A "POST-GLOBAL"

ECONOMIC DEVELOPMENT STRATEGY

TO ENERGIZE OUR ECONOMY AND SECURE OUR FUTURE

Delaware Valley
Regional Planning
Commission

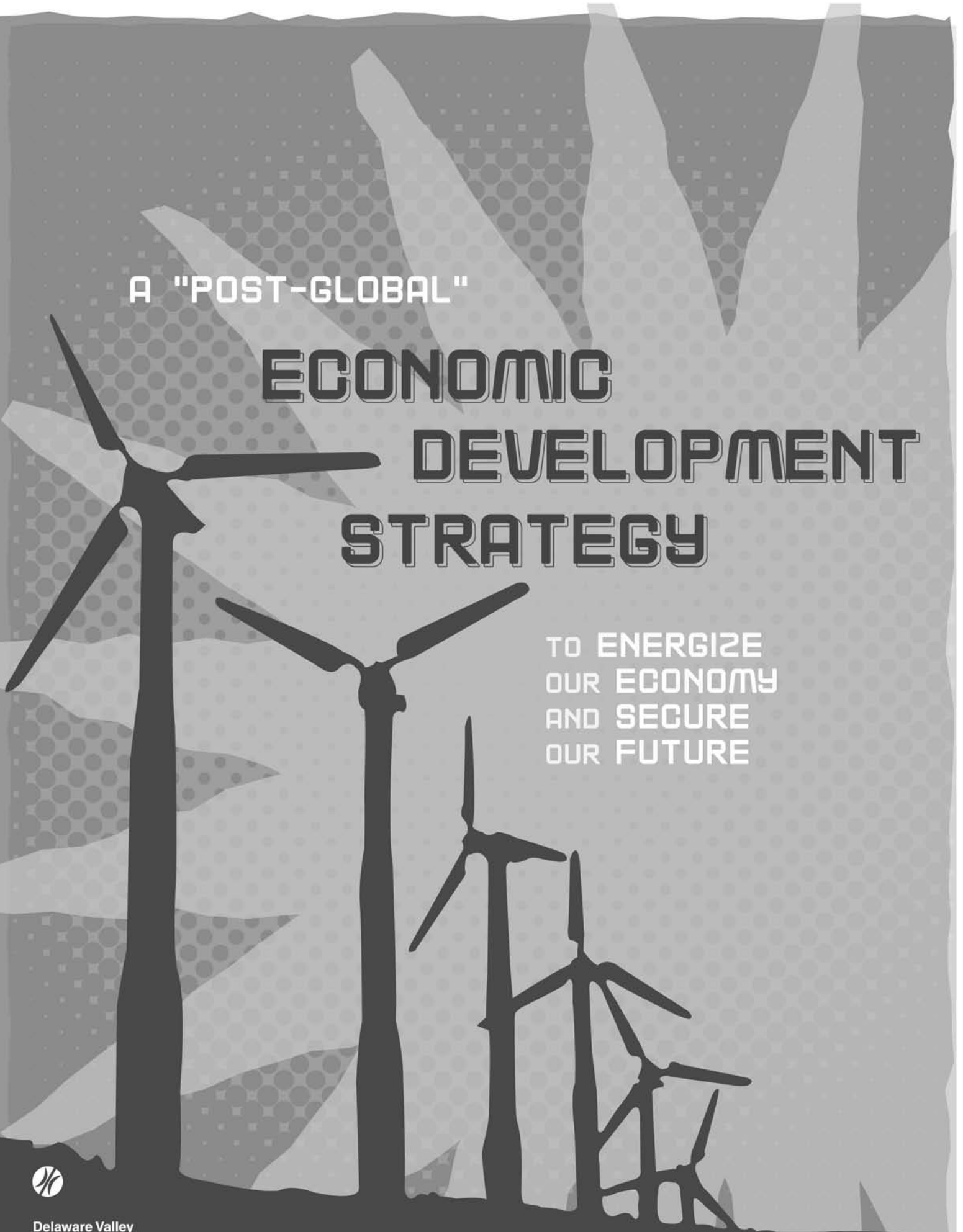
MARCH 2006

DRAFT

A "POST-GLOBAL"

