

1B. Invest in Good Jobs Through Economic Development for the 21st Century

Box 1 contains the section on jobs from the *Prescription for Prosperity: An Economic Agenda for Pennsylvania's Future*. The rest of this section elaborates the rationale for the recommendations in the jobs section of the agenda. We also provide more detail on how agenda recommendations might be implemented. Of all of the parts of this report backing up the *Prescription for Prosperity*, this one is probably the least accessible to a general audience. Readers whose chief interests relate to other parts of the agenda may want to skip this section, at least on a first reading. As with all sections of this “discussion draft,” we welcome feedback. (Comments may be sent to agenda@keystoneresearch.org.)

Economic Development for the 21st Century

Since the deep recession of the early 1980s Pennsylvania has been gradually reinventing its approach to stimulating job creation. Building on this progress, the next few years provide an opportunity to consolidate a 21st Century approach that delivers more and better jobs.

For most of the past 50 years, the main thrust of Pennsylvania’s economic development approach has been to use state subsidies to recruit new businesses to the Commonwealth. Pennsylvania began this practice in the 1950s, prompted by rates of joblessness in mining regions on a par with the Great Depression.¹ In the 1980s, Pennsylvania began to embrace new economic development tactics. Early in the decade, it created the Ben Franklin Technology Partnership program to incubate new technology companies and promote the transfer of ideas from universities into industry. Later in the decade, it created Industrial Resource Centers to improve the efficiency of small and medium-sized businesses.

Box 1. The Prescription for Prosperity Excerpt

Invest in Good Jobs Through Economic Development for the 21st Century

In a global “network-based” economy, state government must do more than give handouts to individual companies. It must help each Pennsylvania region build on its unique industrial strengths (such as the biomedical industry in the Southeast and powdered metals industry in North Central Pennsylvania) and other assets (e.g., cultural, educational, workforce, and natural resource assets). State government must support environmental and renewable energy industries, destined to become the center of a new wave of industrial innovation. Special attention must focus on restoring the economic and cultural vitality of urban cores, without which no region can fully prosper. To invest in good jobs, Pennsylvania should:

- i. Stabilize and expand Pennsylvania’s manufacturing base through a statewide Manufacturing Future Strategy that builds on each region’s manufacturing strength. This must be coupled with Pennsylvania leadership in Washington, DC, to restore balance to trade and to make labor rights and environmental standards essential principles for continuing integration into the global economy
- ii. Strengthen industry collaborations on technology, marketing, and innovation to enable businesses in regional clusters of firms to feed off each other’s knowledge and vitality

¹ Reference David Argyll dissertation.

- iii. Invest in renewable energy, energy conservation, clean manufacturing, green building, and efficient transportation, and in the suppliers to these industries, to make Pennsylvania a leader in confronting climate change and in the innovation and job creation that this will spur.
- iv. Make better use of economic development funds through performance standards, wage and benefit benchmarks, improved reporting and transparency, and repayment of subsidies for underperformance (clawback provisions)
- v. Reduce sprawl and better use economic infrastructure by targeting subsidies to existing communities accessible to public transit, investing in mass transit, and investing in coordinated regional economic and workforce development strategies, such as Northeast Pennsylvania's Wall Street West initiative (which aims to make the region a center of backup data storage and processing for financial firms)

The Rendell administration in its first term, working with the state legislature, introduced or strengthened two additional dimensions to economic development.

Promoting Older Towns and Urban Cores. First, the Commonwealth established a range of new programs, many passed as part of the \$2.1 billion 2004 economic stimulus program, to revitalize the state's urban cores and, in some cases, also to strengthen the regional economy. These programs provide resources for brownfield redevelopment of old industrial and commercial sites, for Main Street and Elm Street revitalization, and for infrastructure. Investments that target urban centers also include the creation of 21 Keystone Innovation Zone (KIZs), with funds proposed for four to six more in the 2007-08 budget. KIZs foster collaboration between university- and industry-based researchers and engineers, in many cases linked with a particular industry and ordinarily in urban areas where the concentration of researchers and engineers tends to be highest (e.g., in downtown Lancaster, the KIZ links together Franklin and Marshall College, Lancaster General Hospital, and bio-medical research businesses).

To improve its administration of community development assistance, again in a way likely to help revitalize older communities, the Commonwealth created "Community Action Teams" (CATs). These teams coordinate delivery of public assistance from multiple programs and encourage more holistic approaches to community development. Toward the end of Governor Rendell's first term, his administration developed a format set of "Keystone Investment Principles" that express the Commonwealth's intent to "redevelop first" and "provide efficient infrastructure"—i.e., to allocate a high proportion of infrastructure, community development, and economic development to already developed areas.

Box 2. Three Waves of State Economic Development

Research on economic development has identified several generations or waves of state economic development practice. Each wave emphasizes a core set of ideas about how state and local officials should stimulate economic growth and job creation, along with an accompanying set of public policies.

“Industrial recruitment,” explicit policies intended to attract manufacturing plants or other industries (distribution, financial services, high tech), seems to have begun in Mississippi in the late 1930s.² Southern states, in particular, continue to chase manufacturing, as illustrated by new auto and auto parts plants built in Kentucky, Alabama, South Carolina, and elsewhere. The objective of industrial recruitment is to bring outside investment and new jobs into the state.

Second-wave strategies aim to “grow your own” firms. Instead of relying solely on recruitment of firms from the outside, practitioners seek to spur development by encouraging the formation of new firms and the growth and retention of existing firms. Second-generation strategies often focus on technology-based sectors, such as computers and telecommunications (Austin, Texas in the 1980s) or biotechnology (San Diego in the 1990s). Policies may begin with industrial recruitment—Austin put together an attractive package of incentives to land the microelectronics R&D consortium Sematech—but extend to support for business incubators, state venture capital funds, export assistance, technical assistance and technology transfer, and firm-specific training. In Pennsylvania, the Ben Franklin Partnerships and Industrial Resource Centers were both classic second-wave initiatives. Efforts to improve public education at all levels also grew stronger in conjunction with many second-wave strategies, especially in the southern United States. So did investment in transportation.

The still-emergent third generation of economic development practice began to take shape during and after the recession of the early 1990s. Among the ideas emphasized more at the third stage are focused efforts to identify and strengthen regional “assets,” including educational institutions, infrastructure, and cultural assets. Another focus of third generation approaches is on identifying and supporting industry clusters that are strong or have growth potential. One goal in boosting industry clusters is to generate “virtuous circles” of innovation and growth as networks of firms feed off each other’s vitality. Industry clusters may be supported through investment in joint marketing (e.g., furniture fairs), workforce training partnerships, and enabling structures for technology diffusion and technological learning.³

One caveat with respect to waves is that practitioners who embrace ideas of the second and third wave do not necessarily abandon the tactics associated with earlier waves. What takes place instead is an expansion of the repertoire of economic development practitioners along with a shift in emphasis towards newer directions.

Highlighting the existence of waves is intended to encourage Pennsylvania practitioners and policymakers to recognize the opportunity that they have to pioneer for the nation a full-fledged third-wave approach. The contention here is that anything less than a full fledged third-wave approach—which involves a substantial reinvention of state government’s role in the economy—is unlikely to lead to a Pennsylvania economy that is competitive and delivers broad-based benefits.

Building on Industrial Strength. Second, the Commonwealth sought to make industrial

² The typology in this box is a modification of that in Andrew W. Isserman, “State Economic Development Policy and Practice in the United States: A Survey Article,” *International Regional Science Review*, Vol. 16, 1994, pp. 49-100. The box is adapted from Stephen Herzenberg, Suzanne Teegarden, And Howard Wial, *Creating Regional Advantage in Appalachia: Towards a Strategic Response to Global Economic Restructuring*, Keystone Research Center, Final Report to the Appalachian Regional Commission Under ARC Contract No: Co-12884T-03, 2005.

