

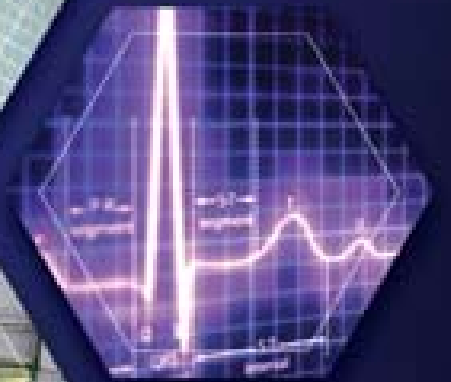


VIEWS & VISIONS

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Spring 2009

Pathways to Prosperity



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Pathways to Prosperity

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Pathways to Prosperity

Thomas A. Heywood
Bowles Rice McDavid Graff & Love LLP



FROM OUR
**MANAGING
PARTNER**

Tom Heywood is Managing Partner of Bowles Rice and a former chief of staff to the Honorable Gaston Caperton, Governor of the State of West Virginia. He has significant experience in health care, corporate, finance and commercial law, and is recognized as one of the “Best Lawyers in America.”

Mr. Heywood is active in the community and in various West Virginia business and trade associations. He serves on the boards of many charitable organizations, including Vision Shared, Imagine West Virginia, the West Virginia Venture Connection, the West Virginia Entrepreneurs Forum, Discover the Real West Virginia Foundation, Thomas Memorial Hospital, West Virginia University Hospitals, the Clay Center and the Kanawha County Library Foundation.

In these challenging and unsettling economic times, it is perhaps fitting that we devote this edition of *Views & Visions* to prosperity. What is prosperity? How prosperous are we? How do we achieve greater prosperity, individually and collectively? Let's explore.

What is prosperity? The concept of prosperity includes but clearly is not limited to material wealth. Entrepreneur Austin Caperton reminds us that prosperity ultimately comes from within. Keith Fulton, President of Verizon West Virginia, shares his insights that prosperity can only be achieved if each of us dedicates a portion of our life to service.

Well-being is an essential aspect of prosperity. Sylvia Lovely, Executive Director of the Kentucky League of Cities, and Bowles Rice partner Lesley Russo discuss the roles that local initiative, community strength, wellness and health play in generating prosperity, and remind us of the many factors other than per capita income that form a part of – and a pathway to – prosperity.

How prosperous are we? Dr. George Hammond of West Virginia University's Bureau of Business and Economic Research and Dr. Ken Troske of the University of Kentucky help answer this question with their factual analysis and consideration of various indicators of wealth and prosperity in West Virginia and Kentucky. These articles reveal and suggest some key initiatives that will be required for us to improve our relative rankings among the states.

How do we achieve greater prosperity?

Now more than ever, our future depends upon education, research and technology. Numerous articles in this edition discuss the critical role that education, research and technology play as pathways to prosperity, including those by Kentucky Congressman Hal Rogers, University of Kentucky President Lee Todd, West Virginia University President Peter Magrath, West

Virginia Superintendent of Schools Steve Paine, INNOVA Director Guy Peduto, WVU Research Corporation President Curt Peterson, MATRIC President Keith Pauley, Chemical Alliance Zone Executive Director Kevin DiGregorio, and Russ Lorince, Director for Economic Development at West Virginia University.

Critically important to our collective prosperity and well-being are roads, pipelines, schools, water and sewer infrastructure, and similar investments. Senator Jay Rockefeller, Kentucky Transportation Cabinet Secretary Joe Prather, and former Speaker of the West Virginia House of Delegates Bob Kiss remind us of the substantial infrastructure investments Kentucky and West Virginia have made in the recent years; the significant new infrastructure investment that is being made today; and the infrastructure challenges and opportunities we face in the future to remain competitive in the global economy.

Any discussion of pathways to prosperity in Kentucky and West Virginia would be seriously deficient without consideration of the manifold contributions of coal, oil and gas to our prosperity—past, present and future. Governor Steve Beshear, West Virginia Coal Association President Bill Raney, Kentucky Coal Association President Bill Caylor, and former West Virginia Senate Education Chairman Lloyd Jackson each share their insights and ideas about how we can preserve, secure and enhance our region's position as an energy leader, and help our nation and planet meet world energy demands for years to come in an environmentally sound manner.

I hope that this edition of *Views & Visions* renews your sense of optimism and opportunity, just as it has for me, and I look forward to traveling with you on the pathways to prosperity for years to come. ▽



The American Recovery and Reinvestment Act: Its Impact on West Virginia

The Honorable John D. (Jay) Rockefeller IV, United States Senator
West Virginia

Senator Jay Rockefeller has served the people of West Virginia for over 40 years.

He is the Chairman of the Senate Committee on Commerce, Science, and Transportation. He is also the Chairman of the Health Care Subcommittee on Finance and a member of the Senate Select Committee on Intelligence. He also serves on the Senate Committee on Veterans' Affairs.

Senator Rockefeller graduated from Harvard University in 1961. In 1964, he came to Emmons, West Virginia, where he began his public service career serving the people of West Virginia. In 1966, he was elected to the West Virginia House of Delegates and to the office of West Virginia Secretary of State in 1968. He served as President of West Virginia Wesleyan College from 1973 to 1976. Rockefeller served two terms as Governor of West Virginia and was first elected to the United States Senate in 1984.

With our economy in uncertain times, it is crucial that we keep the public informed, get the economy back on track, and make sure vital programs continue running. The following summary provides information on how the American Recovery and Reinvestment Act (ARRA) will impact West Virginia, in regard to job-creating investments, education and training, clean coal and energy efficiency, as well as tax relief, help for the unemployed, essential services and health care for vulnerable families and competitive grant programs.

Our office will continue to update this fact sheet as more detailed information about funding for West Virginia is released. To view the most recent update on-line, visit <http://rockefeller.senate.gov>.

Job-Creating Investments

An estimated 20,000 new jobs will be created in West Virginia from the economic recovery bill through rebuilding roads, replacing sewers,

improving clean water, and rehabilitating public housing. Highlights include:

- \$19.5 million through the **Drinking Water State Revolving Fund** to get at the backlog of West Virginia's drinking water infrastructure needs, such as new pipelines and sewer systems.
- \$61.1 million through the **Clean Water State Revolving Fund** to help deliver clean water.
- \$210.9 million in **Highway Funding** to repair or construct roads, bridges and highways.
- \$18.7 million for **Transit Capital Improvements** through the Federal Transit Administration.
- Of the funding it received for capital projects, **Amtrak** has announced that it will spend \$964,000 on seven projects in West Virginia.

Clean Coal and Energy Efficiency

To jump start research and development for advanced coal technologies and invest in energy efficiency, the economic recovery bill:

- Contains \$3.4 billion nationally for the **Fossil Energy Research and Development** programs, divided into three separate funds:
 - \$1 billion for fossil energy R&D;
 - \$800 million for the Clean Coal Power Initiative Round III Funding; and
 - \$1.5 billion for a competitive solicitation for industrial carbon capture and energy efficiency improvement projects.**
- Provides \$37.5 million for West Virginia **Weatherization** assistance to help families insulate their homes and reduce their energy costs.
- Provides \$32.7 million for State Energy Program funding for West Virginia to design and carry out energy efficiency and renewable energy programs.



Education and Training

The economic recovery bill provides funding to modernize hundreds of West Virginia schools, improve education and help displaced workers learn new skills. Included in the funding West Virginia would receive:

- \$156.4 million over two years in **School Construction Bonds** to help repair, renovate and construct West Virginia public schools in ways that raise energy efficiency and improve technology.
- \$10.4 million in 2009 for the popular **Qualified Zone Academy Bonds** program, which allows local education agencies to sell debt instruments to finance school renovation and modernization.
- \$266.4 million through the **State Fiscal Stabilization Fund** to help West Virginia school districts and public colleges and universities with budget shortfalls.
- \$184 million in **Federal Pell Grant** funding to increase the maximum Pell award for all eligible students by \$500 to help students afford post-secondary education.

Tax Relief

To help West Virginia families keep more of their hard-earned money, the bill:

- Provides a “making work pay” **Tax Cut** of up to \$400 for individuals earning below \$75,000 per year and up to \$800 for couples earning below \$150,000.
- Increases eligibility for the refundable **Child Tax Credit** by lowering the income threshold to \$3000 (from \$12,000), so that over 200,000 West Virginia families can benefit from the credit.*

Help for the Unemployed

Among the provisions to help West Virginians facing a recent job loss, the economic recovery bill:

- Lowers **COBRA** health care



premiums by 65% for unemployed West Virginians for up to nine months.

- **Extends Emergency Unemployment Compensation** for West Virginians by providing up to 20 weeks of extended unemployment benefits through the end of this year.**
- Raises the weekly unemployment compensation benefit by \$25, and temporarily suspends federal income taxes on the first \$2,400 of unemployment assistance.**

Essential Services and Health Care for Vulnerable Families

For families struggling in this economy, the economic recovery bill provides help to keep food on the table or the roof over their heads. Highlights include:

- \$450 million for a temporary increase in federal **Medicaid** funding to protect health care coverage for vulnerable populations in West Virginia.*
- \$163.6 million in additional **Food Stamp** assistance for West Virginia families.*

Competitive Grant Programs Accessible to West Virginia

The economic recovery bill contains funding for nationwide competitive-grant programs for which our state, local governments and

community-based organizations in West Virginia can apply. These include:

- \$7.2 billion in **Broadband Grant Funding** to expand high-speed Internet in rural areas.**
- \$1.5 billion in **Community Health Center Capital Funding** to construct, renovate and equip community health centers.**
- \$500 million for **Community Health Centers Grants** to increase the number of uninsured individuals served.**
- \$19.2 billion in Medicare/Medicaid bonus payments to physicians and hospitals that adopt **Electronic Health Record Technologies** to reduce medical errors and drive costs down.**
- \$1.6 billion to improve the health coverage tax credit under for **Trade-Displaced Workers** under Trade Adjustment Assistance.**
- \$1 billion for the **COPS Hiring Recovery Program** to address the personnel needs of state and local law enforcement agencies.** ∇

Note:

* Estimate pending final allocation from federal department or agency.

** Overall national funding level or new guidelines with specific numbers not yet available.



The Bluegrass State Will Help the Nation Turn Green

The Honorable Steven L. Beshear, Governor
Commonwealth of Kentucky

Steven L. Beshear was elected Governor of the Commonwealth of Kentucky in November 2007.

An attorney by profession, Governor Beshear has a long background in public service, having served as a state representative in the Kentucky General Assembly, attorney general and Lieutenant Governor prior to being elected Governor.

As Governor, Beshear has streamlined spending with a trimming of the state workforce, implemented a more efficient way of designing and building roads and won bipartisan support for a complex reform of the public pension system.

He has focused on initiatives to help Kentucky families, including expanding efforts to bring health coverage to 35,000 uninsured children, designing a plan to bring prescription drugs to those who can't afford them, securing "bridge" funding to save Kentucky's student loan agency and calling for a new analysis on higher education affordability and access.

Governor Beshear is a native of Dawson Springs in Hopkins County, Kentucky. He has a bachelor's degree and law degree from the University of Kentucky, where he was student body president. He also served as an intelligence analyst in the U.S. Army Reserve, where he also carried out certain Judge Advocate General duties.

Noted columnist and thinker Thomas L. Friedman strongly advocates a "green revolution" in his book *Hot, Flat and Crowded*. During the last election, a segment of the voting population was referred to as "The Power Vote" because they lobbied for the creation of green-collar jobs and energy solutions. President Barack Obama articulated his support for the green sector by working with Congress to place billions of dollars for energy-related initiatives and research in the American Recovery and Reinvestment Act and saying that investments in energy are "absolutely critical to our economic future."

The world is going green, and many are jumping on the bandwagon. But in Kentucky, green has been in style for years. The Commonwealth has been investing in energy projects and research for some time, and we intensified our commitment when I unveiled Intelligent Energy Choices for Kentucky's Future – my administration's seven-point comprehensive energy plan. Each component of the plan has clear objectives and lays out specific actions to achieve those goals. The strategy renews our focus on conservation and efficiency, expands opportunities for renewable energies and bio-fuels production and calls for a sincere, bipartisan discussion about nuclear energy.

With Kentucky being the third-largest coal producer in the United States, the plan also pushes us to research, develop and

invest in coal-to-liquids (CTL), coal-to-gas (CTG) and carbon capture/sequestration (CCS) projects. I laid out ambitious goals, particularly those related to coal, in the energy plan. By 2025, the state wants CTL to produce four billion gallons of liquid fuel every year from 50 million tons of coal, CTG to produce 100 percent of our natural gas requirement and deploy CCS management at half of the coal-based energy facilities. This is a tall order, but the state is ready to work with companies who share our goal of developing alternative energies and fuels to make America more energy secure.

Coal has its challenges environmentally, but coal is and will always be a critical component of our energy and economic strategy. This is one governor who understands that. The key is finding ways to burn coal more cleanly.

Today, Kentuckians and West Virginians enjoy electric bills lower than those of other states because of our coal resources. In fact, almost every state in the union uses coal to generate electricity. And coal's reach is global. In 2007, the World Coal Institute reported that 93 percent of Poland's, 80 percent of Australia's and 78 percent of China's electricity came from coal.

But it's not all about electricity generation. Coal mining is the lifeblood of many of our rural towns and counties. The industry creates thousands of jobs, breathing life into scores of communities. This trade, in some places, transcends generations. In an economic downturn, when other businesses





As the nation moves toward a green society, Kentucky is perfectly positioned to lead the charge.

grind to a near-halt, the miners keep digging because the country still needs power to heat our homes, cook our food and give us light. The state, the nation and the world will continue to be dependent upon the industry while we also fully harness solar, wind, hydro and, perhaps, nuclear power for our energy needs.

In this technological age and on the cusp of the green revolution, I believe it is possible to strike a balance. We have the opportunity to create thousands of high-quality jobs as the coal industry expands its prospects and adopts greener practices. Over the past few years, numerous companies and universities have conducted studies and research on coal-to-liquid and coal-to-gas production as well as carbon-capture and sequestration methods. It is time to apply this knowledge as we begin constructing the framework for a 21st century economy.

As the nation moves toward a green society, Kentucky is perfectly positioned to lead the charge. The Commonwealth of Kentucky was blessed with vast coalfields in the

eastern and western regions and fertile farm lands all across the state. Our natural resources and existing energy infrastructure are complemented by ground-breaking research and development being conducted at some of our higher education institutions. We have initiated numerous energy programs across the state. We have been in contact with businesses and people across the country interested in joining in our efforts. It is truly an exciting time in Kentucky as the Bluegrass State turns green – and helps the nation do likewise. W



Investing in Our Future: Let's Get Ready to Work

The Honorable Harold "Hal" Rogers
United States House of Representatives

Elected to the U.S. House of Representatives in 1980, Harold "Hal" Rogers is a senior member of the powerful House Appropriations Committee. In January 2003 he was selected to be the first chairman of the Subcommittee on Homeland Security, which is responsible for funding and oversight of the Department of Homeland Security.

Congressman Rogers has been instrumental in creating several regional development organizations, including the Southern Kentucky Economic Development Corporation; the Southern Kentucky Agricultural Development Association; the Southern and Eastern Kentucky Tourism Development Association; and Forward in the Fifth, which promotes better education.

He also helped create The Center for Rural Development and is spearheading PRIDE (Personal Responsibility in a Desirable Environment), a cooperative effort designed to clean up the region's rivers and streams of sewage and garbage, end illegal trash dumps and promote environmental awareness. In 2003 Rogers worked to create Operation UNITE, a regional anti-drug initiative empowering citizens groups and community leaders in southern and eastern Kentucky.

A lifelong resident of Appalachian Kentucky, Rogers received his undergraduate degree from the University of Kentucky and his law degree from the University of Kentucky Law School.

Let's face it—times are tough. All Kentuckians are looking for new opportunities and new pro-growth ideas to turn our economy around. Since I became involved in the political process, my top priority has been developing our economy and creating good-paying jobs in Kentucky. While some of our neighbors are facing foreclosure, factories are being slowed and uncertainty is wreaking havoc on our markets, we have reason to be hopeful – and it is not by looking to Washington or Wall Street, but by looking at our region. We have made impressive strides by pulling ourselves up by our own boot-straps. In times like these, it is imperative that we take stock of our successes, acknowledge those who are pushing through the narrow gap and recall our industrious spirit that makes us Kentuckians.

Economic Development

Kentucky has made great strides in economic development and job creation. The Southeast Kentucky Economic Development Corporation (SKED) has successfully assisted more than 100 industries to start or expand operations in

southern and eastern Kentucky. The programs started by SKED have employed more than 10,000 workers and invested over \$220 million into the region. Furthermore, through loans and grants, SKED has put more than \$18 million into our local businesses to support job creation activities. Similarly, the Kentucky Highlands Investment Corporation (KHIC) was created 41 years ago for the purpose of job creation and economic investment, and in that time has created over 10,000 jobs, helped over 500 businesses with \$165 million in financing, and has reduced poverty and unemployment by more than 30 percent.

Education

Investing in education for our children's future is vitally important. Forward in the Fifth, an educational organization that unites parents, students, businesses and educators to improve the educational success of our region, creates new opportunities to enhance literacy skills, bolsters students' background in math and science and trains parents in computer-based education platforms. I am proud to be part





Spring Meet at Keeneland in Lexington, Kentucky



Lexington's World Trade Center


of this organization because without a strong education, it is difficult to get a good-paying job or attend college. To date, Forward in the Fifth has provided over \$500,000 in grants to over 1,700 teachers for innovative classroom activities, and local affiliates have sponsored over 150,000 students, allowing them new learning opportunities and attendance incentives.