ECONOMIC DEVELOPMENT STRATEGY

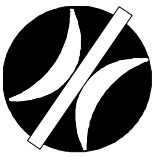
TO ENERGIZE
OUR ECONOMY
AND SECURE
OUR FUTURE



Delaware Valley
Regional Planning
Commission

MARCH 2006

Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, inter-county, and intercity agency that provides continuing, comprehensive and coordinated planning to shape a vision for the future growth of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties, as well as the City of Philadelphia, in Pennsylvania; and Burlington, Camden, Gloucester and Mercer counties in New Jersey. DVRPC provides technical assistance and services; conducts high priority studies that respond to the requests and demands of member state and local governments; fosters cooperation among various constituents to forge a consensus on diverse regional issues; determines and meets the needs of the private sector; and practices public outreach efforts to promote two-way communication and public awareness of regional issues and the Commission.



Our logo is adapted from the official DVRPC seal, and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole, while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, and DVRPC's state and local member governments. The authors, however, are solely responsible for its findings and conclusions, which may not represent the official views or policies of the funding agencies.

CONTENTS

STATEMENT OF PURPOSE 1

COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY 3

ASSUMPTIONS & OBJECTIVES 3
- Globalization 3
- China and Resource "Peaking" 4
- The American Economy Under Resource Constraints 5
- Post-Globalization 8
- Summary of Assumptions and Objectives 9

ANALYSIS 10
- Post-Globalization and the Firm 10
- Post-Globalization by Sector 11
- Post-Globalization and the Delaware Valley 14

STRATEGY ACTION STEPS 16

Action Step 1: Foster Eco-Industry Clusters 16
- Development through a New Energy Regime 16
- Development through New Transportation Systems 17
- Development through Green Industries 20

Action Step 2: Promote Location Efficiency 22
- Green Buildings 23
- Smart Growth 24
- Transit-oriented Development 25

Action Step 3: Invest in the Environment 26
- Open Space Protection 27
- Beyond Sprawl 28

Action Step 4: Become A Model Region 32

Action Step 5: Eco-Brand the Delaware Valley 35

CONCLUSIONS 37

REFERENCES 39

STATEMENT OF PURPOSE

Many agencies and organizations in the Greater Philadelphia region are concerned about economic development, but most people do not have a clear idea of what it is and why it is so important. Before developing a comprehensive economic development plan it is fair to ask: what is economic development; why plan for it; and what role, if any, should DVRPC have in it?

The simplest definition of economic development is jobs, or more expressly job creation. Narrowly focusing on the end of job creation rather than the means to it, however, is not sufficient. Increasingly, economic development can have multiple goals, all of which have job implications. Goals include:

- Job creation
- Job retention
- Tax base creation
- Property value increases
- Wealth retention
- Poverty reduction
- Economic stability
- Economic self-sufficiency

These goals are pursued within the context of a global market economy. While it is true that the market economy may address many of these goals without formal planning, it is also true that market forces are very complex. They do not run like a flawless machine. The notion that the private economy should bow completely to the whims of the global market assumes that in the language of economists, “the market behaves according to the model of perfect competition.” Most people dealing in the real world agree reality seldom matches the theory.

In reality local governments are deeply involved in local business activity. They are suppliers of infrastructure, tax collectors, land and building activity regulators, to name only a few ways in which they influence the market. It is reasonable that governments have an understanding of how their behavior affects the local economy.

In today’s economic climate of intense globalization, in which cities, counties, states, and especially regional metropolitan areas are in a head-to-head scramble for economic success or even survival, it is evident that governments should not only have an understanding of the effects

of their behavior on the regional economy but also they should have a strategic plan for guiding this behavior.

In the past few decades, public sector collaboration with private sector entities to enhance local economies has become the norm. The creation and management of these relationships is now a crucial part of the economic developer's job. Together with private entities economic developers will use a rational planning process to achieve whichever job creation or other economy enhancing strategy they have chosen. These rational planning steps include:

1. Defining measurable objectives
2. Studying and analyzing relevant data
3. Formulating a plan
4. Implementing the plan with the help of the private sector
5. And, eventually, evaluating results

Often the plan, or public/private partnership, will focus on an issue and its immediate impact on the local economy. Some of the more frequent programs address such things as job training, taxes and regulations, capital availability, land and site assistance, or management and entrepreneurial skills development. These plans are short-term and action oriented. As a long-range regional planning body, DVRPC's primary role to date has been to provide data and analysis rather than day-to-day implementation and evaluation of these tasks. However, in order for short-term economic development plans to continue to be successful, it is best when they fit into a long-range vision.