³ Howard Wial, “Rethinking the Microeconomic Foundations of Worker Representation and Its Regulation,” *Proceedings of the 47th Annual Meeting, Industrial Relations Research Association* (Madison, WI: IRRRA, 1995), pp. 414-421.

recruitment efforts less reactive and base them on an understanding of the industrial strengths of each economic region. To establish this understanding, the Commonwealth commissioned a study by IBM which considered how attractive a “prospective investor” (who is currently considering where to expand or locate its operations) in each of 11 industries would find 11 Pennsylvania’s economic regions compared to competitor regions (across the country and internationally).⁴ Questions exist about the robustness of the IBM methodology and about the accessibility of the IBM data. Lack of accessibility impedes evaluation of the quality of the IBM data by outside analysts and may impede its broad use. The IBM analysis, nonetheless, could be a stepping stone to building up in-state capacity to analyze key industries and drive more strategic economic development policies, as recommended below.

Beyond the IBM study, state economic development policy also has an increasing “industry” focus, including:

- The state’s renewable energy initiatives (discussed in more detail below)
- A “First Industries” fund that supports agriculture and tourism. The Fund gives out a mix of subsidies to individual businesses and planning grants and implementation dollars for community or multi-company initiatives.
- Department of Conservation and Natural Resources (DCNR) tourism initiatives to “brand” and market the state’s rich natural resources and attract more eco-tourists. For example, the “Pennsylvania Wilds” covers 12 counties in North Central Pennsylvania, and contains the largest elk herd in the Northeast as well as backpacking trails, bike paths, and trout fishing streams.
- The Film Production Grant Program (\$20 million increase in 2007-08) seeks to expand an industry that grew nearly 160 percent in the past three years.

Also targeting an industry, the Governor’s Budget for 2006-07 proposes large investments in bio-medical research and commercialization. The Jonas Salk Legacy Fund would build on Pennsylvania’s strengths in health care and higher education to invest \$500 million in medical innovation using Pennsylvania’s Tobacco Settlement Fund revenues. The funds would seek to attract world-class researchers to Pennsylvania by funding “Starter Kits” that pay to set up new or expanded bioscience research labs at the commonwealth’s leading colleges, universities and academic medical centers. The funds would also offer “bricks and mortar grants” for new or improved biomedical research facilities. (Box 3 considers how the impact of the Jonas Salk Legacy Fund might increase if some of the resources focused explicitly on bolstering the regional innovator networks that are the lifeblood of any dynamic technology industry.) Increased support in the Governor’s Budget was also proposed for three existing Life Science Greenhouses in Eastern, Central and Western Pennsylvania. The greenhouses aim to bridge the gap between university research and company formation, accelerating the commercialization of new products and the success of new life science companies.

⁴ IBM Business Consulting Services, *Identifying Opportunities for Pennsylvania to Compete in the Global Economy-- Summary Report: Action Plan for Investing in a New Pennsylvania*, online at <http://www.newpa.com/files/ibmexternalreport05.pdf>

Box 3.**Occupational Networks: Key to Permanent Innovation in the Bio-Medical Industry**

Bio-medical is the highest paying of Pennsylvania's targeted industry clusters or sub-clusters, paying an average of about \$75,000 to over 83,000 employees in 2005. The bio-medical industry also has an important presence linked to Pittsburgh academic institutions and is a powerhouse in Southeast Pennsylvania because of the pharmaceutical industry, academic medical centers, and the existence of some smaller high tech firms.⁵

A challenge for the Commonwealth is how to invest in the bio-medical cluster in ways that will generate a payoff within the state. This is especially difficult because state resources are small compared to both federal and industry investments in research and in venture capital.

Guidance on how to achieve a high return on state investment is offered by research suggesting that high-tech industries flourish where occupational networks cut across individual employers and create a vibrant regional community of researchers and other professionals.⁶ Such networks tend to be associated with high mobility across businesses. Such mobility diffuses cutting-edge ideas and fuels innovation as teams form and reform around exciting new projects. Rich networks also enable individuals to find another job within the region and state if their current one ends or is unsatisfying. A related finding from research is that effective innovation networks must include researchers in academic institutions *and* in industry.⁷ When academics only co-author papers with other academics, little payoff is likely for regional economies.

The state's Jonas Salk Legacy Fund should help strengthen regional professional networks in Pennsylvania. The Fund would expand the research community in Pennsylvania by creating research labs at many institutions. To further enhance the Fund's potential, the Commonwealth might dedicate a portion of the Legacy Fund to explicitly promoting *more open and collaborative regional networks* that span both industry and academia. Efforts to strengthen these networks could be managed by (a) the Life Sciences Career Alliance, an industry training partnership in Southeast Pennsylvania, and by similar partnerships being organized in Central and Southwest Pennsylvania, (b) bio-medical professional associations, or (c) a blend of these two options.

Funds for network building might finance regional seminar series that rotate among academic and industrial research facilities. They could also oversee nominations and selection of "Commonwealth Awards" for bio-medical innovations that explicitly take into account non-scientific considerations (i.e., the contribution of innovations to industry and job growth). After the candidates have been narrowed to a few, research teams competing for the awards might make public presentations open to the entire research community.

⁵ *Pennsylvania's Targeted Industry Clusters*, Center for Workforce Information and Analysis, Pennsylvania Department of Labor and Industry, 2004.

⁶ The classic study is Anno Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* (Cambridge: Harvard University Press, 1994). Saxenian hypothesized that California's Silicon Valley kept pace with technological progress during the 1980s, while firms of Route 128 around Boston fell behind, because ideas and information flowed more readily across Silicon Valley's fluid organizational forms than within the vertically integrated firms dominant in Route 128 (prominently Digital Equipment Corporation or DEC).

⁷ Reference Sean Safford dissertation.

To learn more about how to strengthen occupational networks that make Pennsylvania the “it” place in bio-medical, Pennsylvania should use focus groups and surveys of researchers in the industry. It should get the researchers’ input on what would make Pennsylvania a better place to work and a more attractive site for outside talent. For example, would improving work-life balance and the option to work fewer hours when children are young help attract and keep the best female talent along with dual earner couples in which both partners are researchers?

Consolidating a 21st Century Approach to Investing in Good Jobs. In the context of the state’s new economic development initiatives, Pennsylvania practitioners say the emphasis of their efforts has changed over time. Business subsidies are no longer where the conversation begins when seeking to recruit a new business. A company must first decide or be persuaded that a Pennsylvania region has the infrastructure, workforce, access to market, amenities, and other characteristics that it needs. If there is a good “fit” between a target company and a Pennsylvania region, subsidies may be used to close the deal.

Tensions remain, however, between “new” and “old” approaches to stimulating job creation. Hundreds of millions of dollars are spent on revitalizing older communities, yet some businesses subsidies still go to outlying areas and subsidize sprawl. One Pennsylvania county spent an extended period, with enthusiastic gubernatorial support, mapping out a cutting edge and comprehensive regional economic plan. Shortly after its completion, a well-connected company received two subsidies for distribution centers in the area that did not fit into the new plan. The state “couldn’t say no.”

Now is the time for Pennsylvania to connect all of its new tactics together into a comprehensive 21st century approach to creating good jobs.