Tourism

Increasing tourism will help bolster Kentucky's economy. SEKTDA, the Southern and Eastern Kentucky Tourism Development Association, promotes the beautiful and unique region of Appalachia and is helping to promote job creation and economic development by increasing tourism in our hometowns. Tourism is one of Kentucky's most profitable industries and last year alone brought over \$1.3 billion to our region, and SEKTDA is now the leading tourism model for the entire Commonwealth.

Tough times call for responsible action. Continuing to invest in our people through programs that work will help create jobs, support local small businesses and better prepare our children for the careers of the future. SKED and KHIC have proven track records and have made impressive strides in courting

companies to establish themselves in the Commonwealth. Homegrown programs like Forward in the Fifth serve as a model for giving students incentives to thrive in the classroom. And SEKTDA is linking our natural resources to a vibrant tourism economy. We will meet these financial challenges that lay ahead of us together by maintaining our independent, entrepreneurial spirit.

Let's get ready to work. 



West Virginia Economic Outlook 2009 Update

Dr. George W. Hammond, Associate Director
WVU Bureau of Business and Economic Research

Dr. George W. Hammond is associate director of the Bureau of Business and Economic Research at West Virginia University. During the past 15 years, he has conducted numerous studies of the state and regional economies, including forecasts for the state, the Morgantown metro area, the Eastern Panhandle and the Potomac Highlands region. He often is quoted in print and broadcast media and has provided briefings to the executive and legislative branches of state government.

Dr. Hammond is associate professor of economics in the College of Business and Economics and publishes research on the determinants of economic growth in metropolitan and non-metropolitan areas. He also teaches in the Executive MBA program. He has a B.A. in economics from the University of Colorado and a Ph.D. in business economics from Indiana University.

The West Virginia economy is sliding into recession and the outlook for 2009 calls for the state to lose thousands of jobs before stabilizing in 2010. The state downturn is likely to be more severe than the recessions of the early 1990s and 2001, but less severe than the economic disaster of the early 1980s. In addition, West Virginia has a chance to come through this downturn in better shape than the nation.

Construction And Manufacturing Jobs Suffer

The state economy began to slow significantly in 2006 and the deceleration intensified in 2008. Indeed, according to the latest seasonally-adjusted employment data (shown in figure below), the state lost 1,100 jobs from the fourth quarter of 2007 to the same quarter of 2008. That translates into a rate of job loss of -0.2 percent, which is far

better than the -1.5 percent rate of job loss nationally (more than seven times the state rate of job loss).

One driving force behind West Virginia job losses has been weakness in construction employment, which reflects the impact of the national housing correction on West Virginia. Indeed, single-family house price appreciation in West Virginia decelerated from 10.3 percent from the fourth quarter of 2004 to the same quarter of 2005 to -0.5 percent during the past year. However, that is much better performance than the nation and most of our surrounding states. Indeed, nationally, house prices dropped by 4.5 percent from the fourth quarter of 2007 to the same quarter of 2008. So far, the impact of the housing correction on West Virginia is concentrated in the metropolitan areas, including the Eastern Panhandle.



In addition, West Virginia manufacturing continues to shed jobs at an alarming pace. This sector has lost 8,500 jobs from mid-2003 to the end of 2008, with a loss of 2,200 jobs in the last year alone. Sectors losing large numbers of jobs include wood products, transportation equipment, plastic products, other nondurables and chemicals. Manufacturing continues to struggle with intense international competitive pressure, as well as rising input costs (energy and natural gas). In addition, the housing correction is putting pressure on the wood products sector, as well as other manufacturers.

Service-providing jobs are also down during the past year. Within the service-providing sector trade, transportation, and utilities; information; other services; and finance and real estate have posted net job losses during the past four quarters, with the largest job losses in retail trade. The strongest job growth during the past year was posted by health care, with smaller gains coming in leisure and hospitality, professional and business services and government.

As Jobs Decline, Unemployment Rises And Income Growth Slows

West Virginia's unemployment rate was 4.6 percent in 2007, equal to the national rate. During 2008 both the state and national rates trended up as job growth slowed. The state's seasonally-adjusted unemployment rate rose to 4.7 percent in the fourth quarter, up from 4.3 percent in the third quarter of 2008. Nationally, the unemployment rate rose

from 6.1 percent in the third quarter of 2008 to 6.9 percent in the final quarter of this year.

West Virginia's real personal income rose by just 0.6 percent during the last four quarters (third quarter of 2007 to third quarter of 2008). That outpaced the national decline of -0.6 percent.



State income from work rose by 0.6 percent, far better than the national drop of -1.3 percent. That reflects slower-than-average job losses in the state during the last year. West Virginia real income from dividends, interest, and rent dropped by 0.5 percent during the last four quarters, but again that was better than the national decline of -1.9 percent. Finally, transfer income rose by 1.0 percent in West Virginia and by 4.4 percent nationally.

Outlook Calls For Job Losses, Which Could Be Severe

West Virginia is forecast to follow the national economy into a relatively severe downturn in 2009. Job losses in the state are likely to exceed (in percentage terms) the job losses during the recessions of the early 1990s and earlier this decade.

However, job losses are not likely to be as severe as those experienced by the state during the early 1980s. In addition, West Virginia's job losses, again in percentage terms, may be less severe than those posted by the nation.

This stems in part from the concentrations of health care and federal government jobs in the state (which tend to be less business-cycle sensitive), as well as from the state's reliance on transfer payments (Social Security, Medicare, Medicaid, and welfare payments), which are either not sensitive to the business cycle or are counter-cyclical. In addition, West Virginia may be somewhat less impacted by the housing correction (with the exception of the Eastern Panhandle) and financial meltdown than is the nation.

While the outlook for 2009 is relatively rough, the good news is that growth

is expected to rebound in 2010 for both the state and the nation. That means a return to positive job and real income gains, and eventually to lower unemployment rates. ▽



Moving the Kentucky Economy Forward

Dr. Kenneth R. Troske, William B. Sturgill Professor of Economics
University of Kentucky

Dr. Kenneth R. Troske is director of the Center for Business and Economic Research and William B. Sturgill Professor of Economics at the University of Kentucky, as well as a Research Fellow with the Institute for the Study of Labor (IZA) in Bonn, Germany.

Prior to coming to Kentucky, Dr. Troske was an Assistant and an Associate Professor of Economics at the University of Missouri. He received his Ph.D. in economics in 1992 from the University of Chicago and his undergraduate degree in economics from the University of Washington in 1984. His primary research areas are labor and human resource economics. Dr. Troske has authored a number of widely read papers on topics such as impact of technological change on workers, labor market discrimination, evaluating recent changes in the welfare and workforce development system in the United States.

Since coming to Kentucky, Dr. Troske has been an author on reports examining: the use of business incentive to attract or retain businesses in Kentucky; the factors account for Kentucky's slow economic growth; the effectiveness of educational reform in Kentucky; and the impact of the Kentucky Community and Technical College System on the citizens of Kentucky.

The Commonwealth of Kentucky remains one of the poorest states in the country, ranking 42nd in per capita income at \$26,200, while the average for the U.S. is \$31,600. The source of Kentucky's low income can be attributed to the low level of education, as Kentucky currently ranks 47th in the percent of adults with a college education. While the rate of high school graduation has risen recently in Kentucky and currently ranks slightly above the national average, the strides Kentucky has made in increasing the number of students completing high school have not translated into a significant increase in earnings due to changes in the economy.

The low level of educational attainment in the state is the root cause of a host of social and demographic problems. Highly educated workers are more likely to be working, less likely to be receiving transfer payments from the federal government and much less likely to be classified as poor. Highly educated workers are healthier, less likely to smoke, less likely to be overweight or obese and less likely to need support from programs such as Medicaid. Educated workers are less likely to be addicted to illegal drugs, less likely to commit crimes and less likely to be incarcerated. Finally, highly educated workers are more likely to participate in the political process, which in turn lowers the amount of political corruption in an area. In short, increasing the overall education of Kentuckians would address a number of vexing problems in the state.

Unfortunately, while it is easy to point to the underlying cause of Kentucky's persistent poverty and stagnant economic growth, there are several factors that limit our ability to fix the problem. In the rest of the article I will discuss some of the factors that I believe need to be addressed before Kentucky will escape its persistent poverty.

The Problems Facing Kentucky Differ by Region

Upon analyzing the distribution of income and education in Kentucky, one discovers that there are large differences between the rural and urban areas and across the regions of the state. Examining the average per capita income for the four main regions of the state and for the United States (see chart on opposite page) shows that income in the more urban northern part of the state is comparable to the rest of the U.S., while income in the more rural sections of the state are substantially below the U.S. average. It is the low level of income in these rural regions that is pulling down the average for the state. In addition, comparing the differences across the regions over time shows that the gap in income between the rural and urban areas in the state has increased over the last 40 years.

Educational attainment also varies across the regions of the state. In the northern part of the state over 20 percent of adults have at least a four-year degree, while in the eastern region fewer than one in 10 adults have a college degree. In addition, while over 80 percent of students complete high school in the northern part of the state, one in four students in the eastern part of the state drop out before graduating. Finally, those from the rural parts of the state that do complete college are more likely to leave the state, leaving behind the least educated.

Many of the problems facing the state vary by region and so do their solutions. In particular, in the rural areas we need to figure out how to convince more students to graduate high school while simultaneously figuring out how to attract businesses, so that the graduates will choose to live and work in the area. Unfortunately, there has been very little systematic research examining the factors that lead young people in rural areas to decide to drop out of school, or identifying

the best ways to enhance economic development efforts in rural areas.

Instead, solutions to these problems that have been successful in urban areas – such as offering tax breaks to firms that locate in an area or encouraging students to study math and science – are often applied in rural areas without first considering whether these are the best solutions to the unique problems of this region.

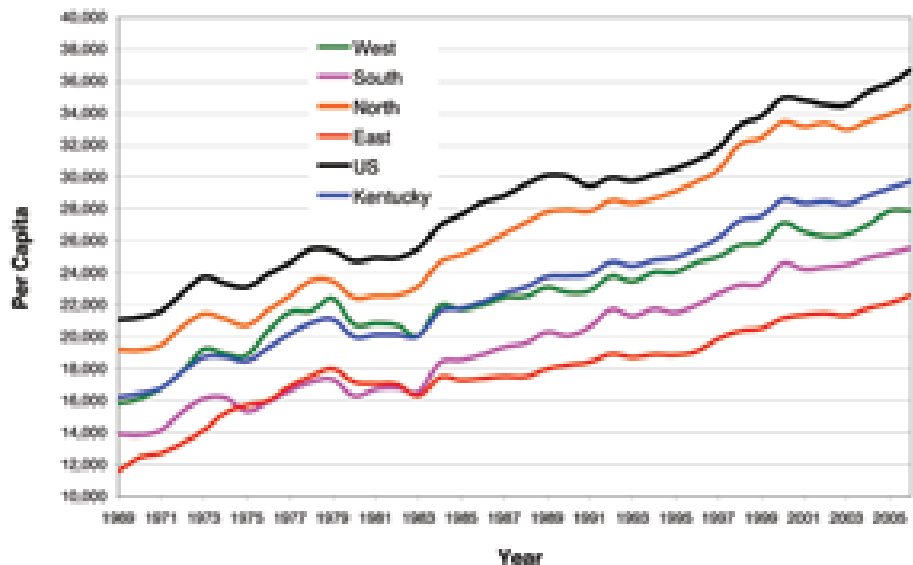
We need to first understand what factors are causing kids in rural areas to drop out of high school in greater numbers. We also need to study what type of firms are likely to be successful in rural areas and how we can encourage the creation of these firms. Forty-five percent of Kentucky residents live in rural areas and the income gap between rural and urban residents is increasing. Therefore, it is more important than ever to learn how we can ensure that people in rural areas experience the same economic growth as do people in urban areas.

We Need to Develop Regional Political Entities

Kentucky has a very centralized governmental structure. Almost 80 percent of all taxes collected in Kentucky are collected and spent by the Kentucky state government, compared to less than 60 percent for a typical state. This leaves few resources and little influence for local governments. The problem with this centralized structure is that, while the problems faced by Pikeville, Paducah and Louisville are very different, the “solutions” to the problems that come out of our centralized state government are one-size-fits-all solutions that do not address the unique problems of each region. While this is typical of any centralized government, the regional differences in Kentucky are more acute and require solutions that are specific to the region.

One of the reasons we have a centralized state government is because local governments – primarily county governments – are simply too small and decentralized to effectively address

Figure 1: Per Capita Income for the U.S. and Kentucky



regional problems. The regional problems that confront Kentucky require regional solutions. Therefore, we need to create regional political structures, complete with taxing authority and access to other sources of revenue, that are large enough to possess real political power but still small enough to understand and deal with the problems specific to a region.

Education is the Key

Now, more than ever, higher education is the key to success. The areas of the country that have experienced the fastest growth in recent years are the areas that have the largest number of workers with four-year degrees. Unfortunately, while Kentucky has occasionally made efforts to invest in higher education, these efforts become derailed whenever tax revenues become tight.

Progress will only be made in Kentucky once both political and educational leaders recognize that higher education is an investment, and adopt policies to maximize the return on this investment. We need to recognize that, like any investment, the way to maximize the return is by investing consistently over time and not just when times are good. In addition, if we want to improve the income of all Kentuckians, we need to focus on ensuring that as many people

as possible have the opportunity to obtain a college education. Both political and education leaders recently have focused on containing the “cost” of higher education. This is the wrong approach for several reasons.

First, while tuition has risen in recent years at colleges and universities, the value of a college degree has risen at an even faster rate, so that the return on an investment in higher education is the highest it has been in the post-war period. Limiting tuition increases in a state will only result in a decline in the quality of higher education. If Kentucky hopes to compete with other states in attracting skilled workers and high-tech businesses, the last thing Kentucky should do is hurt the quality of higher education in the state through artificially limiting tuition increases.

Second, limiting the ability of colleges and universities to set the level of tuition actually hurts access to higher education for the most disadvantaged students in the state. In order to ensure that low-income students have access to higher education, colleges and universities charge students that are the most able to pay a tuition rate that is appropriate, given the return on the degree. They then use the revenue raised from these higher-income students to provide grants, scholarships and other

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Our Circle of Service: The Bigger, the Better

B. Keith Fulton, President – Verizon West Virginia
Verizon Communications

B. Keith Fulton is president of Verizon West Virginia, where he oversees the company's operations and financial matters in the state and has responsibility for Verizon's public policy, external affairs and regulatory matters in the state.

He joined Verizon in 2004 as vice president of strategic alliances and corporate responsibility. Prior to joining Verizon, Fulton was a senior policy analyst for the U.S. Department of Commerce's Office of Policy Analysis and Development (OPAD), supporting the National Telecommunications and Information Administration's role as principal adviser to the President, Vice President and Secretary of Commerce.

Fulton also spent several years as vice president of the AOL Time Warner Foundation and as vice president for Time Warner's Corporate Relations division.

Fulton earned a B.A. from Virginia Tech in Urban Affairs & Planning and a professional certificate in Management and Policy Analysis from Harvard's Kennedy School of Government. Keith is a Sloan Fellow and earned his M.S. in Management and Policy Analysis from the New School's Milano Graduate School of Management and Urban Policy. He earned his J.D., with a focus on Electronic Commerce, Intellectual Property and Telecommunications Law, at New York Law School. Fulton is a member of the Federal Communications Bar Association.

As we consider pathways to prosperity, it is important to include service. More specifically, each of us should ask what we can do to help West Virginia to be all that it can be. How do we expand our circle of service?

It is a simple question to ask, but it can take a lifetime to determine – how big is your circle? I recently reflected on the idea of a circle of service while watching a movie. It was an average movie, but the story of the circle was extraordinary. It went something like this:

A young man from a prehistoric tribe asked the tribal leader, "What kind of man was my father?" The tribal leader knew that the young man was curious as to why his father left the village when he was just a little boy.

The tribal leader responded – "A good man draws a circle around himself and his family. He cares for them, provides for them, and will risk his life for them."

"A great man draws a larger circle around his community. The circle includes his family, his brother, and his neighbors. He cares for them, provides for them and will, at times, risk his life for them."

"The greatest of men draw an even larger circle around the multitudes. The circle includes his family, his brother, his neighbors and strangers. He cares for them, provides for them and will, at times, risk his life for them. This is the kind of man that your father was. It is up to you to decide what kind of man you will be."

One of the things I like most about this concept is that it starts with a "good man." There is no lower option. It is assumed that you will at least take care of your responsibilities, so one must aim high. In these tough economic times, our great state will need sharp minds and honed talents more than ever.



The other thing that I really like about the circle of service concept is that it reminds us that we have the power to choose how broad our reach will be. Some of us leave important decisions about our future to others instead of exercising our right to choose who and what we will become. Tough times call for the best in all of us to stand up. We stand tall when we stand for ourselves and others. We stand tallest when we stand for what is right. And let me be clear, if you do not decide to stand for something, you will fall for anything.

When my family and I first came to West Virginia just over a year ago, we did not know what to expect. We spent time with leaders like Governor Joe Manchin, Dr. Hazo Carter, attorney Tom Heywood and many others to get a sense of what West Virginia was about. We also talked with teachers, ministers, other parents and folks we met as we settled in. One thing was common—the people here are exceptional. The landscapes are spectacular. It is easy to love West Virginia. I have to share a story that really brings this point home.

