial hub of hydrogen fuel cell related materials, chemicals and components, along significant related university expertise. Another is the strong clean coal assets in research and industry, along with planned new research facilities, leading to the potential for Pennsylvania to become a national leader in clean coal technologies. We are collectively sharing and reviewing the results across our organizations, and more generally, are working together as a network to develop our specific strategy and implementation plan around a sector focused Clean Tech initiative.

We are very pleased to be included in this bill and would like to request that you consider an amendment which would specifically mention the Ben Franklin Technology Partners. We have a 25-year history of generating results for Pennsylvania and we look forward to making significant contributions towards the Commonwealth's energy independence.