- *Shift resources from subsidies for individual companies to industry collaborations on technology, marketing, and innovation, and to investments in regional assets.* The hallmark of a 21st century approach is investment in initiatives that help multiple companies become more productive and competitive. (The manufacturing section below describes one such initiative in the plastics industry.) Such investments are more likely (than subsidies to one company) to qualify as “public goods” and to create skills and other assets tied to Pennsylvania regions and its workforce rather than to a company that may later relocate operations out of Pennsylvania or fail. While Pennsylvania policymakers and practitioners show no inclination to abandon subsidies for individual companies entirely from the economic development toolkit, they could shift the balance of their investments in a 21st century direction in two simple ways.
 - Whenever possible, programs that now subsidize individual companies (prominently the Opportunity Grant program) should be opened up to industry consortia. That way groups of firms can vie with individual companies for state resources and can make explicit and concrete the higher potential payoff to the state from consortia investments.
 - Second, if there is an agreement among (most) economic development entities in a county or multi-county region, the county or region should be allowed to opt out of the subsidy game in exchange for receiving a fair “share” of state subsidy resources for regional and industry initiatives.
- *Increase state government and in-state capacity to analyze Pennsylvania’s key industry clusters.* A state strategy focused on bolstering regional industry clusters requires deep

knowledge of those industries **in a form that is accessible to economic development practitioners** (we bold this last phrase to highlight that most academic economic research does not pass this test). That is, to fully and effectively implement the industry approach outlined in the IBM study, the state should try to become the nation's leader in terms of attracting and training cutting edge and practically useful *industry researchers*. To do this the state could take a page from the Jonas Salk Legacy Fund concept. That is, the state could provide “starter kits” for creating regional economic and industry analysis units throughout the state within leading academic research institutions and large economic development organizations—and then knit these units together into an unmatched statewide network. More talent of this kind is also needed in state government itself. To develop a plan to invest in industry research capacity, the state should create a working group that includes economic and workforce development practitioners at the forefront of industry cluster approaches, research experts in industry cluster analysis, and analysts and policymakers from DCED and the Pennsylvania Department of Labor and Industry. This working group should develop a proposal for the 2008-09 budget.

- *Conduct a comprehensive review of existing programs for alignment with a 21st Century Approach based on strengthening regional assets and investing in regional industry clusters.* The Commonwealth has substantially re-oriented its economic development approaches. Yet many traditional programs have been carried forward and may continue to operate as they always have. In addition, some old programs have been asked to take on new tasks (e.g., IRCs now assist companies with strategic planning), and some new programs have been established (such as KIZs) but not much is known about how they actually work. A comprehensive review of existing programs, longstanding and new, should compare them against recent findings on how states and localities can most effectively stimulate innovation.⁸
- *Focus a portion of Jonas Salk Funds explicitly on strengthening occupational networks of bio-medical industry specialists as described in Box 3.*
- *Create a State Economic Investment Board, a stakeholder body analogous to the Pennsylvania State Workforce Investment Board (SWIB), and staffed by DCED, and that includes major business leaders and representatives of labor, the community, economic developers, and researchers.* The SEIB should help develop the comprehensive long-term “business plan for Pennsylvania” referred to in section 5 of this report, and then monitor and refine the plan over time. This SEIB could incorporate the existing Ben Franklin/IRC Board as a committee. The SEIB could also collaborate with the SWIB in the creation and support of industry-cluster specific “sectoral councils” that focus on workforce, technology, marketing, and innovation initiatives in specific industry clusters. (The staffing of such councils should be cost-shared by industry.)
- *Evaluate the need for regional Economic Investment Boards.* Many local regions have come to their own conclusion that they need to consolidate economic development entities and to create stronger regional entities (e.g., in Central Pennsylvania, Northwest

⁸ See Richard K. Lester, *Universities, Innovation, and the Competitiveness of Local Economies: A Summary Report from the Local Innovation Systems Project – Phase I*, Industrial Performance Center, Massachusetts Institute of Technology, 13 December 2005, MIT Industrial Performance Center Working Paper 05-010.

Pennsylvania, and Berks County). The state could encourage this process by creating incentives for regional consolidation of economic development entities and for the creation of regional coordinating entities with real authority. Analogous to Workforce Investment Boards, EIBs should be regional planning and policymaking bodies, responsible for developing overarching regional economic development strategies. They could also be given authority to sign off—or to block—deals advanced by local economic development authorities within the region that are inconsistent with the regional plan. (Again there is an analogy with the authority of WIBs, which must ordinarily sign off on proposals within their geographical region to form industry training partnerships.)

- *Create a Pennsylvania Sector Academy for managers and business leaders to learn how to promote collaborative action to help groups of companies within industry clusters become more competitive.* Such a program of workshops and peer learning could be modeled in part on an Academy developed by the Department of Labor and Industry to train coordinators of industry training partnerships. DCED could also create a pool of resources that provides mid-career scholarships for promising managers to work for two to four years within an industry center of excellence or similar collaborative structure. For sector initiatives to grow to scale and make a significant difference in growth, profits, and job quality within key sectors, the “best and the brightest” among managers will have to come to see leading such initiatives as a good career/networking move and an opportunity to “make a difference.”
- *Launch a statewide WIRED initiative to promote planning and implementation of regional economic and workforce development strategies.* One federal initiative that the Pennsylvania economic and workforce development community regards as having successfully promoted regional thinking and, in one case, action regarding economic development is the Department of Labor’s WIRED (Workforce Innovation in Regional Economic Development) program. (This program has an excellent web resource which includes detailed information on 27 regional winners across the country; see <http://www.doleta.gov/wired>.) Three Pennsylvania regions submitted proposals in response to the first WIRED RFP and all of them found that the opportunity to bid brought key regional stakeholders together in an unprecedented way. These efforts also brought to light how much current workforce and economic development initiatives tend to operate in separate silos rather than in a coordinated way or in service to a comprehensive regional strategy. One of the three regions, a nine-county Northeast Pennsylvania area, won a \$15 million federal grant that will support the “Wall Street West” project (for more detail, see http://www.doleta.gov/wired/regions/1g_Northeast_Pennsylvania.cfm). The Wall-Street-West project aims to make the region a center of backup “back office” operations needed by financial service firms in the wake of 9-11. The federal grant will pay for a high-speed fiber-optic system. To capitalize on this, the region is bringing together education, workforce development, and economic development to create a pool of computer technicians and IT managers. To stimulate similar regional thinking and strategies, the Commonwealth could create a pool of resources for state-level WIRED grants. If it does this quickly, it may be able to leverage additional federal investment as well as resources from the Appalachian Regional Commission, national foundations, and the private sector. (Third round WIRED proposals are due April 13, 2007, and “competing regions must identify sources of

state, regional, and private funding to complement the Labor Department's investment.")

Stabilize and Expand Pennsylvania's Manufacturing Base through a Manufacturing Future Strategy

Pennsylvania lost one out of every five of its manufacturing jobs from mid-2000 to the end of 2003, a total of 175,000 jobs. Since then, manufacturing employment has stabilized, although another 25,000 jobs disappeared by the end of 2006, 4.5% of the total as of the end of 2003. (In this same recent, three-year period, the U.S. lost 151,000 manufacturing jobs, 1.1% of the total.)

Despite job loss, Pennsylvania retains 665,000 manufacturing jobs. Manufacturing remains critical to the economy of many of Pennsylvania's economic regions and is the backbone of the non-college educated middle class in rural Pennsylvania.⁹ In rural Pennsylvania, manufacturing accounts for 17% of jobs and 22% of wage income, while paying workers with a high-school education or less as much as 28% more than other industry sectors. Several of Pennsylvania's smaller metropolitan areas, including York, Lancaster, and Reading/Berks, are among the most dependent in the Great Lakes region on manufacturing.

In 2003, as Pennsylvania hemorrhaged manufacturing jobs, manufacturers, unions, and legislative leaders came together and called on the Rendell Administration to implement a "Next Generation Manufacturing Strategy" (NextGen). NextGen advocated the establishment of a Governor's Office for Pennsylvania Manufacturing (GOPM) that would provide a missing level of pro-active leadership on manufacturing. NextGen also outlined initiatives in four areas: manufacturing retention and growth; capital investment; workplace and human resource effectiveness; and trade law policy and compliance. In early 2004, the consulting firm Deloitte released an influential report that maintained that too many Pennsylvania manufacturers are trapped in commodity markets subject to intense global price and cost pressures.¹⁰ The prescription—help Pennsylvania producers target non-commodity markets.

In response to pressure from manufacturing stakeholders, the administration invited several hundred people to a manufacturing summit in March 2004. Following the summit, in late 2004, the administration unveiled its *Manufacturing Innovation* strategy. This tied together into a package existing economic development programs, new economic stimulus programs, and some other new initiatives.¹¹ The most novel aspects of *Manufacturing Innovation* included:

- Keystone Innovation Zones (described above);

⁹ The statistics in this paragraph are from Stephen Herzenberg and Mark Price, *The State of Rural Pennsylvania*, Keystone Research Center, forthcoming, 2007.