One snowy night last winter my twins and I were driving home from a talk I gave at Alban Elementary School in St. Albans, West Virginia. The fifth grade class there had won an international award for 21st Century learning and Dr. Steve Paine, the State Superintendent of Schools, wanted a member of industry there to share some thoughts with the youngsters, their parents and other caring adults.

The snow had built up pretty heavily during the

course of the event. By the time my boys and I got back to Teays Valley, the roads had become very slippery and dangerous. The turn up a hill towards our home had become treacherous due to ice and snow. However, being the man that I am, I figured that we could simply “rev the HEMI” engine and make it up the ice-covered approach.

It did not work. My car slid backwards for a few yards, just narrowly missing a large ditch. We were stuck. I called out to God, and said, “Lord, we were just doing your work right there in St. Albans, please do not leave me out here to sit on a school night with my boys. My wife will kill me.” I waited for a response.

A few minutes later, a car pulled up behind me and three men got out. They all had beards and caps on. One had on flip flops. If I were in another state I would have prepared to fight, but I stayed calm as one of them approached my car and tapped on the window. He said, “We will push you up the hill.” And that is exactly what they did. They were good West Virginians. Those young men embody the spirit of our state. They drew a broad circle that night. As I said, it is easy to love West Virginia.

The harder thing to do is to serve West Virginia. This is where more of us need to draw our circles large.

Why do I say we need to focus on service to our great state? Here is what the most current data tells us:

In Health:

- West Virginia has the 10th highest infant mortality rate in the nation
- West Virginia has the third highest proportion of overweight and obese adults in the nation
- West Virginia’s proportion of adults with diabetes and hypertension exceeds the national average

In Workforce Development:

- West Virginia suffers from low K-12 student performance in reading, writing and math
- West Virginia has a lower adult education attainment compared to the national workforce

In R&D and Entrepreneurship:

- West Virginia ranks 50th in inventor patents
- 46th in industry patents
- 49th in entrepreneurial activity

Clearly, we have some work to do. However, I am an optimist by nature and there are many good things to build on:

- West Virginia currently leads the nation in economic development
- West Virginia has a low cost of living and the highest homeownership rate in the nation (75%)
- West Virginia has great people and a natural beauty that causes it to be known as the “Switzerland of the South”
- West Virginia’s investment in technology, professional development for teachers and other administrative policies puts the state among the best in the nation for school technology
- West Virginia had the highest increase of advanced placement scores in the nation

These good things about West Virginia are things we can build on. They are worthy of our largest circles.

To make our circles larger, we have to work together. Each of us has something to bring to the table right now that can make West Virginia better. In case you are wondering what you can do, let me share some thoughts.

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Tough times call for the best in all of us to stand up. We stand tall when we stand for ourselves and others. We stand tallest when we stand for what is right.





Investing in Education is the Surest Pathway to Prosperity

Lee E. Todd, Jr., President
University of Kentucky

Lee T. Todd Jr. became the eleventh president of the University of Kentucky on July 1, 2001. He is a native of Earlington, Kentucky, and a graduate of UK and the Massachusetts Institute of Technology. President Todd is the sixth UK alumnus to hold the presidency. He is a former UK engineering professor, a successful businessman who launched two worldwide technology companies, both based in Kentucky, and a public advocate for research, technology and an entrepreneurial economy in the Commonwealth.

President Todd is chair of the board of directors and executive committee for the National Association of State Universities and Land-Grant Colleges (NASULGC). He is president of the Southeastern Conference (SEC) Executive Committee. President Todd serves on the Equitable Resources Board of Directors and is chair of the Kentucky Council on Postsecondary Education's STEM (Science, Technology, Engineering, and Mathematics) Task Force. He is chair of the National Consortium for Continuous Improvement in Higher Education's (NCCI) Leveraging Excellence Award selection panel. President Todd also is a member of the Business Higher Education Forum and the Council on Competitiveness.

In this economic climate, even mentioning the word “invest” sends people scurrying for the hills. But if this region is serious about changing its economic fortune – if we are going to properly prepare our young people with the knowledge and skills they will need to compete in a global economy – then “invest” must become part of our daily vocabulary.

I am not an advocate for investing wildly – for spreading dollars around a state to make everyone a little happy, while hampering any real chance of economic growth. A modern, sustainable economy requires a systematic, coordinated allocation of resources.

That investment must begin with our P-12 education system. We need to prepare our students for the new global reality. Their competition is no longer only in places like New York, North Carolina and California. They will be competing for jobs with people from India, Russia and China. We also must do something this region does not have a strong track record in accomplishing. We must convince the young people who have traditionally not attended college that earning a degree is no longer a choice; it is the ticket for entering the global economy.

History has shown that the surest pathway to prosperity is by investing in education, discovery and innovation. A case study for success can be found in some of the nation's most successful economic regions. Before there was a Silicon Valley, there was a Berkeley and a Stanford. Before there was a biotech beltway around Boston, there was an MIT and a Harvard. Before there was a Research Triangle Park in North Carolina, there were three outstanding research universities.



The connection is clear: Regions that have thriving economies have built them by commercializing their university-generated intellectual property, graduating skilled students and retaining their top minds to create new businesses and opportunities in their communities.

We must require our research universities to increase their economic development role. We must invest in research opportunities that allow us an opportunity to differentiate ourselves and to leverage the unique characteristics of our region. While not ignoring new and intriguing opportunities, we need to allocate our resources into growing research areas like lean manufacturing, medical and pharmaceutical research, 21st century agricultural opportunities and, of course, energy research.

At the same time, research universities must do a better job of working with companies and organizations that already call our region home. For years, faculty and researchers shied away from working with industry. I contend that we must make local industry problems our very own. By adding value to the companies that choose to do business in our region, we can help prevent them from moving critical jobs elsewhere.

It sounds simple, but adopting these strategies would be a seismic shift. My native state, Kentucky, has traditionally lured good-paying manufacturing jobs through a combination of cheap land, cheap labor and tax incentives. But as soon as cheaper land and even cheaper labor comes along, many of those companies – from Appalachian call centers to “cut and sew” manufacturing jobs – make the bottom-line economic decision to move.

The only way to combat that economic cycle is through entrepreneurship and the commercialization of our homegrown intellectual property. A recent study prepared for the Economic Development Administration and the U.S. Department of Commerce found that the most entrepreneurial regions of the country had more robust local economies than the least entrepreneurial regions.

Entrepreneurial regions had 125 percent higher employment growth, 58 percent higher wage growth, and 109 percent higher productivity. Those regions spent 54 percent more on research and development, recorded 67 percent more patents per labor force participant, had 63 percent more high-tech companies, and 42 percent more college-educated workers.

Critics will likely tell you that investing in anything in this climate is a risk. I contend that our region is paying the price for decades of not properly investing in education.

If we do not take this moment to invest in education, we forfeit our ability to compete in the future. We can forget about having a strong and thriving arts community. And we can forget about our children and grandchildren living close to home because we won't have the kind of 21st century jobs and economic opportunities to keep them here.

Not investing in education is the risk we can no longer afford to take. ▽



Above: President Todd talks with engineering students about their solar car, the racer Gato del Sol III.

Below: Hubbard Professor of Chemistry John Anothony and doctoral candidate Genay Jones are engaged in energy research.

Photos courtesy University of Kentucky Public Relations & Marketing.



WVU: Harnessing Intellectual Resources to Change Lives and Create Prosperity

C. Peter Magrath, President
West Virginia University

West Virginia University President C. Peter Magrath has served as president at three public universities, spent 13 years representing public colleges and universities on the national and world scene as president of the National Association of State Universities and Land-Grant Colleges and served as senior presidential advisor to The College Board.

A political scientist with an undergraduate degree from the University of New Hampshire and a Ph.D. from Cornell University, Dr. Magrath previously served as president of the University of Missouri System, the University of Minnesota and the State University of New York.

He has written many books and articles on higher education, American constitutional law and history and international affairs.

In this time of economic uncertainty, higher education is more important than ever as an investment in future prosperity — both for individuals and for society.

Land-grant universities like West Virginia University are especially well-suited to helping the community, state and region to build economic and social success during widespread hardship. Indeed, land grants emerged in the 19th century to open the doors of knowledge to young people from all walks of life — and to give the larger society access to academic discoveries that could change community, health, welfare and culture.

While our land-grant universities have always served society, in the 21st century, land-grant universities that aspire to be leading American and international universities must make engagement an even higher priority. They must tailor research and discovery even more specifically to the rapidly changing needs of a society impacted by revolutions in technology.

This is exactly what WVU is doing. We are harnessing intellectual resources to respond to the specific needs of our students, faculty, community, state and country.

As families across the country seek the best educational value, WVU is a proven leader in making excellent education accessible to people throughout this state and region. We provide not just an education, but a first-class education to students who arrive here carrying the hopes and dreams of their entire families.

Earning a college degree makes a real difference in an individual's economic prospects. According to the U.S. Census Bureau report *Educational Attainment 2007*, median earnings are 74 percent higher for a worker with a bachelor's degree than for a worker with a high school diploma. Those who go on to earn advanced degrees have median earnings 31 percent higher than bachelor's degree holders.

At the same time, our faculty's work as researchers expands the boundaries of knowledge and exploits new technologies to change lives and create prosperity for West Virginians.

WVU, for example, is helping to direct the national and international conversation on energy. Through our new Advanced Energy Initiative, more than 100 skilled faculty members are performing research on issues including clean power generation, innovative coal extraction technology and high efficiency engine and vehicle technology.

The Advanced Energy Initiative is part of one of the most significant ventures of our time. It will help reduce our state's and country's dependence on imported oil, while stimulating





economic development and strengthening WVU's leadership in energy research.

With an aging population and high rates of cancer, diabetes and other diseases, West Virginia also has an acute need for discoveries that enhance public health.

WVU biomedical researchers are improving health at the local level and developing new drugs and protocols that both cure and prevent critical diseases. They are focusing on testing new medicines, treatments and procedures to address the state's major health and wellness issues.

The University's rising biomedical research profile is exemplified by Blanchette Rockefeller Neurosciences Institute, a world-class research facility. Its researchers are already making important contributions to the study of Alzheimer's

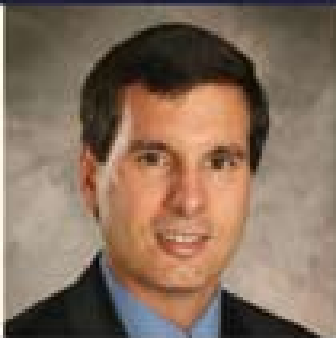
disease and other memory disorders. In the future, they may well play a major role in curing this harrowing disease.

In addition, many WVU researchers work throughout the state with schools, community groups and government organizations to develop and test methods for improving West Virginians' health.

Fortunately, our state government recognizes the importance of WVU research to our state, nation and world. Last year Governor Joe Manchin introduced, and lawmakers passed, legislation to create a Research Trust Fund. This is an economic development program that unites public and private funds to make West Virginia's economy more vibrant, and it will provide more opportunities for skilled and educated workers.

We are concentrating our Research Trust Fund dollars on areas critical to our state and nation's future.

Our educational and outreach efforts also strengthen the prosperity of West Virginia. As a university engaged with the people we serve, this is our enduring mission – educating students, discovering new things, applying it in practical ways and being engaged in partnerships with West Virginia's citizens. ▽



Chemical Alliance Zone – Adding to a Half-Full Glass (or Two)

Kevin DiGregorio, Ph.D., Executive Director
Chemical Alliance Zone

Kevin DiGregorio is the executive director of two non-profit economic development organizations in West Virginia: The Chemical Alliance Zone and the West Virginia Coalition for Technology Based Economic Development (also known as TechConnectWV). He has a Ph.D. in chemical engineering from West Virginia University and over 16 years of experience in the chemical industry, where he held a number of technical and leadership positions. He conducted biomedical research for his graduate degrees and earned the Young Investigator Award from the Biomedical Engineering Society for his dissertation work.

Mr. DiGregorio also is the president and owner of IMPACT Professional Services LLC, a business consulting firm offering strategic planning, leader retreat, general facilitation and other services. More recently, he started a new business with Reverend Steven Smith, a minister and New Church coach. Church Revitalization Consulting LLC provides consulting and coaching assistance to churches and faith-based organizations looking to grow their ministries. DeGregorio also writes a sports column, "From the Stands," for the **Blue and Gold News**, a publication covering West Virginia University sports.

I like to think the glass is always half full ... at least. (And if not, it is only because the glass is too darn big. But that's the engineer in me coming out, I guess.)

I hear what most of you are thinking. *Even now? Even in the midst of what most believe is the worst economic crisis since the Great Depression? The glass is still half full?*

Yes. At the Chemical Alliance Zone (CAZ) we have a glass that never gets below the mid-point. Of course, we do not have any magic formula or tricks up our sleeves, and we certainly don't have an endless spigot, but we do have a can-do attitude of optimism in the face of almost any situation.

Does that mean we are always successful? Unfortunately, no. What it does mean, however, is that we always look at the cards we are dealt and try to determine how to best play them to support, maintain or enhance the chemical industry and, in a broader sense, grow technology and innovation in West Virginia.

Let us look at four different hands and how CAZ is responding to help boost economic development in West Virginia.

Shrinking Chemical Industry Provides Marketable Facilities

Anyone who has spent any time in West Virginia knows that the state's economy has suffered from a shrinking base of chemical firms and jobs in recent years. We could write an article or two on why it has occurred, but the important point is the cards have been dealt and we have to adjust.

And we have. The shrinking base of chemical manufacturing simply provides us with facilities that we can market to other chemical companies. CAZ has worked with the West Virginia



Development Office (WVDO), Charleston Area Alliance (CAA), Regional Economic Development Partnership and other local and regional groups to attract investment. We have worked with Bayer CropScience in Institute, DuPont in Belle, Dow Chemical in South Charleston, PPG in New Martinsville and Bayer MaterialScience in both New Martinsville and South Charleston to market their facilities.

It is an attractive proposition, too. Just ask Kureha PGA LLC (a subsidiary of the large Japanese firm Kureha Corporation). Kureha recently broke ground for a new chemical plant at DuPont's facility in Belle, West Virginia. The company will create 50 jobs (plus 250 temporary construction jobs) and spend \$100 million on the world's first, commercial-scale plant to make polyglycolic acid (PGA). The new chemical facility is slated to begin production in 2010.

By locating at DuPont's site, Kureha can take advantage of existing infrastructure, avoiding the need to build things like roads and docks, waste treatment facilities, steam plants and industrial water systems. It allows them to share costs for utilities, waste management, safety and environmental management and security. And it gives them access to raw materials and easy-to-access transportation systems.

No doubt it would be a better story if all the available chemical facilities in the state were



Located in the backyard of the Kanawha Valley, the research and development Technology Park in South Charleston is home to Dow, Bayer CropScience and MATRIC.

filled to capacity, but that's not the hand we have been dealt. Thus, CAZ continues to work with WVDO, CAA, the chemical companies and others to promote the chemical industry and available facilities in the state. In fact, we will be in Germany in May for a chemical industry tradeshow. Working with WVDO and the Putnam County Development Authority, we hope to drum up more business for West Virginia's chemical industry and add to an already half-full glass.

Shrinking Technology Park Provides Facilities For Growth

Something else that is shrinking? Unfortunately, yes. Dow Chemical has continually downsized its research and development at the Dow Technology Park in South Charleston, West Virginia, to the point where there will soon be thousands of square feet of unused office space and hard-to-obtain laboratory space. A glass that seems to be fairly empty, however, is instead half full.

After all, how would you like to have this in your backyard? A place where some 2500 people work. A place where those people make an average of \$100,000 per year. A place where those people buy

lots of cars, homes and other goodies and contribute a lot of dollars and time to local charities. The Kanawha Valley had that in its backyard not too long ago, when Dow first took over the facility from Union Carbide.

And now? The Chemical Alliance Zone – along with the Charleston Area Alliance, Mid-Atlantic Technology, Research and Innovation Center (MATRIC), state government, and other partners – is working to have that in the Kanawha Valley's backyard again.

Dow, Bayer MaterialScience and MATRIC still conduct research and development (R&D) at the Tech Park, but the numbers are not what they once were ... or what we would like them to be. Still, the downsizing provides a foundation for future growth. The Tech Park provides us with two significant advantages: (1) potential access to high quality R&D facilities and (2) access to highly experienced and successful researchers and innovators.

In fact, that's the formula MATRIC has used for its early success. CAZ also has used that formula on a smaller scale. We have an incubator at the Dow Technology

Park for small and start-up companies or larger companies wanting to get a toehold in the area. For example, CAZ is providing laboratory and office space, equipment and services to Progenesis Technologies, LLC, a biotechnology spin-off from Marshall University. Other tenants include Gas Analytical Services, Kaiser Optical, AC&E Ltd. and INNOVA (WV High Technology Foundation).

Combined with MATRIC's success, we see a half-full glass that, with a little fortune and hard work, we can fill to overflowing. That is our goal. We want to use the same formula (available facilities and talent) to completely revitalize the Technology Park in South Charleston. We want 2500 people working there again. We want those folks to be making an average of \$100,000 per year, if not more. And we want them buying cars and homes and other goodies and providing time and dollars to local charities. With a lot of hard work, a long-term perspective and a little good fortune, we will.