¹⁰ Reference Deloitte study.

¹¹ Manufacturing Working Group of the Economic Development Cabinet, *Manufacturing Innovation: A Strategy to Enhance the Competitiveness of Pennsylvania Manufacturers*, Harrisburg, December 2004.

- \$5 million annually to Industrial Resource Centers to provide strategic planning assistance to help small companies target non-commodity markets in which growth and high profits are possible;
- about \$5 million per year beginning in 2004-05 for manufacturing training partnerships that aggregate and address the training and workforce needs of business in advanced manufacturing;¹²
- a new Manufacturing Ombudsmen within the Department of Community and Economic Development to help manufacturing stakeholders cut through red tape in state government and solve problems involving state agencies;
- an Office of Trade Policy in Washington, D.C. The office functions as an advisor to and advocate for Pennsylvania business that have been negatively impacted by unfair trade practices;
- the extension beyond Western Pennsylvania of a layoff aversion program, the Strategic Early Warning Network (SEWN), operated by the Steel Valley Authority (SVA). SEWN combines monitoring to identify vulnerable manufacturers in danger of closing or major layoffs, with assessment of manufacturers' financial and market viability, followed when warranted by efforts to find new owners or financing or to modernize operations. As part of *Manufacturing Innovation*, SEWN expanded its operations to an additional 25 counties in central and south central Pennsylvania.

In related initiatives (discussed below), the Commonwealth has also begun to foster the creation of manufacturers that supply renewable energy markets.

Pennsylvania's manufacturing strategy has received recognition nationally.¹³ The Governor's Executive Budget also cites a 2006 study by IBM that recognized Pennsylvania as the number one destination for new projects in 2005 and the top location for manufacturing projects in all of the U.S. and Canada.¹⁴ Pennsylvania ranks 4th in the nation for new manufacturing facilities according to *Site Selection* magazine, with the number of Pennsylvania projects nearly tripling from 2002 to 2005.

Yet other evidence underscores that much work remains to be done. According to one data source, average hourly wages for manufacturing production workers in Pennsylvania fell 6% in inflation-adjusted terms from 2001-06 (national manufacturing wages were flat in the same period).¹⁵ The Pennsylvania average manufacturing wage is now only 91% of the U.S. average manufacturing wage. Several factors could contribute to this trend:

¹² The first \$5 million was targeted at manufacturing alone. In subsequent years, the legislature allocated \$20 million for Industry Partnerships in both manufacturing and non-manufacturing clusters.

¹³ Joan Fitzgerald, "Getting Serious About Good Jobs," *American Prospect*, November 05, 2006.

¹⁴ Governor's Executive Budget, p. A3.5.

¹⁵ This figure is from Current Employment Statistics, online at www.bls.gov. The 2006 figure and the change from 2001-06 are estimated based on annualizing 11 months of data. Initial analysis of manufacturing wage trends using the Current Population Survey does not reveal the same wage decline relative to the United States as with the CES.

- Pennsylvania could be losing more than its share of large, higher-wage manufacturers;
- Too many Pennsylvania manufacturers may still be stuck in commodity markets;
- Some manufacturers the state has attracted to Pennsylvania may pay less than existing manufacturers (although it seems unlikely that there are enough of these to influence statewide wage averages).

These wage trends also raise the question of whether short-term decisions to hold down wages will, in the long run, worsen manufacturers' recruitment and workforce quality challenges, and hamper long-run efforts to innovate.

In sum, recent employment and especially wage trends suggest that a continued sense of *urgency* is warranted about the future of Pennsylvania manufacturing. These trends suggest that the state should redouble its efforts to implement and strengthen its Manufacturing Innovation strategy. They also suggest that manufacturers themselves re-consider how their workforce and human resource approaches may need to change to ensure sustain wages, employment, and profits in the future.

In response, the Prescription for Prosperity recommends that the Commonwealth take its manufacturing policies to the next level by implementing the *Manufacturing Future* strategy outlined in Box 4. This strategy would consist of a more fully integrated approach to boost key manufacturing clusters throughout the state's regional economies. The goals would be to restore job and wage growth, and to turn around the perception among workers and the broader public that manufacturing does not have a future.

One central element of the *Manufacturing Future* strategy is the creation of a leadership, coordination, and research capacity within state government that is focused on manufacturing and on key manufacturing industry clusters. The proposed Office of Pennsylvania Manufacturing would provide a focus and leadership on manufacturing analogous to that provided on health care by the Office of Health Care Reform. This level of leadership and focus on manufacturing in state government is still lacking.

A second dimension of the *Manufacturing Future* strategy would further boost efforts to retain and grown manufacturing jobs. The logic of the first of these—seed funding industry cluster collaborations to promote innovation, technology diffusion, and marketing—is the same as that underlying the recommendation that economic development for all sectors focus on industry clusters. A new statewide project in the plastics industry, which cuts across a large Pennsylvania from Northwest to central to Northeast, points the way. Supported by a \$3.75 million grant from the U.S. Department of Labor, the project seeks to link Regional Centers of Excellence for the plastics industry into a statewide network. As well as training and linkages with schools, the Regional Centers will support collaboration among member firms on Innovation/Entrepreneurship, Technology Transfer, and Research and Development.

Other initiatives in the retention and growth category include:

- exploration of how to extend layoff aversion services to 18 eastern counties not yet served by the SEWN network;

- building up the manufacturing suppliers to renewable energy, green building, and energy conservation markets (for more on that, see the next section);
- expanding prudent public pension fund investment in manufacturing; and
- leveraging Pennsylvania’s influence in Washington, D.C. to gain federal support for worker, firm, and sectoral adjustment initiatives; workforce training; and investment in emerging industries.

The workforce initiatives in the *Manufacturing Future* strategy would maintain and build on the state’s current workforce strategy. The establishment of statewide sectoral councils staffed by the SWIB and, once it is formed, the State Economic Investment Board, could be critical to enhancing the capacity of Pennsylvania industry clusters to collaborate to chart and pursue a competitive, high-wage future. Such councils may start with human resource and workforce issues but could also become a platform for defining and initiating technology, marketing, and innovation projects. (This is the trajectory that some Canadian Sectoral Human Resource Councils in manufacturing clusters have followed over their 15-year history.)

Box 5.

A Manufacturing Future Strategy for Pennsylvania

State Leadership, Coordination, and Research on Integrated Industry-level Strategies

- Office for Pennsylvania Manufacturing with a dual reporting relationship to the Governor’s Policy Office and the Secretary of DCED.
- Research Capacity within DCED, Labor and Industry, State Research Institutions, and Industry Centers of Excellence that Can Support Industry Strategies
- Statewide Center for Manufacturing Careers and Competitiveness, jointly staffed by DCED and the State Workforce Investment Board with a private sector advisory board comprised of manufacturers, union and employee representatives, financial sector stakeholders, and community advocates. Committees of this Statewide Center should focus on specific industry clusters, with funding for these committees and their staff cost-shared by industry (analogues to Canada’s sectoral councils)

Initiative 1 – Strategies for Manufacturing Retention & Growth

- Seed fund promising industry collaborations on innovation and marketing
- Institutionalize a statewide Strategic Early Warning Network (SEWN)
- Invest in emerging manufacturing that supplies renewable energy, conservation, and efficient transportation industries, and clean manufacturing equipment
- Prudent public pension investment in efficient transportation, renewable energy, regional advanced manufacturing and emerging industries.
- Leverage the influence of manufacturing swing states for federal funding for
 - a multi-state manufacturing retention/layoff aversion program to address the impacts of auto closures and trade
 - An increase in Trade Adjustment Assistance for firms and for sectoral initiatives in industry segments threatened by trade
 - a multi-state in-sourcing initiative to increase the sourcing within the region by remaining U.S. end-use manufacturers
 - manufacturing extension partnership initiatives to help small- and medium-sized manufacturers to (a) target less price-sensitive markets, and (b) diffuse clean and