Coincidentally, part of that good fortune comes from another hand we have been dealt — the current economic and energy situations.

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MATRIC's Vision: To Re-Create a World Class Innovation Enterprise

Keith A. Pauley, President and Chief Executive Officer
Mid-Atlantic Technology Research and Innovation Center (MATRIC)

Keith A. Pauley is president and chief executive officer of the Mid-Atlantic Technology Research and Innovation Center (MATRIC), which is a non-profit research corporation headquartered in the Dow Technology Park, South Charleston, West Virginia. MATRIC's 150 researchers and engineers focus on chemical and environmental technologies, health and life sciences, and advanced engineering systems.

Mr. Pauley has 21 years of technical experience in the development of high technology systems for various governmental and commercial customers. He has provided management and technical leadership for NASA, the Department of Energy and the Department of Defense, as well as General Motors, Boeing and Lockheed-Martin.

Mr. Pauley is also the president of six MATRIC subsidiaries and serves on the board of directors of five companies in which MATRIC holds an equity position. He also is active in the Vision Shared Program and holds directorship on the executive committee of the TechConnectWV, LLC.

Mr. Pauley is a native of St. Albans, West Virginia, and holds bachelor and master's degrees in nuclear engineering from Oregon State University.

In 1920, the Carbide and Carbon Chemical Company, a subsidiary of Union Carbide Corporation (UCC), opened the first petrochemical plant in the United States just north of Charleston, West Virginia. The company located its facility in this area in order to use the valley's ethane-rich natural gas as its primary feedstock. In 1925 it moved its operations to South Charleston, and in 1928, to UCC's present site on Blaine Island. Also in 1920, the Belle Alkali Company purchased the partially completed mustard gas plant in Belle. Nearby in Belle, the E.I. DuPont de Nemours Company erected the first commercial ammonia plant in 1925. Thus was born the modern chemical industry in the cradle of the Kanawha Valley, in which eventually 286 of the top 500 commodity chemicals were first invented and manufactured.

Currently the Mid-Atlantic Technology Research and Innovation Center (MATRIC) is working to birth new industries for the 21st century based on the foundation laid by this same chemical industry and some of its most talented scientists and engineers. MATRIC's non-profit research model focuses on creating new intellectual properties in chemical and environmental technologies, health and life sciences and advanced engineering systems, which will drive the industries of tomorrow.

MATRIC's Growth

MATRIC has gone from a conceptual vision to a significant local employer in five short years by creating an independent research, development and engineering enterprise at the former Union Carbide Technical Center in South Charleston, West Virginia.

In 2002, when Dow Chemical announced that they would open the newly renamed



Dow Technology Park facilities in South Charleston, West Virginia, to other companies, the Charleston-based Business and Industrial Development Corporation (BIDCO) began to envision the creation of an independent research and development institute which would utilize these facilities. Less than a year later, MATRIC was incorporated and its first employee was hired in April 2004. After nine months, MATRIC outgrew its first offices in the BIDCO Building on Smith Street in Charleston and moved to Building 701 in the Dow Technology Park before finally relocating to the Park's Buildings 740 and 2000, where it currently employs nearly 150.

The MATRIC Enterprise

The marketplace has embraced the diverse technical offerings of MATRIC and has allowed new companies to be formed within the MATRIC enterprise. Each company in the MATRIC enterprise builds on the capabilities of the others and focuses on the rapid development of intellectual property from concept to laboratory to engineering to commercial manufacture.

Mid-Atlantic Technology Research and Innovation Center (MATRIC)

A non-profit research corporation which conducts life-changing research and innovation primarily for government clients such as the Department of Energy, NASA, National Institutes of Health and the Department of Defense.



Mid-Atlantic Commercial Research (MCR)

A for-profit subsidiary which provides research, development and innovation to commercial clients in the areas of contract research, consulting and technical services for developing new processes or products, resolving technical issues or optimizing existing technologies.

Mid-Atlantic Holdings (MAH)

A for-profit holding company which commercializes all intellectual properties created by MATRIC. Income earned from license agreements, royalties and equity in start-up companies is used by MATRIC to conduct internally funded research projects with potential for marketability.

Mid-Atlantic Technical Engineering (MATE)

A for-profit professional engineering firm with multi-disciplined engineering and project management for projects in the energy, chemicals, water, food and aerospace sectors.

Mid-Atlantic Technology Consulting (MATC)

A for-profit employee-owned consulting firm which provides Ph.D.-level services in technical and market assessments, documentation and training, operational reviews and safety analyses.

These integrated capabilities allow the MATRIC enterprise to invent technology in our laboratories and seamlessly take the concept through design, procurement, construction and start-up operations. This model provides exceptional value to our customers, which commonly experience significant loss of value as technology is transitioned from one company to the next during the development lifecycle. Customers, such as BEST Biodiesel and Patriot Coal, have validated the worth of the full breadth of the MATRIC enterprise.

MATRIC's Commercialization Efforts

MAH has worked to bring MATRIC's innovations from the laboratory to the commercial marketplace through both licenses and start-up companies. This critical part of MATRIC's efforts creates blue-collar manufacturing jobs from the white lab coat workers in the research facilities, much like Union Carbide, DuPont, Bayer and Dow Chemical have done in the past. Ultimately, these start-up companies will be able to employ more West Virginians than our core research effort.

Currently, MAH has started nine companies, including:

- **Polyplexx, LLC** - licensing of optically clear, bullet-resistant polyurethane technology
- **Mountaineer Biofuels, LLC** - manufacture of ASTM-certified biodiesel from a variety of low-cost feedstocks
- **Moonshine Fuel Ethanol, LLC** - manufacture of ethanol from cellulosic wood chips
- **NG Innovations, LLC** - manufacture and operation of produced water desalination and pollutant removal systems for the natural gas industry
- **Liberty Hydrologic Systems** - manufacture of selenium and heavy metal removal systems for surface mines
- **Hydrus Membranes** - manufacture of reverse osmosis membranes for water treatment
- **Certus Scientific, LLC** - partnership with a small, woman-owned business to serve various government research and technical services requirements

MATE's International Design Center Partnership

In November 2008, MATE and Butler International formed a strategic alliance and launched the International Design Center (IDC) in Building 2000 at the Dow Technology Park. The IDC has

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The Role of Coal in Kentucky's Future

Bill K. Caylor, President
Kentucky Coal Association

Bill K. Caylor became president of the Kentucky Coal Association in January 2001. Before assuming the presidency of KCA, he served as its vice president and general counsel since 1976. He is a native of Somerset, Kentucky, and a third-generation lawyer.

Mr. Caylor received his law degree from the University of Louisville's College of Law and his undergraduate degree in civil engineering from the University of Kentucky. He is a member of the Kentucky Bar Association, Kentucky Society of Professional Engineers, Bluegrass Chapter of Professional Engineers, the Lexington Coal Exchange and the Order of the Engineer.

Although his expertise is in environmental law, Caylor is knowledgeable in all aspects of Kentucky's coal industry and understands the complex issues confronting it. For the past 31 years, he has served as a registered lobbyist representing the coal industry.

He has served as treasurer for the Kentucky Mining Institute since 1991, is the co-founder of the Kentucky Professional Engineers in Mining Seminar and is a board member of the National Coal Council. He is a recipient of the Kentucky Society of Professional Engineers Award of Achievement and the past chairman of the National Mining Association's Regulatory Assistance Program, comprised of the various state coal associations.

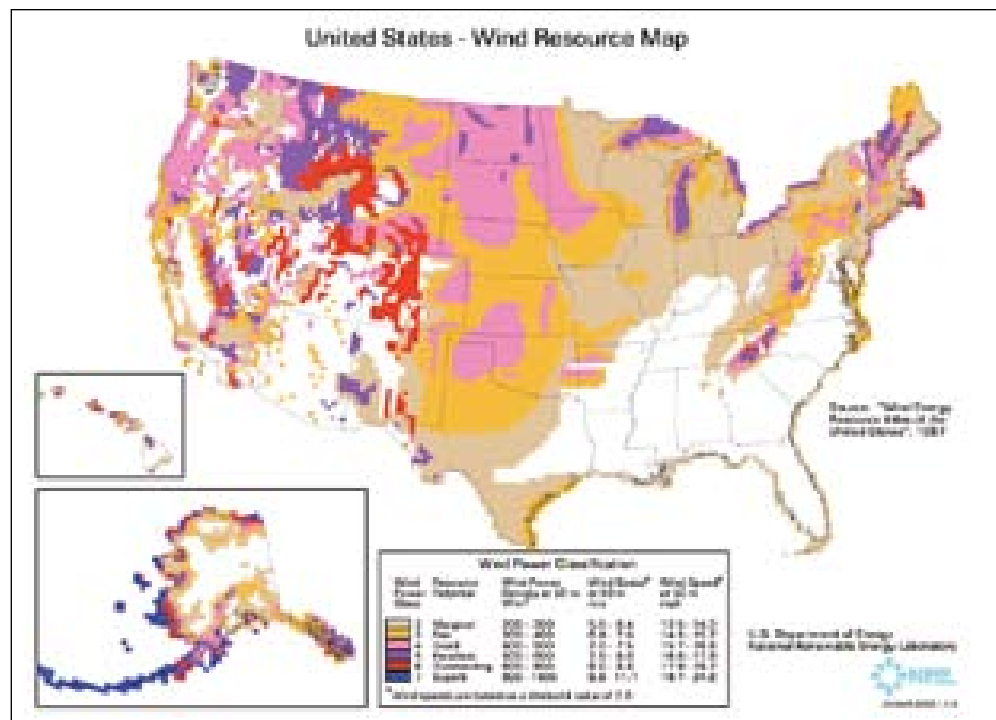
We take electricity for granted until we do not have it or until we cannot afford it. In Kentucky, 93 percent of the state's electricity comes from coal, and nationally, 49 percent comes from coal. Kentucky has the fourth lowest electric rate in the nation, thanks to coal.

During these tough economic times, the coal industry is one of the very few industries generating positive income for Kentucky in terms of jobs and tax revenue. In 2008, coal generated \$49 million more in severance tax than predicted for state and coal-county use because the price of coal had risen in 2008.

We are currently criticized for our use of the term "Clean Coal." Clean coal technologies was a term used by Congress more than 20 years ago and is not a recent creation. It was never meant to apply to carbon dioxide capture and storage, but research on this is currently

underway. With the addition of clean coal technologies, new power plants are up to 90 percent cleaner than the plants that are being replaced. We are close to eliminating the historic contributions to acid rain and smog.

The coal industry does not disparage other forms of energy, such as natural gas, nuclear, hydro or renewables. They all play a key role in providing our state and nation with electricity. The new University of Louisville Center for Renewable Energy Research and Environmental Stewardship will help devise ways to harness renewable energies like wind and solar here in Kentucky. This research is sorely needed because the wind power in Kentucky is only rated as marginal (see map below), and that is strictly in eastern Kentucky. One of the Kentucky Coal Association's members has looked into the feasibility of placing wind turbines on the tops of reclaimed



surface mines in eastern Kentucky and is still very much interested. He thinks it is a very viable land use after mining and reclamation.

Solar panels can help supplement some household electricity needs, but their cost effectiveness makes them unaffordable for the middle class.

We are cautiously optimistic about the future of coal under the Obama administration. Much will depend on who is appointed to head agencies like the Office of Surface Mining (OSM) and the Mine Safety and Health Administration (MSHA) and whether they have hidden agendas. We must remember that President Obama is from a coal-producing state and one would not think he would deliberately take actions to hurt the working coal miner.

In his *New Energy for America Plan*, President Obama proposed a 10-year, \$150 billion program for clean energy investments that would help create five million jobs. This included constructing five commercial scale coal-based power plants capable of capturing and storing carbon dioxide; putting one million plug-in hybrid cars on the road by 2015; and encouraging energy efficiency and a clean energy economy.

What passed Congress related to carbon capture and storage was somewhat different. Fossil Energy Research & Development Program: \$3.4 billion, which includes \$1 billion for fossil energy research and development programs; \$800 million for the Clean Coal Power Initiative; \$1.52 billion for carbon capture and energy efficiency improvement projects; \$50 million for a site characterization in geological formations; \$20 million for geologic sequestration training and research grants; and \$10 million for program direction funding.

Congress also allocated \$4.5 billion for expenses necessary for electricity delivery and energy reliability activities to modernize the electric grid.



President Obama realizes the importance of carbon capture and sequestration and should support the FutureGen project in Illinois. This is the next step to generating electricity without releasing any pollutants into the air. Although I personally take issue with the science surrounding CO₂ and global warming, this unfortunately is now a political science issue.

Midwest and southeastern states are heavily dependent on coal. Global warming legislation will raise their electric rates to reach parity with, or exceed, the New England states and California. The loss is the attraction of industry to states with low electrical costs. Steel, aluminum smelter and auto plants with their many spin-off industries will be in jeopardy. Another loss will be to the poor and elderly when they can no longer afford dependable electricity for lights, heating and cooling.

There is a lot at stake for coal under the Obama administration, but we must be optimistic that his administration will follow the rule of the law and not create its own policies and regulations harmful to coal. The administration will recognize coal as the only viable base load fuel for a dependable source of electricity for our nation. Coal will continue to be our nation's bridge to the future.

Predicting Kentucky coal's future is dependent on many variables:

- Coal price fluctuations
- Changes in federal/state safety regulations, law and policy
- Environmental litigation
- Coal imports into the southeastern states from other countries
- Production expenses (e.g., fuel, steel, rubber tires, explosives)
- Competition from Powder River Basin (in Wyoming where coal seams are 100 feet thick)
- Permitting delays
- Manpower shortages
- Diminishing easy-to-mine reserves
- Global warming legislation or CO₂ regulation of coal-fired power plants by EPA
- Carbon capture and sequestration research
- Coal-to-liquid fuel plants being built
- Recession—slowing national demand for electricity
- Excess supply of coal

But for today and the near future, in addition to providing thousands of Kentucky jobs, low electrical rates and income to our state, I strongly feel Kentucky coal's future remains bright. ▽



Now is The Time to Ensure Coal's Future in West Virginia

William B. Raney, President
Chris R. Hamilton, Senior Vice President
West Virginia Coal Association

William B. "Bill" Raney has served as president of the West Virginia Coal Association, Inc. since 1992. Previously, he was vice president of the West Virginia Mining & Reclamation Association for 15 years and spent seven years with the West Virginia Department of Natural Resources, serving throughout West Virginia in positions of reclamation inspector, administrative assistant and assistant chief of the reclamation division.

Through 30 years of service with the West Virginia Army National Guard, Mr. Raney has served in a variety of capacities, including Commander of the 111th Engineering Group and is currently serving as Special Assistant to the Adjutant General, State of West Virginia.

Mr. Raney has served on a wide number of boards and councils, including the West Virginia Business & Industry Council, of which he was chairman for nine years; the Governor's Energy Task Force; West Virginia Kids Count; Boy Scouts of America, Buckskin Council; and the Special Reclamation Fund Advisory Council.

He received both his undergraduate degree in biology and a master's in public administration (MPA) from West Virginia University.

Chris Hamilton currently serves as the senior vice president for the West Virginia Coal Association. He has been with the Association for 25 years' and has a total of 35 years' experience in the coal mining industry. During his tenure with WVCA, he has held many positions related to technical issues and government affairs. Today, he is generally responsible for legislative, regulatory and technical matters affecting the coal industry.

Previously, Mr. Hamilton served as the training director for the West Virginia Department of Mines under then Governor John D. Rockefeller, prior to which he had extensive safety and training experience within the industry, operated his own company and worked as an underground miner and section foreman. He has mine foreman certifications from West Virginia and Ohio.

Mr. Hamilton has an undergraduate and a master's degree from West Virginia University and has completed graduate level courses at Marshall University in management, economics and environmental science.

Coal has long been one of West Virginia's leading industries. It provides thousands of good-paying jobs, infuses millions of dollars into local and state economies and provides low-cost electricity to state residents.

There has been no other point in modern times that the state enjoyed record tax collections from coal as it has in 2008. Total severance collections have more than doubled since a total of \$198 million was received by the state treasury in 2001. Consequently, the amount of taxation being returned to all 55 counties has increased proportionately during this period, supporting basic infrastructure projects and much-needed educational and government programs for the less fortunate and seniors.

The coal industry's contributions also have been instrumental in rescuing the state's workers' compensation system from the brink of disaster over the last few years. Today, the total amount of severance tax generated from coal alone has peaked at \$415 million dollars which represent \$75 million ahead of where the state tax department thought they would be when the budget year began six months ago. It is estimated that severance tax collections will top out at \$475 million at the end of the current fiscal year.

On the surface, West Virginia's economic situation appears to be much better than that of many surrounding states, due in large part to the shielding impact of the coal industry. West Virginia's budget will likely remain balanced this year, unlike most states, but that hides the cold reality of our economic situation behind a veneer of financial stability.

Coal prices are dropping daily as the world's energy needs fall. In fact, the average price of coal from Appalachian markets has fallen almost 50 percent since a high in August. The drop in coal prices is hitting sales of metallurgical coal, used in steel making, particularly hard. The price for metallurgical coal has fallen by more than 50 percent. New orders for mining equipment have seen multi-million dollar declines, with many existing orders cancelled.

This fall in coal sales prices is happening even as production costs skyrocket, eroding already narrow profit margins. In West Virginia and across the country, declining sales have already resulted in some job losses. For the first time in several years, coal mines are beginning to shut down and miners are being laid off. In just the past few months, almost 1,000 West Virginia coal miners have lost their jobs.