- energy efficient manufacturing
- Federal investments in emerging industries

Initiative 2 – Workplace & Human Resource Effectiveness

- Continue to fund industry training partnerships
- Establish Statewide Sectoral Councils in specific clusters when private sector leadership exists
- Pilot benchmarking tools to track industry work organization and human resource practices
- Seed fund new aligned apprenticeship, high school pre-apprenticeship, and college scholarships for manufacturing workers (modeled after GI bill for military workers)

Initiative 3 – Trade Law Policy & Compliance

- Expand the Office of Trade Policy to give small businesses in Pennsylvania and other manufacturing strongholds better access to protection under existing U.S. trade law
- Policy leadership in Washington D.C. to promote a “Smart Trade” policy¹⁶
 - Give the International Trade Administration authority to self-initiate trade causes on behalf of small business and sectors dominated by small businesses
 - Promote more balanced trade through rules that ensure appropriate exchange rate appreciation in counties that have a trade surplus and, if necessary, managed trade
 - Incorporate international labor rights and environmental standards in trade agreements
 - Link stronger *U.S.* labor rights to trade so that benefits from trade are more broadly shared and to promote business strategies based on higher skills and higher wages
 - Strengthen and broaden worker, company, sectoral, and regional economic adjustment programs to cushion displacement effects from trade

The final element of a Manufacturing Future Strategy for Pennsylvania focuses on trade law policy and compliance. At this point in history, state-level policies to boost Pennsylvania manufacturing must be coupled with a new federal approach on trade. Working with other states that have a strong manufacturing base, Pennsylvania has an opportunity to play a key role in redefining U.S. trade policy. Box 5 spells out some likely dimensions of a new and “smart trade” policy. Analogous to “smart growth”, smart trade would encourage competition based on higher productivity and innovation but discourage (dumb) trade that is destructive of workers, families, communities, regions, and the environment.

One way for Pennsylvania to jump start a new and more urgent round of dialogues on a *Future Manufacturing* strategy would be to hold a two-day manufacturing summit. The first part of this summit could step back and evaluate the key dimensions of the *Manufacturing Innovation* strategy. The second part could consider the elements of the *Manufacturing Future* strategy outlined here, and other ideas, with the goal of developing a consensus on (a) how to take the state’s strategy to the next level within Pennsylvania and (b) what Pennsylvania and other manufacturing-dependent states should advocate for together in Washington,

¹⁶ Although the report is dated, the basic logic of each of these dimensions of a smart trade policy is contained in U.S. Office of Technology Assessment (OTA), *U.S.-Mexico Trade: Pulling Together or Pulling Apart?* (Washington, D.C.: OTA, U.S. Congress, September 1992).

D.C.. Representatives of other manufacturing states could attend the gathering to learn more about what Pennsylvania has already accomplished and to brainstorm about how to collaborate effectively in Washington, D.C.

Invest in Renewable Energy, Energy Conservation, Clean Manufacturing, Green Building and in Efficient Transportation, and in Suppliers to These Industries

Pennsylvania is already a national leader in promoting renewable energy and using it to stimulate job creation. The cornerstone of this leadership was the passage in November 2004 of **Pennsylvania's Advanced Energy Portfolio Standard (AEPS)**. The portfolio standard requires 18% of the state's electricity to be generated from renewable energy and advanced energy sources by 2019-2020.¹⁷

By creating a guaranteed market, the AEPS is designed to stimulate renewable and alternative energy production and job creation. Even before the AEPS passed the legislature, Pennsylvania induced the Spanish company Gamesa, the second largest wind energy company in the world, to build a \$40 million plant in Ebensburg, Pennsylvania.¹⁸ Gamesa is building three other facilities and 18 wind farms in Pennsylvania that will create 1,000 manufacturing jobs over five years. The company also located its U.S. headquarters and a marketing office in Philadelphia. Pennsylvania is now the largest producer of wind energy and of wind turbines east of the Mississippi.

The AEPS has been complemented by economic development subsidies for renewable and alternative energy projects and companies. The recently reactivated **Pennsylvania Energy Development Authority (PEDA)** can now float up to \$1 billion in tax-free bonds to finance construction of energy projects. In recent years, PEDA has awarded \$15 million in grants and loans to 41 clean energy projects that attracted a reported \$220 million in private investment. One PEDA grant for \$1.3 million highlighted by *The American Prospect* went to Plextronics, a solar technology company spun off by Carnegie Mellon University. The grant supports development of an organic polymer semiconductor that aims to lower the cost of solar electricity. Plextronics has grown from 19 to 31 jobs, with prospects of substantial additional growth.

Another subsidy program, the **Pennsylvania Energy Harvest** has, since 2003, allocated about \$5 million per year to alternative energy production and energy-saving production processes, leveraging an estimated \$44 million in private investment by 2006.

Governor Rendell's proposed \$850 million "Energy Independence" initiative in the 2007-08 budget builds on his first-term renewable energy policies (see Box 6).¹⁹ The initiative would be financed by PEDA bonds paid off through a 1/20th of a cent per kilowatt-hour charge on

¹⁷ For details, see AEPS Fact Sheet, "Pennsylvania's Advanced Energy Portfolio Standard (AEPS): What Does It Really Mean?"

¹⁸ This version of the Gamesa and Plextronics (see next paragraph in text) examples are adapted from Joan Fitzgerald, "Getting Serious About Good Jobs," *American Prospect*, November 5, 2006.

¹⁹ Energy Independence Strategy, online at <http://www.depweb.state.pa.us/energyindependent/site/default.asp>. See also Commonwealth of Pennsylvania, *Governor's Executive Budget*, pp. A3.21-A3.22

electricity consumption (45 cents per month for the average household). This generates an annual revenue stream of \$75 million to pay off the bonds.

Box 6. Governor Rendell's 2007-08 Energy Independence Initiative

Governor Rendell's new energy proposals in the 2007-08 budget are labeled the "Energy Independence Initiative." (In practice, "energy security," based on diversifying sources as well as increasing reliance on Pennsylvania-based renewables, is a more achievable goal.)

Getting Companies Started

- *Technology Transfer/a Business Incubator.* The Clean Energy Greenhouse (\$56 million) will seek to grow renewable energy businesses by funding development work to incorporate research advances into marketable products, incubator support services, an entrepreneur-in-residence program, and additional funding for companies to prepare them for first-round venture financing.
- The Clean Energy *Venture Capital* program (\$50 million total) will provide up to \$2 million to existing and new venture capital firms to invest in Pennsylvania clean energy firms.

Keeping Companies Going and Growing

- *Loans and grants to companies.* PEDDA will offer low-interest Clean Energy Loans of up to \$25 million, and Clean Energy Grants, to stimulate the development of innovative clean energy projects and companies.
- *Site preparation and infrastructure.* The Energy Site Preparation program (\$150 million) will provide grants and low-interest loans to develop highly efficient, advanced energy business sites for clean energy companies and other businesses.
- *Regional projects.* The Energy Capital Assistance Program (ECAP) (\$50 million) will provide grant funding for the acquisition, construction and improvement of regional energy projects that will create new jobs and a cleaner environment.

Conservation

- The Air Conditioner/Refrigerator (AC/R) Swap (\$44 million) program will provide rebates to Pennsylvania retailers so that residential and small business customers can replace inefficient room air conditioners and refrigerators with new, high efficiency units at low cost. Utilities will also be required to prove they have aggressively promoted energy-saving smart meters with homeowners before gaining the right to build new generating plants.

Solar Initiative

- The Pennsylvania Sunshine (\$200 million) program will stimulate the solar market in Pennsylvania through grants to manufacturers for solar panels or cells manufactured and deployed in Pennsylvania and rebates of up to 50% to Pennsylvania residential and small business customers who use solar systems with capacity of up to 20 kilowatts.

The hallmark of the Rendell Administration on renewable energy has been to highlight its jobs and economic development benefits. Kathleen McGinty, Secretary of the Department of Environmental Protection, says "What makes us different from other states promoting clean energy and efficiency is that for us it is a means to revitalize manufacturing and be an engine of job creation rather than being first and foremost an environmental strategy. We

only put state dollars in energy investments that create jobs.”²⁰ Most renewable energy technologies lend themselves to a jobs strategy because they are labor-intensive. They generate more jobs in construction, manufacturing, and installation per megawatt of power than coal and natural gas. They also generate jobs in operations and maintenance.

Looking forward, Pennsylvania has an opportunity to be even more of a national leader in four ways.

Tighten the jobs connection – Pennsylvania should invest in research and policy capacity that enables it to tighten the connection between forward-looking renewable energy policies, high environmental standards, and the payoff in jobs and economic growth.

Pennsylvania today can point to compelling individual cases of renewable energy policies translating into jobs. The state, however, does not have reliable estimates of job or business creation stimulated by energy policies nor does it have a methodology for estimating either short-run job impacts or long-run economic development payoffs. While these are difficult impacts to estimate, understanding them better would have several benefits.

- *Credible estimates of job benefits can build support for aggressive renewable energy policies and reducing carbon emissions, and help dispel the notion that these harm the economy.*
- *Estimates of significant jobs potential can stimulate Pennsylvania economic developers and businesses to enter industries that supply renewable energy producers.* For example, a recent study estimated that expanding wind power to stabilize U.S. carbon emissions would generate 42,000 manufacturing jobs in Pennsylvania, including 13,500 in York, Lancaster, and Berks County alone. Based on this potential, economic and workforce developers in the three counties are now working to form a renewable energy industry collaborative.²¹
- *Good estimates could guide state investment strategies and raise the economic development payoff.* Job and business creation potential vary by technology, and based on the type of state investment. Well chosen technology demonstration projects, for example—that test the viability of the technology and give Pennsylvania businesses and employees experience deploying and marketing it—may have the greatest long-term benefits for the state. By contrast, research in Pennsylvania does not necessarily translate into subsequent economic activity in Pennsylvania. Conventional subsidies for commercial ventures (such as the Gamesa plants) may generate the most immediate construction and manufacturing jobs per dollar of state investment. They may, however, be less likely than technology demonstration to stimulate downstream economic growth. Whatever the state’s investment options and whatever their impacts, more systematic analysis will allow the state to get a greater return on its investment.

²⁰ Quoted in Joan Fitzgerald, “Getting Serious About Good Jobs,” *American Prospect*, November 5, 2006.

²¹ Personal communication with George Sterzinger. The jobs analysis that spurred the economic development initiative is George Sterzinger and Jerry Stevens, *Renewable Energy Potential: A Case Study of Pennsylvania*, Technical Report, Renewable Energy Policy Project, October 2006.

To kick start an effort to tighten the jobs connection, the Commonwealth needs to inventory what is known across the country already about renewable energy and jobs. It also needs to recruit and develop more state government and in-state economic research capacity on the energy-environment-jobs connections. This process could begin with a working meeting that brings in the most knowledgeable people nationally. Many of these experts already know Pennsylvania is at the cutting edge and would jump at the opportunity to help the Commonwealth chart more new territory understanding and documenting the jobs connection.

Another, and very basic, dimension of tightening the job connection is to ensure that Pennsylvania policies stimulate job creation *in Pennsylvania*. In this spirit, the Rendell Administration seeks to strengthen the portfolio standard so that it encourages renewable projects, such as wind farms and solar arrays, in Pennsylvania.²² Policy can also be used to increase reliance on local firms and workers for components and project construction.

Improve energy efficiency in buildings and industry. One opportunity for job creation and improving energy efficiency is energy conservation, in residences, commercial buildings, and industry.²³ At present, informational and other market failures (how much will I save? what contractor can I trust not to rip me off?) combined with inertia mean that many homeowners waste energy. In buying appliances, consumers also tend to buy the cheapest product not to buy appliances with “energy star ratings” even when lower energy consumption would save them money within a couple of years. Market failures also impede energy conservation in businesses.²⁴ Except for industries such as aluminum, in which energy is a large share of total costs, many businesses, similar to homeowners, tolerate or simply fail to recognize waste and don’t bother to reduce or eliminate it.

As a result of informational market failures, inertia, and purchase decisions based only on first costs, opportunities to cut energy consumption and save money exist in residential and industrial settings. The Governor’s proposed Air Conditioner/Refrigerator (AC/R) swap program is one step to addressing this challenge. (So is the recommendation in the previous section that Pennsylvania’s Industrial Resource Center assist firms with improving energy efficiency.) The lifting of rate caps on electricity prices will also stimulate additional interest in energy efficiency and provides an opportunity to increase emphasis on energy conservation in homes and businesses.

To further promote energy conservation and job creation, the state should:

²² Energy Independence Strategy, p. 4, online at <http://www.depweb.state.pa.us/energyindependent/site/default.asp>

²³ William Prindle et. al., *Energy Efficiency’s Next Generation: Innovation at the State Level*, American Council for an Energy-Efficient Economy, ECEEE Report Number EO31, November 2003.

²⁴ Bill Prindle, *Quantifying the Effects of Market Failures in the End-Use of Energy*, American Council for an Energy Efficient Economy, February 2007, ACEEE Report EO-71.

- Audit and retrofit all state buildings, including public schools, for energy efficiency and renewable energy use.²⁵
- Require all existing publicly owned or subsidized buildings to follow LEED Existing Building standards for maintenance and repair.
- Update building codes to provide standards for energy efficiency in new public and private construction.
- Create a Pennsylvania Conservation Corps (PACC), which advises homeowners and offices, free of charge, of opportunities to save money through energy conservation. (Manufacturers would get similar assistance through the expansion, recommended above, of the IRC mission to clean and energy efficient manufacturing.) PACC could also seek to diffuse the use of solar technologies, including passive (non-electric) solar that can cut fuel and electricity consumption.)
- Update state Appliance Efficiency Standards.
- Update state procurement standards to require energy efficient lights, appliances, fixtures, and other purchases in all public buildings.

Promote industries that supply renewable energy producers and the green building market.²⁶ Pennsylvania has already begun to support the growth of emerging industries that supply renewable energy producers and the green building market. For example, the state is planning to add renewable energy to the list of targeted industry clusters it uses to structure its industry-driven skills and workforce development strategy. The state has also provided grants to organizations in Southwestern and Southeastern Pennsylvania that support the green building and green building products industries (see Box 7, bullet two). The state should build aggressively on this foundation. For example, the state should:

- require state buildings and buildings receiving state funding to attain some level of green status (such as LEED silver certification) and encourage localities to do the same;
- create tax incentives for private developers who obtain LEED silver or higher certification for their buildings;
- invest in industry training partnerships and apprenticeship programs that identify and meet the workforce needs of renewable energy producers and green building product makers.

²⁵ This would building on an existing statewide initiative by the Department of General Services to benchmark the energy performance of State-owned buildings across the Commonwealth. (Governor's budget, p. 503.)

²⁶ This and the next section draw on part on the 70 specific examples of program and policies in Apollo Alliance, *New Energy for States*. Online at <http://www.cows.org/pdf/rp-new_energy_states.pdf>. See also the Database of State Incentives for Renewable Energy (DSIRE) at <<http://www.dsireusa.org/>>.

Box 7.**Pennsylvania: Leading in Green Building and Green Building Products**

Pennsylvania has several assets that position it well to grow manufacturers of green building products.²⁷

- Southwest Pennsylvania is home to a strong regional industry technical assistance and advocacy organization, the Green Building Alliance (GBA). GBA provides technical assistance and education to engineers, architects, and builders; inventories and publicizes regional makers of green building products; helps other manufacturers shift to green products; and advocates for state and local policies that support the industry. Thanks in part to GBA, Pittsburgh ranks third among U.S. cities in the number and square footage of green buildings.
- The GBA and a partner in Southeastern Pennsylvania, Philadelphia University, each received \$1 million recently from the Commonwealth (via the Ben Franklin Technology Development Authority) to promote product and production research and attract green manufacturers to the region. The organizations have formed a statewide Green Growth Partnership.
- The Lumber, Wood, and Paper industry, a major source of building products, accounts for at least 3% of employment in most of the state's north and central T, an employment share one-and-a-half times the national average. Moreover, since the industry lost substantial employment since 2000, it needs new and growing markets.
- Pennsylvania has a network of highly regarded joint apprenticeship programs that could deliver green building skills training leading to industry certifications.²⁸
- Carnegie Mellon University, the University of Pennsylvania, and Penn State University each have green building research and education programs and have formed a statewide research and education consortium. The challenge will be to ensure that the education and technical assistance provided by these programs and the construction meet practical industry needs.