What does this mean for West Virginia?

Beyond the 1,000 West Virginia families already affected by the downturn – families forced to deal with the loss of jobs that paid between \$60,000 and \$100,000 per year—the impact ultimately will be felt in the form of sharp downturns in tax revenue. This, in turn, will impact everything from police protection to community schools and a host of other state and local programs that depend on the coal industry for support.

The bottom line is that instead of celebrating a budget surplus next year, we may be looking at the choice of a running budget deficit or making deep cuts to state and local programs.

West Virginia's coal industry is also faced with its own set of challenges. Among these are:

- Today's Appalachian coal seams are more difficult to access, require more sophisticated preparation and are farther from the transportation points of rail and barge.
- Mining costs, i.e., fuel, engineering, permitting and reclamation, personnel and supplies, all have turned sharply upward. Additional capital investment for new safety requirements has affected regional cost structure.
- The entire industry is facing the problems of an aging workforce and an overall shortage of workers. It is, however, most critical for our region, since 79.2 percent of the miners are working in the eastern and midwestern coal industry. Human infrastructure must be developed today.
- Legal challenges and continuing unpredictability in the permitting process have further inhibited the ability of the industry to maximize, or even maintain, its production opportunities. Acknowledgement of advancements in applied technology and environmental expertise are needed immediately.

Over the next few months, West Virginia's coal industry will undoubtedly continue to contract. How sharp and deep the contraction will be is unclear. Some factors

are out of our control, but there are many steps we can take today that will put us in a much better competitive position when the international economic picture improves and the world's insatiable demand for energy returns.

Now is the time to invest in the future of West Virginia's bedrock industry. Now is the time to take advantage of the state's relative economic stability and secure our economic future.

Our primary goal as a state must be to at least maintain our current status as the number two coal-producing state in the nation. Our second goal, but equally important, is to at least maintain our current production level of approximately 160 million tons per year. Doing so will allow our state to continue to depend on the coal industry as the foundation of its economy.

To produce and sustain current production levels, there must be a market for the product, and we must compete in that market. For this reason it is critical that the legislature and the state take every possible step to insure our coal industry is, and will remain, competitive with the other coal-producing states in the United States, as well as those foreign countries currently producing coal.

We have a strong foundation on which to build. The state has a core of experienced workers, great capacity, committed management teams, aggressive business plans and a strong will to succeed.

Global climate change, national energy policy and the coal-to-liquids program are at the forefront of these challenges, and coal's future depends largely on the manner in which these universal policy questions are answered.

West Virginia must advance an attractive and aggressive environment for those limited and increasingly scarce investment dollars.

Actions for Future Growth

Following are a few of the commitments we believe are necessary for the state to take in order to properly take advantage of

our opportunities. Time is of the essence, as the world economy may already be rebounding – and with that rebound will come the world's insatiable demand for energy.

First, **the re-establishment of a clean coal technology council** with a central focus on overseeing the development of carbon capture and storage technologies.

Second, the coincidental development of a program of incentives to expand the cooperation of state and local governments with mine owners in the **identification and incorporation of some former mountaintop mining sites into economic development plans**. As we move to diversify the economy, we can't afford to waste these potential sites for future development.

Reforming the state's tax system is another key component of our plan. West Virginia levies more and greater taxes and fees against its coal industry than any other coal-producing state in the nation. These increased government impositions of taxes and fees will encourage utility customers in other states (we export over 100 million tons of coal annually) to seek suppliers with lower governmental costs so they can insulate their own customers from increased costs being passed through in the rate base.

It is imperative, for the long run, to control these taxes and strive for equity with the other coal-producing states. The threat is evident, as coal will be sought from jurisdictions where the government impositions of taxes and fees are less.

Just as tax reform must be enacted, so must **changes to the state's mine permitting effort**. The primary goal of this is to restore reliability and predictability to the process. Uncertainty and lack of predictable completion in the current West Virginia mine permitting process is a deterrent to attracting investment when competing with other coal-producing states. With such a recommendation from the federal Environmental Impact Statement, it is imperative the state take appropriate action to remove uncertainty and duplication in the current process.

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Students Need New Skills for Success in the 21st Century

Dr. Steven L. Paine, Superintendent of Schools
West Virginia Department of Education

Dr. Steven L. Paine has served as West Virginia's 25th state superintendent of schools since July 1, 2005. Led by Dr. Paine, West Virginia is deeply engaged in systemically transforming its public school system with the goal of providing all West Virginia children the skills that will enable them to excel in a fiercely competitive global world. West Virginia's 21st Century Learning program is focused on the development of internationally rigorous and relevant curriculum standards; a balanced assessment strategy; research-based instructional practices; a parallel accountability system; aligned teacher preparation programs; development of a 21st century leadership continuum; and integration of technology tools and skills in every classroom.

Dr. Paine is a member of the Council of Chief State School Officers (CCSSO) Board of Directors, a member of the National Assessment Governing Board and a member of the National Commission on Teaching and America's Future (NCTAF) Board of Directors.

Dr. Paine earned his undergraduate degree from Fairmont State College and received his master's in educational administration and his doctorate in educational leadership from West Virginia University.

Visitors to Donna Landin's math lab at Horace Mann Middle School in Charleston quickly realize hers is no ordinary classroom. Students huddle together as they decipher blueprints, calculate square footages and other measurements, develop budgets and create spreadsheets for a landscaping project.

In doing so, they not only learn to apply their math knowledge, but also higher order 21st century learning skills, including collaboration, problem solving and critical thinking.

Such projects shift away from traditional teacher-centered lessons and emphasize student-centered learning integrated with real world issues, exactly the type of education reform President Barack Obama has proposed for America's classrooms.

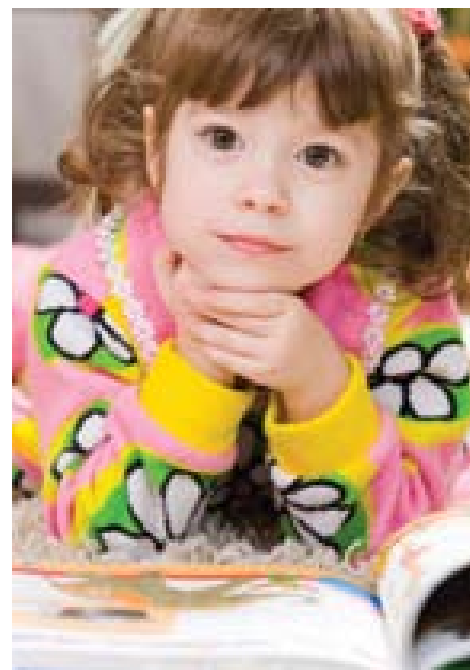
"I am calling on states that are setting their standards far below where they ought to be to stop low-balling expectations for our kids. The solution to low test scores is not lower standards – it is tougher, clearer standards," Obama said recently in describing his education plan. "And I am calling on our nation's governors and state education chiefs to develop standards and assessments that don't simply measure whether students can fill in a bubble on a test, but whether they possess 21st century skills like problem solving and critical thinking, entrepreneurship and creativity."

Obama's vision for America is West Virginia's vision, one we began in 2005 with a self-reflection process. We soon realized our schools were preparing students for *our past* instead of *their future*. We set out to systemically change not only *what* we teach our children but *how* we teach them.

To do so, we added world-class rigor to our core subjects and aligned state standards with national standards in the National Assessment for Education Progress (NAEP), ACT, and SAT, as well as with international standards in the Program for International Student Assessment (PISA) and the Trends in International Math and Science Study (TIMSS).

The result is 21st Century Learning, Global21. We believe students deserve it and the world demands it. The plan helps public schools move beyond outdated instruction models and guide all children





toward mastery of higher level core subjects and complex concepts, equipping them with the intellectual capital and finely honed skills needed to excel in a competitive digital world.

With the support and leadership of Governor Joe Manchin, the West Virginia Board of Education, Senate Education Chairman Robert Plymale and House Education Chairwoman Mary Poling, West Virginia is a pioneer in our efforts to provide children the knowledge and skills they need. We also have a staunch supporter in Congress in U.S. Senator Jay Rockefeller, who has sponsored federal legislation supporting 21st Century Learning.

Core subject knowledge is necessary, but no longer enough. Today's employers, such as Cisco, Intel and Verizon, tell us they value people who have both knowledge and skills. They want employees who are smart and who know how to communicate, collaborate, analyze and solve problems.

Elena Silva, a senior policy analyst at Education Sector and author of *Measuring Skills for the 21st Century*, says "the best learning occurs when basic skills are taught in combination with complex thinking skills."

I agree. And that is exactly the approach West Virginia is taking.

Such changes require an investment in teachers, our human capital. West Virginia has an experienced but aging teaching force. More than 60 percent of our teachers are 50 years old or older, giving us the oldest teaching force in the country, according to a preliminary analysis of U.S. Department of Education schools and staffing data for the National Commission on Teaching and America's Future (NCTAF).

Our teachers are caring and competent. But they need professional development to help them blend their strong subject mastery with 21st century learning skills. We must motivate and help our educators expand their knowledge to meet student needs. Teachers deserve the opportunity to reflect, collaborate, plan and share ideas for reaching children in new ways. I call it "Building the Back Porch."

We also should give schools flexibility to think outside the box by creating innovation zones. Our schools currently are working to implement 21st century learning in a system designed for 20th century learning. Innovation zones will allow schools to temporarily work

outside of some state policies and laws to enhance learning.

I want the next generation of West Virginians to be the best educated, best skilled, and the best trained in the world. With Global21, and with the collaboration of educators, parents, as well as community, political and business leaders, they will be. ▽



The Natural Gas Industry Energizes West Virginia

Lloyd G. Jackson, II, President
Energize West Virginia

Lloyd Jackson of Hamlin, West Virginia, is an attorney and businessman. He and his father, Lloyd, Sr., operate their family's natural gas production business, an industry in which their family has made their living for over 100 years.

Mr. Jackson graduated Phi Beta Kappa from West Virginia University with a degree in political science. He attended the West Virginia University College of Law, where he served as editor-in-chief of the Law Review and graduated Order of the Coif.

He served as prosecuting attorney of Lincoln County, West Virginia, for six years and as a state senator for 12 years, chairing the Judiciary and Education Committees. During his legislative service, Jackson is best known for his writing of the PROMISE Scholarship legislation and the Comprehensive Early Childhood Legislation.

He currently serves as a trustee of the Claude Worthington Benedum Foundation, the largest charitable foundation serving West Virginia, as chairman of the Board of Trustees of West Virginia Wesleyan College, as a director of the West Virginia Oil and Natural Gas Association, as president of Energize West Virginia and as a director of the Marshall University Research Corporation, the Discover the Real West Virginia Foundation, Kids Count West Virginia, the Clay Center for the Arts and Sciences and The College Summit West Virginia.

West Virginia enjoys a rich history in the production of natural gas. Wells have been drilled in 53 of the state's 55 counties and, with over 48,000 producing natural gas wells, the state is one of the largest producers of natural gas in the country and ranks second only to Texas in the number of producing wells. Unfortunately for the industry, few West Virginians, including few policymakers, understand the business and its many sectors. That is one of the reasons the two primary West Virginia natural gas groups, the Independent Oil and Gas Association (IOGA) and the West Virginia Oil and Natural Gas Association (WVONGA), jointly established Energize West Virginia, a not-for-profit organization charged with educating the public about the natural gas industry, and with fostering efforts to attract more employees to jobs within the industry.

The establishment of Energize West Virginia could not have come at a more opportune time. The industry has experienced unprecedented growth over the past several years, and this growth is reflected in the benefits it has generated for the people of West Virginia. Severance tax revenues to the state and counties have grown steadily, from \$28.4 million in tax year 2002 to over \$71 million in tax year 2008, an increase of 250 percent. In 2009, property tax revenue to county governments and school boards is estimated to top \$58 million, constituting the single largest source of property tax revenue in many counties, especially in central West Virginia. Most importantly, employment has increased sharply with 22,000 jobs directly related to the natural gas industry – and thousands more in the offing.

New technologies, both in the areas of stimulating new well production and horizontal drilling techniques, have rendered certain formations productive which once were considered marginal at best. The most discussed of these formations is the Marcellus Shale play



in the Appalachian basin, strongest in New York and Pennsylvania, but certainly not insignificant in northern West Virginia. Additionally, the horizontal drilling of traditional Huron shale formations, shallower than the Marcellus Shale, also has generated new activity and significant new production. It is critical to remember that these relatively new plays are not in formations heretofore unknown to producers. It is the introduction of new technologies for stimulating and drilling the wells that has rendered these known formations, once believed marginal or depleted, as very productive pay zones in the Appalachian basin. In fact, some experts predict that the resource base of the Marcellus Shale could top 500 trillion cubic feet (tcf). Based on an annual national consumption of 23 tcf, the Marcellus Shale play alone could supply enough natural gas to meet the country's demands for well over a decade.

Although the industry has demonstrated substantial growth and innovation over the past several years, it has not been immune to the recent economic downturn. Weakened demand, tight credit markets and mild weather have combined to depress commodity prices for natural gas, thus slowing the incredible expansion the industry has enjoyed. Most experts see this as a temporary condition and forecast a return to robust growth as world economies recover and the demand for energy again strains supplies. When that occurs, West Virginia must be ready to maintain its leadership role, but to do that, there are challenges to be met.

Competition

West Virginia long has enjoyed price advantages derived from two basic circumstances:

(1) West Virginia has been the largest producing state in the Appalachian basin; and (2) when compared to other large-producing states in the area of the Gulf of Mexico, the southwest and the Rocky Mountain region, supplies in West Virginia had a geographic advantage to the large northeast markets. However, developing realities threaten these advantages. First, the new pipeline known as Rocky Mountain Express (REX) is set to deliver significant new supplies of natural gas from the Rocky Mountain states into established pipeline systems just north of West Virginia. Second, although the Marcellus Shale play will be important in many parts of West Virginia, it appears that the most productive wells are located in Pennsylvania and New York, closer to the large northeast markets. Taken together, these factors most likely will reduce or eliminate the traditional market and price advantages enjoyed by West Virginia natural gas. Producers must face this new reality and plan their programs accordingly.

Pipelines

A problem more significant than the loss of price advantage has been developing for several years – the lack of pipeline capacity to deliver West Virginia natural gas to market. Because of aging pipelines, inadequate compression and extraction facilities and increased supplies, our state long has needed construction of new pipeline, compression and extraction facilities. As noted above, the introduction of new supplies of natural gas north of West Virginia, and closer to major northeast markets, has exacerbated the problem. For years, several factors have combined to militate against the needed projects. Among these negative factors are the high cost of construction, the difficulty of securing rights-of-way, the cost and complication of gaining governmental permits – especially in the area of the environment – and competing demands



for construction dollars within major transmission companies and utilities. For far too long little attention has been given to, and little investment has been made in, the pipelines necessary to deliver West Virginia gas to market.

What has been the result of this inadequate investment? Beginning in the 1990s, mineral owners and producers in southern West Virginia began suffering from a dearth of available pipeline capacity. Existing pipelines were full, or the capacity to compress and process the gas was so limited that wells were shut in for months at a time with no way to deliver gas to market. Over the past five to ten years, those restrictions steadily have migrated north until now new capacity is difficult, if not impossible, to find in many areas of central and even northern West Virginia. Pipeline capacity continues to be a major problem for the industry.

There is a glimmer of hope on the horizon. EQT Corporation recently completed new pipeline and compression facilities in the Big Sandy area of Kentucky—along the West Virginia border—that have provided some relief in southern West Virginia. Columbia Gas Transmission Corporation

has upgraded a number of its pipelines and compression facilities to help alleviate the restrictions in the south as well. While too often limited to transporting only their own gas, other pipeline companies have upgraded their facilities, and this often relieves bottlenecks on theirs and other systems in the general area of construction. And now, Dominion Transmission Corporation, at a cost of nearly \$1 billion, plans to upgrade its transmission system from southern West Virginia all the way into Pennsylvania, providing substantial new capacity for West Virginia natural gas to be delivered to the major northeast markets.

These all are encouraging developments, but they must be the beginning, not the end. The competition from western natural gas on REX and the development of new supplies in the Marcellus Shale plays north of West Virginia remain formidable challenges. Without new and sufficient pipeline capacity to move gas from all parts of West Virginia to market, we will find our supplies restricted and the huge economic benefit the natural gas industry has provided to the state will diminish.

(continued on p. 47)



Localism is the New Cool

Sylvia L. Lovely
Executive Director/CEO, Kentucky League of Cities
President, New Cities Institute

Sylvia Lovely has been actively involved with cities since 1988, when she started as a staff attorney with the Kentucky League of Cities (KLC), a membership organization of more than 380 cities across the commonwealth. Since 1990, Lovely has been executive director and CEO of KLC. She currently serves on the board of the National League of Cities and as chair of the Morehead State Board of Regents.

In addition to her work at the Kentucky League of Cities, Ms. Lovely is also president of the NewCities Institute. The NewCities Institute is a national non-profit organization that encourages citizens to get involved in helping their communities thrive in the rapid technological change and global challenges of the 21st century.

Ms. Lovely speaks and instructs across the country and is a regular contributor to newspapers and publications and a featured commentator on various TV and radio programs. She is the author of *"New Cities in America: The Little Blue Book of Big Ideas,"* and *"New Cities in America: The Little Red Book of Everyday Heroes."*

Sylvia is a graduate of Morehead State University. She graduated from the University of Kentucky College of Law and is an Adjunct Faculty Member of the UK Martin School of Public Policy and Administration.

Enough gloom, doom, darkness and dread. We know the reality. The international recession is real. It casts an even larger shadow over places like Appalachia that have long been seen as dark spots instead of bright spots or hot spots.

From "The Beverly Hillbillies Redux" during the presidential primary to Diane Sawyer's 20/20 segment several weeks ago – can Kentucky and West Virginia get a break?

Not until we fundamentally change the way we approach our individual roles in our communities. If Kentucky and West Virginia are to thrive (and overcome stereotypes), citizens will have to make it happen.

At its core, the government's role is to protect people and provide basic services. We expect a lot more. Kentucky and West Virginia will receive billions of federal dollars, including \$632 million for roads and bridges and \$203 million for community development and public housing improvements.

But we have been spoiled for so long. Cities and the services they provide are critical for our region's success. Governments and the leaders who govern need engaged citizens and people who are willing to do more.

And it is happening – what I like to call a new "localism."

Our mountain history goes back to the coal mining wars with Lyndon Baines Johnson's 1964 announcement of the War on Poverty. He was photographed on the front porch of a run-down house in Inez, Kentucky. For decades, that infamous photo has demonstrated the failures of the family on the front porch – and how far we have not come in conquering that scourge.



As Inez banker (and former Republican National Committee Chairman) Mike Duncan recently put it, "The War on Poverty did not succeed."

Back home, the reviews of the recent 20/20 segment were mixed. Facebook posts point out that, while sad and heart wrenching, the truth is what it is. Statistics can lie but they must be heeded. And they are heartbreaking – drugs, obesity and dead ends that lead to a general malaise about how any government or private efforts can ever make a difference.

But there are bigger stories to tell. One is that people in Appalachia are working on it.

Today in Inez, several natives have moved back home in order to make a generational impact.

These well-educated, successful people recently gathered and vowed to rewrite the story of the failed War on Poverty. They are not asking for a handout or even a hand-up. They have already recognized that the problems are theirs and have taken ownership for finding the solutions.

There is an emergent sense that it takes more than a "hollow" to raise a child. It takes effort to build a skilled work force. It takes a lot of people to bring a future to the mountains.

From the grassroots to the "grasstops," everyone will have to work together to seize



the opportunities that can benefit small to mid-sized cities and their communities.

Some experts and demographers predict that by the year 2050, 75 percent of Americans will live in just eight supercities/regions. Kentucky and West Virginia, with their locations and abundant resources, are well situated close to the Charlotte/Atlanta “supercity.”

Increasingly, however, the world order is moving toward local communities and regions. For whatever reason – call it the bewilderment of trying to grab hold of “global” or something else – people are seeking the comfort of smaller places where the economies of scale are more humanizing. They want safer, kinder places to raise their children and live more comfortably. You probably know someone who has “downsized.” I do.

But prosperity will come with a price. We must do self-examination like never before and we may not like what we see. We also must demand that our local leaders have the right tools to build communities. That means a new kind of relationship with our state and federal government.

I have worked in community building most of my career. I believe we can find the answers to change from within ourselves – in Appalachia or anywhere.

An appreciation for where you are and what you have is very “in.” But more than that, localism is the responsibility we have to each other, to our children, to the land and to our past. And it completely defines our future. Who else is going to design the community we want?

Who else but us? ▼





The Innovation Imperative – Diversifying the West Virginia Economy

F. Russell Lorince, Director, Economic Development
West Virginia University

Russ Lorince serves as Director, Economic Development, at West Virginia University. In that capacity he is charged with advancing WVU's role as an economic driver in the state, leveraging the institution's resources and assets, particularly in the area of technology-based economic development.

Prior to joining WVU, Mr. Lorince worked with Allegheny Energy for 25 years, retiring as Director, State Affairs. Over the years he held a variety of managerial and executive positions in economic development, corporate affairs and government relations in West Virginia, Pennsylvania and Ohio.

In his capacity at WVU, Lorince works with a wide range of economic development organizations. He currently chairs TechConnect WV and serves on the boards of the West Virginia Chamber of Commerce, West Virginia Jobs Investments Trust, Vision Shared Inc., Mid-Atlantic Aerospace Complex, I-79 Development Council, Monongalia County Development Authority, Morgantown Area Economic Partnership, Mylan Park and United Way. He previously served as president of the West Virginia Oil and Natural Gas Association and the West Virginia Economic Development Council.

A native of Morgantown, Lorince graduated from West Virginia University with a bachelor of arts degree in 1974.

For decades, West Virginia has struggled to generate more economic diversity that balances its traditional strengths in extraction and manufacturing with emerging sectors of business opportunity.

As we press into the 21st century and accelerate efforts to embrace the Innovation Economy, that diversity must include what has become known as Technology-Based Economic Development (TBED) to guarantee success.

More than just the application of technology in the workplace, TBED involves the continuum of activity from innovation and intellectual property to commercialization and market application of new products. And while the relocation of technology companies to West Virginia remains a focus, most of this new activity will be grown within the state through the creation of start-up companies and the partnering of small businesses.

TechConnect WV, a new non-profit collaboration with the West Virginia Department of Commerce, has accepted the challenge and recently produced a Blueprint for Technology-Based Economic Development. Governor Joe Manchin and Secretary of Commerce Kelley Goes have been supportive of the efforts to further diversify the economic landscape, while recognizing the state's financial limitations.

TechConnect WV began in 2004 as an informal melding of West Virginia entities which do some form of research, technology transfer and commercialization. It was recognized that the state does have a vibrant technology sector, though still developing, and that the sector would benefit from regular support. Guided by the Benedum Foundation, the intent was



to maximize existing state resources in the Innovation Economy space by promoting effective partnerships among researchers, entrepreneurs, management talent and investors. Working as a team under the Vision Shared umbrella, the group has evolved into TechConnect and is now implementing the Blueprint in West Virginia.

At a launch event in March, TechConnect debuted the strategic plan, which outlines best practices, essential programs and necessary infrastructure to make the state competitive in this arena. Produced in coordination with the prestigious Battelle Institute, the strategic plan targets four strategies, each supported with a series of actions and accountable parties. The intended outcomes, designed to create high-paying jobs, capital investment and increased tax revenues, run the gamut from immediate impact to long-term effect.

Unlike most of its peer states, West Virginia has not invested in building the infrastructure to support TBED until, that is, the West Virginia Research Trust Fund was passed last year. The bold step which Governor Manchin and the West Virginia Legislature took with the passage of the West Virginia Research Trust Fund (also known as Bucks for Brains) in 2008 should greatly enhance the academic discovery at our state's research universities. TechConnect, focused on the commercialization and economic output from that research, is a natural progression of the Trust Fund. As a result, the non-profit is also coordinating with the West Virginia Higher Education

Policy Commission and Chancellor Brian Noland.

The West Virginia Department of Commerce and its Development Office have been engaged throughout the emergence of TechConnect. Though the organization operates as an independent non-profit, its mission will be to collaborate closely with the state development staff as a primary resource for promoting tech-based economic development. It will serve as a forum to connect potential partners, a front door for technology entrepreneurs and a facilitator to promote new start-up companies and collaborations, all with an eye on commercialization of research and innovation.

The Blueprint for Technology-Based Economic Development in West Virginia is built around four strategies: (1) Support Innovation and Entrepreneurship; (2) Grow Commercialization Capacity; (3) Ensure Access to Capital; and (4) Create a Business Climate to Grow Technology-Based Companies.

A set of 18 specific actions address implementation of these strategies, both immediate and long-term. Examples include an industry-university matching grant program, new commercialization programs aligned with the West Virginia Development Office, research institutes built around four key technology areas, new branding of West Virginia's technology sector and matching state monies for firms winning competitive federal Small Business Innovation Research grants. The entire Blueprint and all its details can be accessed at www.techconnectwv.org.

The plan follows 2007 research by Battelle which identified West Virginia's competitive technology strengths and

presented a gap analysis of areas where we fall short of supporting the Innovation Economy. Four technology platforms were recognized where the state demonstrated critical mass in academic research and commercial activity to produce a competitive position for the state. Those platforms were Advanced Energy and Related Technologies; Advanced Materials and Chemicals; Identification, Security and Sensing Technologies; and Biosciences. The Blueprint targets



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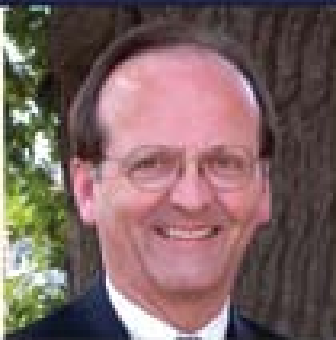
two of the areas, Advanced Energy and Identification Technologies, with immediate activity, and the other two areas will soon be addressed.

The identified gaps where West Virginia must improve are Talent; Early Stage Seed Capital; Entrepreneurial Know-How; Image and Leadership. The Blueprint's function is to close these gaps by putting new entrepreneurial infrastructure in place, finding new capital sources and elevating the critical importance of TBED throughout the state.

The programs and policies recommended in the Blueprint represent a mix of best practices and case studies used by other states, tailored to the specific strengths and capacities found in West Virginia. The group of peer states included those similar in population, rural distribution and traditional economic base. The clear common denominators among top performing states are a focus on the essential role of the technology sector, sustained investment to support its growth and the leadership required to maintain a commitment over time.

TechConnect WV's board of directors reflects a wide range of institutions, entities and individuals committed to the task. Leadership has come from the Benedum Foundation, West Virginia University, Marshall University, MATRIC, West Virginia High Tech Consortium, National Energy Technology Laboratory, the West Virginia Department of Commerce and numerous other businesses and agencies. A productive spirit of trust and common purpose has been developed to press the organization's agenda of economic diversity and opportunity for all West Virginians. That has already produced positive results through greater coordination.

The research is clear: It is an economic imperative that West Virginia invest annually in building its Innovation Economy if we are to succeed. Implementation of the programs in the Blueprint should encourage expansion of existing technology companies and the creation of new start-ups and their demand for employees. With vision and a goal to compete with our peer states, West Virginia can make dramatic strides toward the economic diversification to which we all aspire. ▽



Science Discovery and Innovation: A Proven Economic Development Approach

Dr. Curt M. Peterson

Vice President for Research and Economic Development, West Virginia University
President, WVU Research Corporation

Dr. Curt M. Peterson leads West Virginia University's research mission as vice president for research and economic development and president of the WVU Research Corporation.

Before coming to WVU, he held senior leadership and faculty positions at the University of Northern Colorado and Auburn University. A biologist, Peterson's research has led to the production of more than 165 technical reports, including 53 published journal articles. He has served as the principle investigator (PI) or co-PI on grants or contracts from a wide range of federal and state agencies. Dr. Peterson received his doctorate in biology from the University of Oregon and a bachelor's degree in biology from Moorhead State University in Minnesota.

In the closing days of World War II and only months before his passing, President Franklin D. Roosevelt took stock of the America that would be transforming from war to peace. He realized that economic challenges were just ahead, when millions of soldiers would become workers and the nation's vast war-making networks of factories and installations would no longer assemble the tools of war.

He knew the role that science, discovery and innovation played in winning the peace, and he was counting on that same formula to win prosperity. Roosevelt wrote that, "New frontiers of the mind are before us, and if they are pioneered with the same vision, boldness, and drive with which we have waged this war we can create a fuller and more fruitful employment and a fuller and more fruitful life."

He turned to his science advisor – the first person to ever hold that role, a studious, heralded scientist named Vannevar Bush – and asked for input on how to prepare for the changes ahead. Bush responded with an impressive work titled "*Science – the Endless Frontier*."

It was an eloquent argument in support of America's colleges and universities, where the basic research that Roosevelt and Bush saw as the key to new prosperity lived then, and lives today.

Bush's report should be delivered to and studied by every policy maker in Washington at work on the economic crisis that faces us today. His message was wide-ranging, deep and thought provoking, but so well written that it made its point in two key sentences.

"New products, new industries, and more jobs require continuous additions to knowledge of the laws of nature, and the application of that knowledge to practical purposes," Vannevar Bush wrote in response to Roosevelt's challenge.



"... This essential, new knowledge can be obtained only through basic scientific research."

The West Virginia University Research Corporation is proud to support and pursue the stand of Vannevar Bush with a record of accomplishment and visionary plans for new scientific progress to prove it. That work centers both on basic research and innovation that leads to processes converting ideas, concepts, intellectual property and inventions of the researchers into commercial products that benefit society. Specifically, research and innovation at WVU are focused on targeted efforts to answer specific needs like the drive to attain energy independence from foreign oil or finding a cure for cancer.

At West Virginia University, hundreds of faculty researchers and graduate students are engaged in research projects that add to the knowledge of the laws of nature, which are then transitioned into practical purposes. WVU research and discoveries in energy, biomedicine, homeland security, nanotechnology and a host of other

fields and interdisciplinary initiatives are aimed at making people's lives better.

For example, the work of WVU researchers in chemistry, performing basic research on proteins, resulted in the creation of new protein identification technology that now serves as the core of a promising new biomedical industry right here in West Virginia.

A more targeted research approach is represented by WVU's energy work. Our Advanced Energy Initiative unveiled last fall seeks to find new answers to America's energy headache while building upon decades of solid research. That means keeping our scientists busy:

- Searching for effective ways to capture and sequester carbon from coal to provide a cleaner and abundant energy source.
- Researching new biomass technologies that can transform wood chips and switch grass into viable fuel alternatives, thus reducing the carbon footprint.
- Investigating new wind turbine configurations and technologies that are more environmentally friendly to wildlife and more effective in generating electricity.
- Developing more efficient lighting technologies using nanotechnology.
- Finding new ways to improve energy efficiency and minimize the use of non-renewable resources.

And, of course, there is the incredible health science research under way at the Robert C. Byrd Health Sciences Center. For example, the National Cancer Institute recently awarded the WVU Department of Pediatrics a five-year, \$1.47 million grant to study stem cells and treatment of lymphoblastic leukemia (ALL). Almost a quarter of all children with cancer suffer from ALL.

When breakthroughs in health sciences lead to new products, new industries and new jobs, they can, in the words of Roosevelt, "create a fuller and more fruitful employment and a fuller and more fruitful life."



One of the key problems WVU faces is keeping the progress coming. In this difficult economy, resources are scarce, no matter how promising the outcome.

Innovation is required in the halls of government and corporate boardrooms, as well as in the laboratory. That is why West Virginia was so forward-thinking a year ago when it approved legislation creating the Research Trust Fund (initially known as Bucks for Brains). The program established a \$50 million state fund to match research dollars that are raised at WVU for the kinds of scientific endeavors that embody the vision of Roosevelt and Bush.

The tools of progress that we have to use are the skills and talents of expert researchers, including the intellectual property they generate and their entrepreneurial ingenuity to incubate their ideas into commercial products; the facilities we are able to provide them; and the funding and support we are able to garner from the public and private sectors. WVU is counting on that continued support and stands ready to show off its progress and vision to the men and women who can keep the momentum going. A challenging future can be less difficult as a result.

In his inaugural address, President Barack Obama specifically called on universities

to help "meet the demands of a new age through knowledge, science, technology and research."

He has pledged to double basic research funding for physical and life sciences, mathematics and engineering over the next decade. That is extremely encouraging and supports the work of the West Virginia congressional delegation, which has stood tall in the fight to fund basic research.

Basic research and the innovation that springs from it are not an expense or a drag on the economy; instead, they represent an investment in our future. Historically, technological development resulting from discovery and innovation has been credited with over half of the labor productivity and national income in the last half of the 20th century. It is time once again for basic research and innovation to lead this new knowledge-driven economy of the 21st century out of the economic crisis we are experiencing into a new age of opportunity that will contribute to the health and well-being of the citizens of West Virginia, the region and the nation. WVU plans to be at the forefront of this movement and will continue to play a key role in shaping the future. ▽



INNOVA: Providing a Key Link in West Virginia's Technology Economy

Guy A. Peduto, Director
INNOVA Commercialization Group

Guy Peduto joined the INNOVA Commercialization Group in April 2006. Prior to joining INNOVA, Guy held the position of Director, Commercial Programs at the Institute for Scientific Research, Inc. While there, he developed strategies for the commercial utilization of ISR's technology and research applications in such areas as biomedical research, education, software development, mining safety and communication, VTOL aerial vehicles and automotive controls and diagnostics.

Mr. Peduto's background includes 20 years of strategic planning experience with an emphasis on product introduction, leadership for early stage and start-up companies, as well as market and business development.

He received a bachelor's degree in business administration with a major in marketing from West Virginia University. In addition, he is a graduate of the Competitive Strategy program at the Kellogg School, Northwestern University, the Commercialization and Technology Transfer program at Carnegie Mellon University, the National Association of Seed and Venture Funds Professional Development Program and the Venture Capital Institute.

One avenue on the Pathway to Prosperity leads through the INNOVA Commercialization Group, an initiative of the West Virginia High Technology Consortium (WVHTC) Foundation. INNOVA® is a business support service and seed and early-stage investment capital program, dedicated to creating successful entrepreneurs and new ventures and specializing in support of product commercialization efforts.

In 2002, the WVHTC Foundation founded INNOVA when it recognized that elements critical to West Virginia's technology economy were missing. Modeled on successful technology-based economic development best practices, INNOVA's services include entrepreneurial education, business and professional support services and investment capital.