Make Pennsylvania a global leader in reducing carbon emissions. To date, Pennsylvania policymakers have sold renewable energy policies based on the human health and jobs benefits. Until the Governor's Budget address on February 6, the Rendell Administration avoided reference to climate change, until recently an abstract issue that did not always connect with the public's daily concerns (except perhaps when it's balmy on Christmas day).

On February 6, the Governor changed his tune, saying: "I think everyone now understands that you cannot deal with energy policy without addressing global warming...It is the largest environmental problem we face and Pennsylvania needs to do something about it. The efforts I am announcing today to save energy and produce more clean energy are a good first step, but they are only a first step. In the next 90 days I will present a comprehensive strategy to make Pennsylvania a leader in addressing climate change."

²⁷ This box draws in part on Green Building Alliance, *Green Building Products: Positioning Southwestern Pennsylvania As The U.S. Manufacturing Center*, Pittsburgh, January 2006.

²⁸ On these programs, see Stephen Herzenberg and David Bradley, *Construction Apprenticeship in Pennsylvania* (Harrisburg: Keystone Research Center, 2002).

Pennsylvania can and should address climate change in a way that strengthens the economy and fuels innovation. The way to accomplish this is to recognize the potential of what Harvard Business School Professor Michael Porter has called “innovation-friendly regulation” (see Box 8). Policy response to climate change can be a large-scale illustration of innovation-friendly regulation and create “first mover” advantages for states that lead the way.

Box 8.

Innovation-Friendly Regulation of Carbon Emissions and Environmental Standards

The more business leaders and state policymakers come to accept that they *must* work together to cut carbon emissions *and* to ensure a dynamic Pennsylvania economy, the more it should be possible to foster innovation-friendly regulation that will create jobs and lead to new business opportunities, as well as begin slowing global warming.

Research in many countries shows that high environmental standards, implemented with industry participation from the beginning and ample but well-defined phase-in periods, and implemented at the same time *or ahead* of other countries can foster competitive advantages spurring innovation and giving local industry a head start down the learning curve.²⁹ That learning curve is bound to be a long one, given that climate change is a problem with century-long time horizons. Leadership, once established, may not last for that entire period, but it is always better to be ahead than behind.

Standards should be set to stimulate fundamental rethinking rather than encourage marginal responses. States (or groups of neighboring states) that move early, or first, in a forceful but collaborative way, will help their businesses increase competitiveness and exports, as well as ready them to meet standards imposed later in other regions and countries.

Setting the stage for successful negotiation about carbon emissions, government-business interaction in Pennsylvania is already maturing beyond the “us-them” mentality or industry domination that weakened regulations and enforcement in the past. This is happening, in part, through the workforce partnerships popping up in industry clusters and regions across the state. Pursuing innovation-friendly regulation to achieve demanding carbon emissions standards represents an opportunity for Pennsylvania to move beyond industrial era business-government antagonisms to a 21st century relationship grounded in shared acceptance that Pennsylvania needs a competitive economy and one that improves the quality of life of its residents.

In a sense, climate change is a golden opportunity from a state economic development perspective. Ordinarily, it is very difficult to know how markets will develop, whether your state really can be a leader in robotics and the next generation of bio-medical products, what the future has in store. In this case, you can bet that, after a period of political timidity and waffling, which may be three years or 15 years, but which won’t be forever, the United States and the global community will require that all nations sharply reduce emissions of carbon dioxide and other greenhouse gases. So let’s get there first.

²⁹ Michael E. Porter and Claas van der Linde, Green and Competitive: Ending the Stalemate *Harvard Business Review*, September–October 1995, pp. 120-134.

One approach would be for Pennsylvania to develop a 50-year plan for cutting carbon emissions, with specific timeframes and benchmarks.³⁰ An overall target could be translated into targets for specific sources (or “wedges”) of carbon emissions, starting with electric power generation and transportation, the two largest sources, but also including industry and the household sector. With each source, targets for reduction could also be translated into goals for specific technologies – i.e., how much wind power might contribute to the reduction of carbon emissions in the utility sector. Estimates could also be developed of the number and wages of jobs resulting from applying different technologies to meet carbon emissions targets.³¹ Linked with tracking progress towards these goals could be the development of models and estimates, on an annual basis, of the number and wages of jobs resulting from efforts to achieve the emissions targets.

Climate change and carbon emissions reduction targets will add a sense of common purpose to the development of new conservation technologies. This should further accelerate innovation, as in other cases of urgent national purpose (e.g., the Manhattan Project and the race against the Soviet Union to land a man on the moon).

To develop a plan for implementing demanding carbon emissions reduction targets in Pennsylvania in an innovation-friendly way, the Commonwealth should form a Governor’s Commission on carbon emissions and competitiveness. This Commission should report to the Governor by November 2007 with the goal of implementing the first phase of a carbon emissions reduction plan in the 2007-08 budget.

This Commission must address, in addition to the targets and details of phase-in, how to ensure a “just transition” to equivalent jobs for any workers displaced by carbon emissions regulations. In many cases displaced workers could move to one of the new jobs created. (Companies expanding because of new state regulations and subsidies should be required to give displaced workers rights of first refusal for any jobs for which those qualify quality or could train.) The pressing need to address global warming also underscores the need to implement the rest of this economic agenda to strengthen the middle class in Pennsylvania. When workers and families feel that they are being given a fair opportunity at a good career, they will gladly join a Commonwealth effort to lead on climate change. Without that sense of security, they are much more likely to resist forward-looking environmental policies.

³⁰ This paragraph is informed by the analysis by S. Pacala and R. Socolow to decompose carbon emissions into contributions from different sources and then to decompose required reductions needed from different technologies. See S. Pacala and R. Socolow, “Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies,” *Science*, 13 August 2004, Vol. 305. See also the application of this approach to Pennsylvania in George Sterzinger and Jerry Stevens, *Renewable Energy Potential: A Case Study of Pennsylvania*, Technical Report, Renewable Energy Policy Project, October 2006.

³¹ Because technologies that reduce carbon emissions do not automatically spread even when “rational” and cost-effective, policies that foster the diffusion of technologies that yield incremental performance gains will play a major role alongside more radical or breakthrough technologies. See John Alic, *Technology Policies For Reducing Greenhouse Gas Emissions: A Taxonomy*, Contractor Report Prepared For the H. John Heinz III Center For Science, Economics And The Environment, Washington, D.C., February 1999.

Make Better Use of Economic Development Funds (Through Wage Standards, Improved Reporting, Repayment of Subsidies for Underperformance, and Targeting of Subsidies to Existing Communities Accessible to Public Transit)

To create jobs, as noted above, Pennsylvania has for 50 years devoted large amounts of money to chasing smokestacks—and call centers and warehouses and virtually any other business that might move to the Commonwealth and then sell in multi-state, national, or international markets. The time has come to de-emphasize non-strategic and ad-hoc industrial recruitment and to require that any future subsidies meet basic, common-sense principles.

Jobs receiving state subsidies should pay decent wages and benefits. Most businesses operate without any special subsidies or targeted tax breaks. With wages declining in manufacturing and stagnant across the economy, it's past time to demand that companies receiving special subsidies pay decently. When workers at subsidized companies are paid poverty-level wages, taxpayers end up subsidizing the company twice: once up front and again when taxes pay for social supports such as food stamps, Medicaid, and housing and energy assistance that low-wage workers need to make ends meet.