INNOVA facilitates this entrepreneurial development and support through different venues:

- One-on-one consultation and utilization of INNOVA services
- Collaborative efforts and leveraging of assets with affiliated branches of state



government, educational institutions, research organizations and economic development agencies

- Individual service and stewardship within those statewide organizations and entities devoted to the promotion and advancement of small business development and technology-based economic development

The INNOVA Commercialization Group has aligned and enhanced its offerings to entrepreneurs and high growth entities to provide a **seamless continuum of services and support from conception to market entry.**

Entrepreneurial Education, Training and Networking

INNOVA sponsors and delivers multiple entrepreneurial education programs along with training and networking events in West Virginia to help nurture the entrepreneurial culture and, through the Affiliate Services division of the WVHTC Foundation, helps provide access to

"So the real question is 'What's next?' The answer resides where it always has – in innovation and entrepreneurship. The way out of the doom and gloom of the 70s – a period much like today – was a wave of technology innovation that spurred a generation of company formation, job creation, productivity gains, wealth accumulation and GDP growth. Today's opportunities are just as big if not bigger."

Glenn Hutchins, Co-Chief
Silver Lake (investment firm)
"After the Panic, Innovation"
Fortune, March 30, 2009

more than 6,000 SkillSoft professional and technical distance learning training programs.

Commercialization, Start-up and Business Support Services

The INNOVA team includes finance professionals, along with marketing and operations experts. In addition, INNOVA provides external assistance to qualifying clients that allows companies to receive additional, necessary professional services from third-party providers at reduced costs.

Seed and Early-stage Investment Capital

Risk capital is a critical element and in almost all cases there is a “gap” in funding after the founders’ financial resources are exhausted, but before companies are mature enough for more formal sources of capital. To alleviate this situation, INNOVA has created a seed-stage investment fund which seeks out young, West Virginia product-based companies into which INNOVA places investments.

INNOVA support services and investments are utilized to prepare these companies for more formal and larger rounds of investment.

Some of INNOVA’s highlights to date include:

- INNOVA has been contacted by more than 300 companies and entrepreneurs seeking technical and/or financial assistance
- INNOVA has placed direct investments into 10 West Virginia companies, some of which have already exited the investments and others who have raised significant additional capital since INNOVA’s seed funding
- The program has become recognized as a primary source of seed capital in the state of West Virginia by business and community leaders and has raised

approximately \$1.5M in its seed-stage capital fund

- INNOVA has developed and put into place a defined and proven process for evaluating and assisting West Virginia companies, as well as for making investments in West Virginia seed-stage companies



- INNOVA has at its center the West Virginia venture capital community; this is critical because ultimately INNOVA is creating deal flow for the West Virginia venture capital community, which can provide subsequent financing

INNOVA, in collaboration with the West Virginia Small Business Development Office Small Business Development Center (WVDO SBDC), is in the process of introducing a commercialization pathway. Intended to serve as a portal, it will provide a formalized statewide structure for start-ups and entrepreneurs from concept through market introduction. This pipeline will serve to leverage the assets of the WV SBDO (working with start-ups at the conceptual level) and INNOVA (companies with prototypes and business plans).

In doing so, the parties will collectively assess and determine a specific commercialization pathway for each client. Dependent upon the client’s stage in the business life cycle, the client may begin with the WVDO SBDC for organizational documentation, preliminary technology and market assessments, and start-up strategic planning. At the appropriate time, through a fully defined process, the client will transition to INNOVA for the next stage of the commercialization process and introduction to the marketplace. Such activities will encompass the full gamut of INNOVA services including, but not limited to, business plan development, consultation, technical and professional services, potential seed fund investment and ongoing entrepreneurial education.

In addition, INNOVA is a participant in numerous affiliated organizations established to move forward the opportunities and support available to small businesses and entrepreneurs and foster technology-based economic development in the state. Primary among these is TechConnect

West Virginia. Recognizing the need to build a high-technology economy in West Virginia, a group of economic developers, researchers, technologists and service providers have worked for four years to build needed infrastructure and public policy. This coalition of professionals is dedicated to growing and diversifying West Virginia’s economy by advancing technology-based economic development. We serve mainly as facilitators, enhancing awareness, increasing collaboration and raising the discussion of important issues to spur technology development and commercialization in West Virginia. TechConnect is a 501(c)3 non-profit corporation which includes broad membership from the private and public sectors. ▼



Kentucky Highways are America's Crossroads

Joseph W. Prather, Secretary
Kentucky Transportation Cabinet

Joe Prather was appointed secretary of the Kentucky Transportation Cabinet by Governor Steve Beshear in December 2007. As the state's top transportation official, Prather oversees operations for maintaining and improving a transportation infrastructure that includes 27,000 miles of roads, 244 licensed airports and heliports and 26 public transportation systems.

Mr. Prather's long record of public service began in 1967 when he was elected to the first of three terms in the Kentucky House. He was elected to the Kentucky Senate in 1973, serving as president pro tempore from 1976 through 1986. He returned to state government service in 1991 as secretary of the Finance and Administration Cabinet under Governor Brereton Jones.

Prather has a history of business and civic involvement in his native Hardin County, Kentucky, where he has been a banker, realtor, auctioneer and successful business owner.

Looking at a map of commercial traffic flow, it becomes immediately apparent that Kentucky is at the crossroads of our country's highway network. Consider major air, rail and river transport outlets, and it is easy to recognize that the Bluegrass State is an essential link in the chain of global commerce. The nation's "pathways to prosperity" do, in fact, pass through Kentucky.

For transportation officials, Kentucky's important position incurs a major responsibility – and challenge – to provide the infrastructure that will help keep America moving efficiently into the future. A foundation of transportation infrastructure constructed in the past half-century provided important connections for in- and through-state traffic and a solid base from which to improve.



A perfect example: Kentucky's parkway system, which provides express routes between major interstates, facilitating traffic flow between important economic centers throughout the state and linking those points to the U.S. highway network.

Recently completed and continuing upgrades underscore Kentucky's effort to meet the challenge. Work is under way to fulfill a long-range plan to widen Interstate 65 to three lanes in each direction from the Tennessee line to Louisville. Substantial rehabilitation efforts have provided a smooth coat of asphalt on aging roads, including stretches of I-64 between Lexington and its border with West Virginia.

Maintaining a safe, reliable highway network that meets the demands of the future is a continual process. Projects such as the Louisville Ohio River bridges, the I-75 Brent Spence Bridge in northern Kentucky, and I-69, all at various stages of development, stand to positively impact the local, regional and national economies. In Kentucky especially, local roads are part of the larger whole: an improved Spaghetti Junction in Louisville will ease gridlock in the big picture, helping spur more efficient traffic flow and reduce transportation costs.

The vision is clear. Kentucky is ready to move forward with groundbreaking projects that will significantly improve state and national highway links, with one critical exception: sufficient funding. The looming concern about a depleting highway fund has only been underscored during the recent economic downturn.

In Kentucky, state road fund revenues for the current fiscal year lag behind the



**Transportation supports
not only the economy,
but literally the livelihood
Americans appreciate.**

previous year, as motor fuels and vehicle tax receipts decline, leaving less money for needed projects. At the same time, construction prices have risen.

There is no easy fix. A revenue stream that is stagnant at best is a chronic problem facing the transportation sector and requires innovative solutions. Right now there is no clear answer, except that community and policy leaders will have to eventually focus on new ways to generate highway funding to continue building and maintaining pathways to prosperity.

Like every other state, Kentucky is struggling to keep a balanced budget in a time of declining revenues. But some old-fashioned thrift has allowed the Transportation Cabinet to stretch limited resources and advance existing projects that address three primary criteria: safety, mobility and economic opportunity. In the past year the cabinet launched Practical Solutions, an initiative in which designers approach a project on the basis of what is needed, not what would be nice to have, were money no object. For example, a two-lane, center turn bypass may be

more cost effective than a divided four-lane highway. In many instances, features can be trimmed to substantially reduce costs without sacrificing safety or mobility.

The recently approved federal stimulus package, The American Recovery and Reinvestment Act of 2009, allocated \$421 million to Kentucky for highway projects and \$50 million for transit services. The highway funding is being dedicated to a wide array of projects involving both new construction and maintenance and rehabilitation of existing roadways. It will have the effect of quickly generating jobs in the road construction industry.

Kentucky Governor Steve Beshear's administration worked closely with the General Assembly to advance road projects that serve an immediate need. One example is the widening of Lexington's Newtown Pike, which will help carry the swell of traffic during the 2010 World Equestrian Games. The games are expected to draw thousands of spectators from around the world, lending an economic boost to the Bluegrass region and beyond.

Kentucky is at the crossroads of America. Whether mounds of coal plying the Ohio River, the endless maze of packages streaming through the UPS global air hub in Louisville, a train stringing along a load of automobiles, or a truck hauling next week's groceries, the transportation network converges in the Bluegrass State. Transportation supports not only the economy, but literally the livelihood Americans appreciate. That is why Kentucky, even in difficult economic times, will continue to focus on key transportation investments that will provide "pathways to prosperity." ▽



Prosperity from Within

Austin Caperton, President
Caperton Inc.

As president of Caperton Inc., Austin Caperton provides services to clients including strategic direction and assistance with mergers, acquisitions, disposition and financing.

Mr. Caperton has served as president of Caperton Energy Company since 1989, generating and managing numerous transactions for clients and consulting on a wide range of management functions, including operations, sales and finance.

He also is the CEO of Beckley Feed & Hardware Co., a power equipment dealership, and the president of Jobs Foundation, Inc., a non-profit economic development corporation dedicated to providing more and better jobs for southern West Virginians.

Caperton previously served as president of the West Virginia Resource Group for A. T. Massey Coal Company, as well as vice president of operations for Tennessee Consolidated Coal Company.

In 1976, he began work with Slab Fork Coal Company, founded by his grandfather, ultimately serving as its president from 1980 to 1983.

He is a former president, director and co-founder of West Virginia Kids Count Fund, a non-profit corporation dedicated to improving the lot of at-risk children in West Virginia that works with the national Kids Count Fund.



Caperton Inc.
Strategy • Execution • Results

Merriam-Webster Online defines prosperity as, “the condition of being successful or thriving; especially: economic well-being.” According to the same source, “prosperity,” as a word, came about in the 13th century, which means we gave this good feeling a name 800 years ago!

So how do we become successful and thrive? I believe we often forget one of the quickest and surest ways: the growth of existing businesses. Many of you have been involved in economic development activities during your career. You have learned that there are basic fundamentals which must be in place for communities to thrive. We universally accept that there must be exceptional education at all levels. There must be favorable living and working environments. There must be an infrastructure which provides transportation, communication, recreation, medical and retail needs to businesses and individuals. Guess what? These fundamentals are already in place throughout our region. And they often are created in some unusual places, without necessarily expending large sums of money.

Here is an example: My great-grandfather moved to what would become Slab Fork, West Virginia, in 1907. There was no road. There was no railroad. There was no town. Within a few short years, he was able to create a pocket of prosperity. There was a community of 1,000 residents. They worked, had families, went to school, shopped at the store, rode the train to all points of the compass, went to the

movie house, attended one of many churches, played sports and generally lived happy and prosperous lives. They thrived!

All this happened without an interstate highway or a Wal-Mart, and without government assistance. And this example is not rare even today. Look around your community and see what the key business leaders in your community have done for that community.

Look at what Buck Harless has done for Gilbert, West Virginia. Look at what Ike Morris has done for Glenville, West Virginia. Look at what Lawson Hamilton did for the Kanawha Valley in West Virginia. Look at what Richard Adams and United Bank have done for Parkersburg, West Virginia. Examples abound.

So if you own and operate a business, you possess a clear pathway to prosperity for yourself, your community and your state. And if you can grow your business successfully, it is all for the better for the rest of us!

Growing a business is not necessarily an easy task. But like any other task, it is much easier if one is prepared for growth. And the most common hindrance to growth I discover in analyzing and dissecting businesses is not being prepared. So what should you do to get prepared?

The very first and fundamental question you should ask yourself is whether you have



So how do we become successful and thrive? I believe we often forget one of the quickest and surest ways: the growth of existing businesses.

the right people for growth. It is very common for a business to reach a revenue plateau with a core group of key individuals and find it difficult to grow. Stalled growth can be a function of everyone being too busy, but often additional skills are necessary. So maybe you should put off that new bulldozer for a while and consider investing in additional training or new personnel with additional skills.

The second question you should consider is whether your capital structure is ready for growth. The issue here is whether you have, or have access to, funds for growth. If you do not have a surplus of cash, you need to get your balance sheet squared away and in the best possible shape before you seek funds.

Finally, I think a key question should be whether there exist potential business combinations that would facilitate growth. Many of us live in a rather rugged area of the country that requires a certain amount of stubborn independence to get going and be successful. But if you think outside the box and are willing to be creative, there may be additional opportunities for

growth in joining with others.

A friend of mine once told me that when things were not going well he usually didn't have to look beyond the mirror to find the problem. So if you want to grow, look in the mirror first – then get ready, get set and GO!

Remember, your business growth can be a path to our collective prosperity. ♡



The American Recovery and Reinvestment Act of 2009 Will Allow West Virginia to Continue to Pursue the Modernization of its Infrastructure

Robert S. Kiss, Partner
Bowles Rice McDavid Graff & Love LLP

Bob Kiss is a former Speaker of the West Virginia House of Delegates and former House Finance Chairman. He currently is a partner in the Charleston, West Virginia, office of Bowles Rice, practicing in the areas of state and local taxation, estate planning and taxation, and economic development.

Pursuant to his Legislative duties, Mr. Kiss has been extensively involved in over a decade of major economic and fiscal legislation, including the West Virginia School Building Authority, water and sewer infrastructure development, state tax policy, state health care plans including PEIA and Medicaid, state retirement systems, the state's workers' compensation system, and the state's Tax Increment Financing legislation (TIF).

He earned his bachelor of arts degree in economics from The Ohio State University and his law degree from The Ohio State University Law School.

In a prior edition of *Views and Visions*, I wrote about what I perceived from my tenure as House Finance Chair and Speaker of the House of Delegates in West Virginia to be perhaps the greatest recent long-term accomplishment of the West Virginia Legislature and the succession of governors during the last 20 years.

Twenty years ago, much of West Virginia's core economic infrastructure was aging, outdated and in desperate need of modernization, repair and replacement.

These infrastructure needs were predominantly in the areas of educational facilities, the state's highway system and the state's water and sewer infrastructure.

As I also indicated previously, one of the significant accomplishments of the legislature and prior governors was to pursue these desperately needed infrastructure developments, while at the same time operating within the state's limited financial ability to invest in that infrastructure development.

The resolution of that dilemma was in large part accomplished by dedicating a significant portion of the state's gaming revenues from video lottery to the school building authority, and to water and sewer infrastructure through the West Virginia Infrastructure and Jobs Development Council.

One of the distinct benefits of the policy directions adopted was to implement infrastructure projects without imposing any additional tax increases. Leveraging the state's gaming revenues to build our core infrastructure allowed for the diversification and growth of the state's economy in future decades.

In fact, the State School Building Authority and the West Virginia Infrastructure and Jobs

Development Council both have their genesis as entities in the 1980s and 1990s. They were created to deal with the state's severe infrastructure needs in the area of public school construction and the construction of water and sewer lines.

The recently passed American Recovery and Reinvestment Act of 2009 (ARRA) provides significant dollars which will allow the state of West Virginia to continue to accelerate the modernization of its infrastructure needs.

By any equivalent measure, the amount of dollars spent by the state on infrastructure development in the last 20 years far exceeds any other comparable period in the state's history. The recently passed American Recovery and Reinvestment Act of 2009 (ARRA) provides significant dollars which will allow the state of West Virginia to continue to accelerate the modernization of its infrastructure needs in the following core areas.

Highways

The West Virginia Department of Transportation has already promulgated a list of highway projects that can be completed with funds from ARRA. The general goals of the Act direct the expenditure of highway funds with the goal of long-term economic benefits through projects that will be ready to begin construction within 120 days of the enactment of ARRA and which are otherwise federal aid-eligible

projects. In West Virginia, approximately 30 percent of the road system is eligible for federal aid funding, thereby somewhat narrowing the available list of potential projects.

Keeping in mind those general parameters, the West Virginia Division of Highways attempted to identify projects that can meet the above general criteria and timeframe requirements. Those ground rules resulted in a majority of projects such as bridge replacements, bridge cleaning and painting projects, slide repairs, pavement resurfacing and safety projects.

The Department of Highways also used relevant available mileage and square footage calculations to attempt an equal distribution of the funds among the three congressional districts, in addition to identifying at least one corridor expansion project per congressional district to balance total costs across all congressional districts.

The anticipated revenues to be made available to the state of West Virginia through ARRA for highway projects is in the range of \$211 million, and the current administration and legislature are already moving quickly to identify and finalize plans for the allocation of funding.

Water and Sewer

ARRA also has provided significant additional funds in the approximate amount of \$61 million to the state of West Virginia for its water and sewer needs. The EPA will award this money in a federal grant to the State Division of Environmental Protection for the Clean Water State Revolving Fund Program.

In fact, the Division of Environmental Protection has already promulgated a supplement to the state's current Clean Water State Revolving Fund plan, identifying its intended use plan for the federal fiscal year of 2009.

One of the additional benefits to West Virginia is that ARRA does not require the usual 20 percent state match for these projects, allowing the state to immediately pursue the projects without having to identify additional limited state resources.

Once again, in accordance with the provisions of ARRA, the economic stimulus funds must be awarded to eligible projects and be under contract for construction within 12 months of the enactment of ARRA, and ARRA requires the EPA to reallocate to other states any funds that do not meet the required deadlines.

ARRA outlines general long-term and short-term goals for the utilization of funds, those being to preserve and create jobs, promote economic recovery through the expansion of waste water infrastructure and to have all economic stimulus funds under contract by February 16, 2010.

Additional short-term goals include the requirement to solicit and identify projects to utilize the 20 percent reserve for green infrastructure projects by June 17, 2009, to obligate all economic stimulus funds to eligible projects by August 17, 2009, and to have all funded projects advertised for bids no later than October 1, 2009.

School Construction

ARRA provides for up to \$33.6 billion dollars on a national level for school modernization and renovation. The Act also establishes the ability for states and local school systems to issue, on a national basis, up to \$24.8 billion dollars in bonds for renovation, repairs and new school construction which will be retired through a combination of local, state and federal dollars. It appears that this pool of bond funding may provide West Virginia with as much as \$156 million for new school construction.

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From Wellness Programs to Well-Being Indices: Will The Path to Prosperity be Paved by the Health of Your Employees?

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Attorney Lesley Russo is a Bowles Rice partner in the firm's Charleston office and the leader of the Employee Benefits practice group. She also is a member of the firm's Retirement Plan Investment Committee and oversees all aspects of the firm's qualified retirement plans.

She represents numerous clients in all aspects of qualified and non-qualified retirement plan design, implementation and administration. She advises clients on the requirements of the Employee Retirement Income Security Act of 1974 (ERISA), the rules necessary to maintain the qualified status of retirement plans under Internal Revenue Code § 401, et. seq., and issues arising in the day-to-day administration of such plans.

Lesley also assists clients in the preparation of documentation necessary to obtain favorable determination letters from the Internal Revenue Service. In addition to assistance in the qualified retirement plan area, Lesley counsels clients in connection with the establishment and administration of non-qualified retirement plan arrangements and other executive compensation alternatives.

A cum laude graduate of Harvard Law School, she received her undergraduate degree in 1983 from the University of New Hampshire, where she graduated summa cum laude with a bachelor of arts degree.

With health care costs spiraling upward and employers facing double-digit increases in health care costs in recent years, it has been a boom time for worksite wellness programs. As employers continue to assess the effectiveness of these programs and refine ways in which to stem the rising costs of employer-provided health care, the wellness industry is moving full steam ahead. Current efforts include establishing well-being indices to measure the physical, psychological and social health of the United States workforce. The indices would be similar to a consumer-price index or stock index, except the index would measure the health of employer workforces throughout the country.

Some wellness experts predict that employers will eventually be able to measure the health of their workforces through well-being indices for purposes of evaluating the effectiveness of wellness initiatives and for comparing their statistics to those of peer organizations or other businesses in the region or the country. Other consultants go further and predict that such indices may eventually be used to evaluate the health of a business, whether for purposes of obtaining financing, attracting the best talent or new capital investment or acquiring or merging with other businesses.

To date, most well-being information has been obtained through surveys or random assessments of various health-related factors. The largest U.S. survey to be conducted to date has been underway since 2008 through the joint efforts of Gallup, the polling organization, and Healthways, a health management firm. In this poll, Gallup interviews nearly 1,000 adults at the end of each day to find out how their workplaces and communities affect their well-being in categories such as life evaluation, emotional health, physical health, healthy behaviors, access to healthcare and living essentials and

work environment. The responses are assessed and published in an index called the Gallup-Healthways Well-being Index. The goal of the index is to give an up-to-date measurement of individual and collective well-being, and insight into the key factors that drive well-being.

The infusion of \$19 billion towards health information technology under the recently passed federal stimulus legislation is expected to increase accessibility to aggregated health data and datasets over the next several years, only fueling a push for the use of numerical data and statistical well-being information that may have the potential to influence business decisions. A key question remains whether such indices can be sufficiently correlated to business profitability and corporate decision making.

A recently published study in the Journal of Occupational and Environmental Medicine suggests that employers significantly underestimate the costs of poor employee health and well-being on productivity in the workplace. In this multi-year study involving over 150,000 employees, the researchers concluded that for every \$1 of medical and pharmacy costs, there was \$2.3 in lost productivity costs due to conditions such as depression, obesity, back/neck pain, arthritis and anxiety. To what extent well-being indices can target initiatives that address such health and productivity costs will likely become the key question as to whether employee well-being will become a pathway to prosperity and business profitability. ▽

The Natural Gas Industry Energizes West Virginia

(continued from p. 31)

Workforce and Education Issues

Like many industries enjoying growth over the past several years, the natural gas industry has experienced difficulty securing an adequate number of educated and trained workers. Energize West Virginia has been addressing these issues on a number of fronts. In the area of securing current workers, Energize has supported the Appalachian Basin Oil and Gas Training Academy, located in Buckhannon, West Virginia. The Academy is operated by the Pierpont Community and Technical College and trains workers on many levels, especially for work on drilling rigs. In addition, Southern West Virginia Community and Technical College has provided a number of targeted training programs, ranging from the training of well tenders to sophisticated driving courses for service company employees.

Energize West Virginia has worked with the EdVenture Group in Morgantown to help establish an energy education initiative targeted for middle school

students. The program has many purposes, including, but not limited to the following:

- Training teachers about the energy industries in West Virginia, including natural gas, and the educational background students will need to work in the industries
- Assisting teachers in the development of lesson plans in core required courses, like math and science, that provide instruction in the context of real-life issues in the energy industries
- Providing students with career information about jobs available in the energy industries and the educational requirements for those jobs
- Establishing a social networking site, MyNextHorizon.org, where students can network with other students and with teachers to discuss energy careers and to explore issues surrounding employment in the energy industries. (I participated in a live chat with dozens of students on this web site, and it was a very interesting and informative venture for me, and I hope for the students, too.)

These are just a few of the many efforts being undertaken by Energize West Virginia in the area of education and training. They all are calculated to address the current and future workforce needs of the natural gas industry.

Conclusion

Although temporarily dampened by current economic conditions, the future of the natural gas industry remains bright. But it is not without challenges. It will take cooperation among industry groups, mineral owners, transmission companies, government and others to keep the industry competitive in the years ahead. The industry has met and overcome many challenges in the past, and there is no reason to believe it cannot do the same in the future. If it does, the natural gas industry will continue to provide the state and its citizens with continued financial benefits and increasing numbers of good-paying jobs. ▽

Moving the Kentucky Economy Forward

(continued from p. 13)

forms of financial aid to lower-income students. However, when state funding is cut and artificial limits are placed on tuition, colleges and universities adjust by cutting financial aid to needy students – and these “reforms” end up hurting the students they were designed to help.

Instead of focusing on tuition, Kentucky political and educational leaders need to develop strategies that ensure a consistent, long-term investment in higher education in the state, spent in a way that enhances the return on investment. Finally, education leaders need to develop strategies that ensure

access to higher education for all Kentuckians, regardless of income.

The Way Forward

There are several steps Kentucky needs to take if the state ever hopes to achieve levels of income that are comparable to the rest of the country. First, Kentucky needs to invest resources in understanding the specific factors that lead more students in rural parts of the state to drop out of high school. Second, Kentucky needs to invest resources in developing long-term economic development strategies that are specifically designed for rural areas. Third, Kentucky needs to create regional institutions that can implement policies to address the specific problems that

exist within a region. Finally, Kentucky needs to make a consistent, long-term investment in higher education that is structured to enhance the return on the investment in education and that truly enables low-income students access to higher education.

Only by undertaking these investments and improving the educational attainment of its citizens will Kentucky begin to overcome the persistent economic and social problems that have plagued the state for so long. ▽

The American Recovery and Reinvestment Act of 2009 Will Allow West Virginia to Continue to Pursue the Modernization of its Infrastructure

(continued from p. 45)

Given the complexity of the federal education funding formulas through ARRA, the state of West Virginia is still in the process of attempting to determine the precise total dollars available to it separately for school renovation and modernization. However, the criteria for those dollars has been generally outlined by ARRA.

Use of those dollars are to consider the following criteria:

- Whether the facility poses a health or safety threat to students or school personnel, including non-compliance with building codes, inaccessibility for

persons with disabilities and whether the existing building capacity meets the needs of current enrollment and supports the provision of comprehensive educational services to meet the standards of the state

- The extent to which the new design and proposed construction utilizes energy efficient and recyclable materials
- The extent to which the new and proposed construction utilizes non-traditional or alternative building methods to expedite construction
- The feasibility of project completion within 24 months from the award
- The availability of other resources for proposed projects

With these criteria, it is likely that a large portion of the federal funds made available under ARRA will be used for school renovation and modernization projects, such as heating and cooling, bringing public schools into compliance with fire, health and safety codes, bringing schools into compliance with the Americans With

Disabilities Act of 1990, and renovation issues related to asbestos, lead-based paint and human exposure to mold or mildew.

One of the additional benefits which the state might see is the extent to which the monies are available for usage in technology activities, such as wiring, acquiring hardware and software, connectivity linkages, fiber optics cable, and other satellite transmission capabilities for schools and the modernization, renovation and repair of laboratory facilities, libraries and other similar types of technical educational facilities.

While final decisions are currently being made as to the governmental allocation process, if prior similar federal funding opportunities are followed, most of the allocation decisions will likely be made by state agencies with legislative input and oversight by West Virginia's part-time legislature through the state appropriation process. ▽

Our Circle of Service: The Bigger, the Better

(continued from p. 15)

Educators:

- You must expect the most of all of the students in your circle and help them to acquire a thirst for lifelong learning. You must help them to be so good that they can replace you when it's time. Our young people will rise to the challenge. I have found it to be true that a mind once expanded by great ideas never returns to its original dimensions.

Parents:

- Remember to give your sons and daughters room to reach the stars. You have raised some of the most promising young leaders in the state. Now you have to trust in the values that you have instilled and give them the respect that they have earned. If you hold them too close, you risk

constraining the very wings that can take them towards the zenith of their potential.

Government Leaders:

- Draw your circles wide. Remember, you uphold the public interest and trust. In our democratic society, the people count on government to make sure that all of us have an equal opportunity to live, work and prosper.

Business Leaders:

- Invest in West Virginia. Work works. Encourage your employees to give back to their communities through service. Do well and do good by winning the right way.

These ideas for serving West Virginia are within our reach. I have great faith that we all can do something. We all can do more. I believe that to whom much is given, much is expected (Luke 12:48). When I was younger, I thought the "much" was a specific thing – an ability

to sing, dance, jump high or play an instrument, for example. As I matured I realized that the "much" was actually life itself. If you woke up this morning, you have been given a great gift. Whether you are old or young, male or female, fully able or have some disabilities: if you woke up, you are on the hook. No excuses. Your job is to live your life to its fullest potential; to draw your circles wide; to serve.

You see, if a person with a funny name can become president . . . of Verizon, so can you. ▽

[NOTE: This article was adapted from a commencement address that was delivered to an audience of approximately 3,000 guests at West Virginia State University's 2008 December Graduation. (Charleston Civic Center, Charleston, West Virginia 12/21/2008)]

MATRIC's Vision: To Re-Create a World Class Innovation Enterprise

(continued from p. 23)

developed an engineering design organization consisting of engineering, design drafting and support staff focused on total life-cycle engineering services for energy, chemical, water, food and aerospace production customers.

MATE's role in the IDC is to provide professional engineering expertise in process, mechanical, chemical, civil, electrical and automation and control systems engineering, as well as technical project management. Butler provides piping, electrical, and civil design and drafting to the IDC alliance.

The strength of MATE's experienced engineers and Butler International's global technical services delivery will allow the IDC to rapidly grow into an internationally significant professional engineering organization, housed in the Dow Technology Park.

MATRIC's Global Delivery

Twenty-five percent of MATRIC's revenue is currently from international clients, but MATRIC has plans to dramatically increase our overseas work in the future. With budding partnerships with the Italian manufacturer's association, ethanol manufacturers in Brazil, natural gas producers in Russia, and civil water authorities in China, MATRIC has the potential to bring significant business opportunities from international clients to our scientists and engineers at the Dow Technology Park.

In a global economy, MATRIC believes that solving problems around the world is both a business imperative and a social responsibility. The mission to change lives with technology is not limited to

West Virginia or the United States, but challenges our scientists and engineers to provide clean drinking water to Africa, biofuels to Europe, or pollution control systems to China because our attention is on the needs of people — not of countries or corporations.

Importance of the Dow Technology Park

The growth of MATRIC is uniquely enabled by the facilities available at the Dow Technology Park. Without the modern chemistry laboratories and pilot plants in the Park, MATRIC literally would have no ability to conduct its research and innovation business.

As Dow Chemical's presence continues to erode at the Park, a plan is being developed by local economic development groups and the state of West Virginia to repurpose these facilities for the use of MATRIC, as well as other research organizations such as our state universities, start-up companies and federal agencies. A vibrant multi-tenant technology park can be one of the greatest economic assets in our state and region.

Summary

Our life-changing research and contributions to economic development, as well as our local, regional, national and international portfolio of clients, projects and presence, empowers the entire MATRIC enterprise to continue to grow into an identifiable center of excellence for research and innovation in chemical and environmental technologies, advanced engineering systems and health and life sciences.

MATRIC is helping the Kanawha Valley turn the page to an exciting new chapter of innovation and prosperity in a book that has been written by some of the largest technology companies of the 20th century. ♡

Now is The Time to Ensure Coal's Future in West Virginia

(continued from p. 27)

Another key component of our plan is to enlist the support of the state government and the people of the state in **combating the negative media coverage** generated by the anti-coal groups. We must actively market the industry to commercial utilities and national organizations to present a balanced view and fair portrayal of the coal industry.

Beyond those changes, we must also look at our regulatory agencies to make sure they are fully staffed with good quality people who are well paid so that we can have the **reliability and predictability in the permitting process**.

We must also begin in earnest to identify and **assist the next generation of miners to get the training they need** in order to assume the key roles that will open in the next 10 years, as our current workforce ages and moves into retirement.

Last, we must **install comprehensive and random drug testing**, as well as continue to **invest in new safety technologies** so that our workforce can be assured a safe and secure workplace.

Our coal industry is far too important to the economic future of the state to simply sit back and rely on the winds of fortune to determine its fate. As a state, we must step up to the challenges that confront the industry, meet them head-on and move past them so that we can continue to have our coal industry provide the economic backbone on which we depend.

We also must begin in earnest to look beyond mining. For example, utilizing the resources that coal mining offers our state — such as the potential economic development offered by surface mining sites — and working together to plan and build a new West Virginia. ♡

Chemical Alliance Zone – Adding to a Half-Full Glass (or Two)

(continued from p. 17)

Economy And Energy Crises Provide Opportunities

I'm sure many of you are thinking I am some kind of Pollyanna if I am getting a half-full glass from the current economic crisis. After all, many would say the glass in this case is not just empty, but shattered. The same could be said of the energy situation. But, hey, I do not deal the cards, I just react to them.

The stock market is in the tank, job losses are tallying in the hundreds of thousands (per month!), and banks, car companies and other institutions are defaulting left and right ... or coming awfully close. So where is the half-full glass in all of that? Well, the nation and the state of West Virginia simply need to stimulate both short-term and long-term economic growth, preferably in high-technology, high-paying fields ... in places like the Dow Technology Park.

Add the energy situation into the mix and you really have a story to tell. The energy crisis is arguably not such a crisis with gasoline now "down" to \$2 per gallon. However, it appears we have finally come to the realization that the nation must invest in the commercialization of energy-related technologies and products to move toward a more secure and energy-independent future. We can no longer just say that we need to wean

ourselves from foreign oil. Instead, we actually have to do it.

Can you think of a better place to do it than West Virginia, with its rich history and strength in energy? Can you think of a better place to do it than the Dow Technology Park, with its available facilities, access to highly skilled scientists, engineers and technicians, and rich history in innovation?

A shattered glass? Even an empty one? On the contrary, this glass, too, is half full.

West Virginia's Technology Economy – Poised For Growth

This is the last hand ... West Virginia's technology economy. Although there is much to be proud of and much to build from in West Virginia, the state's technology economy is far behind most of its counterparts, both in the region and around the country. In fact, West Virginia ranked 49th in the 2008 State Technology and Science Index, produced by the Milken Institute.

So where is the half-full glass in that? Well, it is half full because the state of West Virginia is generating momentum to do something about it. CAZ is a member of the West Virginia Coalition for Technology-Based Economic Development (TechConnectWV). Working with Vision Shared, West Virginia University, Marshall University, INNOVA, MATRIC and many others from the public and private sector, TechConnectWV has developed a Blueprint with Battelle Technology

Partnership Practice to turn the state's technology economy around. Although the report has just been released (March 2009) and therefore is far from being fully funded or implemented, the Blueprint does set out specific strategies and actions (recommendations) for boosting the state's innovation economy. And even though we are in an economic downturn now, the Blueprint underscores the need for a long-term view.

That is, the Blueprint doesn't have to be implemented and funded all at once. We have an urgency to get moving, but we have some time to get it fully implemented. The good news — the glass-half-full news — is the Blueprint provides a guideline for that movement and a rallying point for the state's technology economy.

We are getting ready to fill another half-full glass.

In the end, will the Chemical Alliance Zone be able to fill all these glasses to the brim? Maybe ... and maybe not. But you can expect us to give it our best shot, and working with our colleagues at the WVDO, CAA, MATRIC and elsewhere, you can expect to hear some good news around the corner.

That's a half-full glass we all can drink from. ▽

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