State subsidies should create jobs accessible to lower-income communities with high unemployment. Since state tax dollars are limited, they should create jobs accessible to the unemployed in communities with the most need.

Third, subsidies for economic development should not be counter-productive and cancel out other popular Commonwealth programs spent on land preservation, environmental protection, revitalizing older communities, and boosting eco-tourism.

- The Commonwealth and local communities spend millions to preserve farmland – it makes no sense to use other taxpayer dollars to induce developers to destroy farmland in those same communities. These developers must find funding elsewhere or locate on brownfields or in Pennsylvania's old cities and boroughs.
- The Commonwealth and local communities spend millions to revitalize Pennsylvania's old cities and boroughs. At the same time, economic development subsidies are granted to the main competitors of businesses in older communities: big box retailers and shopping malls outside of town.
- The Commonwealth spends millions on environmental protection and promoting tourism in scenic areas, even while subsidizing development that destroys wildlife habitat, threatens wetlands and water resources, increases flooding, reduces fishing and hunting opportunities and destroys scenic Pennsylvania.
- The Commonwealth spends millions on historic resource protection, at the same time that it often subsidizes development that destroys historic resources.

At present, Pennsylvania's business subsidy programs do not require that companies pay good wages and benefits or that subsidies go to communities with the greatest needs, with

predictable results.³²

- In the absence of wage standards, Keystone Research Center found that two out of five companies subsidized projected to pay less than 80 percent of the average wage in their industry and county.³³
- Some subsidy programs do not target areas with higher joblessness and concentrations of low-income workers, some grants and loans go to “greenfield” development in affluent suburbs. A study by for the Brookings Institution found that per capita assistance to newer, outlying (and often affluent) suburbs was identical to per capita assistance to older communities (i.e., cities, inner suburbs, and older towns) that tend to be lower income.³⁴

A third problem: subsidized businesses do not report systematically, and publicly, on jobs actually created, wages and benefits paid, or the business site location. Lack of transparency is an even greater problem for assistance given through programs overseen by the Commonwealth Finance Authority (CFA) and established by the 2004 economic stimulus. All four legislative caucuses must approve CFA projects. Some policymakers claim that the CFA uses a good set of evaluation criteria to determine what to fund. Other observers have a more cynical view. They perceive that political horse-trading drives decisions, and that projects favored by each caucus receive funding without any overarching policy logic. In the absence of basic disclosure requirements, no one knows for sure.

To guide state economic development and infrastructure investments, the Rendell Administration recently established formal “Keystone Investment Principles,” including provisions embodying the ideas of investing in older communities and paying decent wages (Box 9). It may be too early for these principles to have had a measurable impact on where the money goes – and besides, in the absence of better disclosure requirements it’s impossible to know for sure. Even if there has been improvement, in the absence of statutory changes, any improvement could be reversed in a different administration.

³² Two very partial exceptions to the claim that subsidy programs do not currently have wage standards or rules that direct funding to the right places. The Opportunity Grant Program and Customized Job Training regulations do require businesses pay at least 1.5 times the minimum wage. Second, the Pennsylvania Industrial Development Authority offers the lowest interest rates on subsidized loans to businesses planning to site facilities in counties with higher unemployment. In the five county Philadelphia area, there is a big difference between the geographic tilt of PIDA loans and OGP grants, with the city receiving a larger share of the former. To see this, pull up the five-county area for OGP and PIDA via the online subsidy map at www.keystoneresearchmap.org. If you have difficulty doing this, contact 717-255-7181 for assistance.

³³ Projects defined as low-quality if businesses report projected payroll per job below 80 percent of the industry average for the county. David H. Bradley, *Many Pennsylvania Industrial Development Authority Loans Create Low-Quality Jobs*: Harrisburg, PA: Keystone Research Center, 2002.

³⁴ Dennis Bellafiore, Stephen Herzenberg, Megan Myer, and Allan Rothrock, *Economic Development Subsidies in Pennsylvania: Do They Fuel Sprawl?*, Harrisburg, PA: Keystone Research Center, 2003, Background paper commissioned by the Brookings Institution Center on Urban and Metropolitan Policy and released in conjunction with Brookings’ report *Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania*. Online at www.keystoneresearchmap.org.

Box 9. The Keystone Investment Principle and Community Action Teams: Steps Towards Better Focusing of Business Subsidies

To better focus Commonwealth business subsidies and economic development investment, the Rendell Administration developed the “Keystone Investment Principles.” Two of the 10 principles express the Commonwealth’s intent to “redevelop first” and “provide efficient infrastructure”—i.e., to target future economic and community development dollars to older communities that can use existing roads, sewer and water lines, and other infrastructure. Another principle, “create job opportunities,” highlights the need to invest in businesses that offer good paying, high quality jobs located in areas accessible to existing workers and transportation access, including public transit.

Another recent initiative that may help direct more infrastructure and community development dollars to older communities is the establishment of “Community Action Teams” (CAT). Analogous to the so-called Governor’s Action Team (GAT), which coordinates assistance from multiple business subsidy programs to induce major companies to create facilities in Pennsylvania, CATs coordinate delivery of assistance to *communities* from multiple programs. The approach rewards communities that have a coherent plan for community renewal and for strengthening cultural, educational, or other assets that improve quality of life, attract businesses, and appeal to young and high-skill workers.

Therefore, to ensure economic development accountability, Pennsylvania should follow the lead of a growing number of other states and localities:³⁵

In scoring systems used to allocate subsidy dollars, **priority should go to high unemployment and distressed areas and to areas accessible by public transit.** Illinois provides a model in this regard.

Subsidized businesses should **disclose essential information such as jobs created, wages and benefits paid, and the address of the business site.**

Business should pay a decent wage high enough to support a family and provide health benefits. The Commonwealth could use the wage standard that now governs the distribution of workforce development and occupational education dollars. These funds go to occupations that pay at least 200% of the poverty level for a family of two (currently over \$26,000), or offer career advancement opportunities.

Businesses should refund subsidies to the extent that they do not deliver the jobs and the wage levels they promised. While this is reportedly done at present, it remains up to the discretion of the administration.

Commonwealth agencies must maintain a current, easily accessible subsidy database, available on the internet. One option would be to build a comprehensive subsidy map using the design at www.keystoneresearchmap.org. Pennsylvania could establish a national best practice standard for transparency.³⁶ This level of transparency would also

³⁵ For comprehensive information on subsidy accountability as well as studies of job quality and land-use consequences of subsidies in a number of states and metropolitan areas, go to the web site of the national subsidy accountability clearinghouse, www.goodjobsfirst.com

³⁶ When the map was first released, Governor Rendell’s deputy press secretary said: “This definitely helps us out tremendously... We need to identify what the problems are, and clearly the [Keystone GIS] map points to

make it harder for a future administration to distribute subsidy dollars in a way that is ad-hoc or focus investment heavily on greenfield locations.

The Commonwealth should also produce a comprehensive annual economic development report (or “Unified Development Report”) that contains information on both direct subsidies and on foregone state and local tax revenue from tax breaks such as Keystone Opportunity Zones (KOZs) and Tax Increment Financing (TIF). Currently, comprehensive information on the cost state and local tax breaks to is even harder to find. There is no way to assess whether this money was spent wisely.

At the local and regional level, require consulting before subsidies are awarded and reporting requirements. While state policy promotes more coordinated regional land-use and economic development planning, it also cuts local communities out of the up-front negotiation with businesses who might come to the area. The fear is that community involvement would scare off investors and cost Pennsylvania jobs. But the inconsistency of state policy makes no sense. Some mechanism must be worked out so that individuals trusted by the local area and region have a voice in whether and how much to offer a particular incoming business. In addition, local economic development councils (EDCs) should produce annual reports that are available on the internet showing subsidies granted in their jurisdiction listed by the address of the facility.

many troubling policies that seem to have accelerated sprawl.” National columnist Neil Pierce called the map “a delicious example of computer-armed reform advocates not only tracking down closely held data, but making it transparent and accessible by new digital technology.”