As the primary long-term planning agency for the region, DVRPC can provide the vision economic development practitioners may not have the time or perspective to consider. This vision can provide a framework in which the economic development process can operate. A major component of this framework is consideration of the long-term trends and scenarios that may be acting on our regional economy. DVRPC can help the region understand the most important trends and provide a plan that deals effectively with them. In addition to this analysis DVRPC can make suggestions for the formulation of specific objectives and economic development plans that fit well with probable long-term realities. The following policy paper recognizes these goals as DVRPC's economic development mission.

ASSUMPTIONS & OBJECTIVES

All economic development plans have assumptions on which their primary objectives are built, the main assumption usually being a baseline projection. This projection is the best guess of what a community can achieve. Filling the gap between it and the desired level of economic activity is the plan's goal. Baselines, however, are often too dependent on historical trends. They typically assume no major deviations from current trends.

It is understandable that most plans do not consider such deviations. Important economic trends seem to appear suddenly. Socio-economic trends, cultural change, environmental degradation, international cash flows, technological innovation are all examples of change that are difficult to predict. They are nevertheless a very real part of the economic future. Usually these trends are just under the surface, but are accessible to the prudent trend spotter. It is necessary to pick from these changes the trends that will be most influential. This is a difficult but essential task because economic development planning at its core requires communities to make the long-term commitments that will enable them to compete for the businesses of the future. Moreover they must compete locally, nationally, and globally.

Globalization

Globalization has been the big economic story of the past few decades. It is the historic trend of the second half of the 20th century from which most good economic development baselines are presently constructed. A critical question is what will be globalization's character in this century? Can we expect more of the same, or should we assume an historic deviation from the current trends?

As globalization has spread, two opposing views of its future have emerged. The first scenario is the belief in continued globalization, not just globalization of greater reach but also of greater speed and strength. The second scenario is the opposite worldview of de-globalization. This viewpoint often takes its cues from the environmental movement, which claims that resource constraints of a finite globe will arrive shortly, making current global economic relationships tenuous.

Both views have been around for decades. The first scenario is clearly the economic reality in which we live today. As for the second scenario, we've all heard the sky is falling and it hasn't yet. Back in the early 70's the Club of Rome sponsored the Limits to Growth report, but growth and its globalization have continued ever onward. So far globalization seems to be relentless. Should we expect more or less globalization in the coming decades?

China and Resource "Peaking"

In a global economy of complex interconnectedness the place to begin searching for the answers to these questions and ultimately the best economic development policy for our region is ironically on the other end of the planet.

With a fifth of the world's population and the fastest rates of growth and industrialization, China has joined the global economy with a force that has completely rearranged the networks on which the global economy operates. According to the IMF, "China's transformation into a dynamic private-sector-led economy and its integration into the global economy have been among the most dramatic economic developments of recent decades. Indeed, China's growth performance over the last two decades has made it a major economic power."(IMF Economic Forum, October 19, 2004)

China's economic growth is estimated to be 10% a year. It has quickly become the manufacturing powerhouse of the world. But even China cannot maintain such high levels of growth endlessly. Just like our nation's trade and debt imbalances cannot be sustained indefinitely, ultimately China's great growth leaps forward will be brought one way or another back into equilibrium with the rest of the world. How China will evolve and adapt can be instructive to the discussion of our own region's future.

China is a country of over a billion people. Industrialization is creating resource hungry urban centers that global markets can hardly keep up with. For example, construction markets everywhere are affected as concrete and steel supplies have difficulty meeting the demands of Chinese construction growth.

But concrete is the least of China's resource problems. With so many citizens China literally does not have much space to maintain the precarious balance between social stability and explosive economic growth. China's inability to maintain this balance may suddenly bring its economy more in line with the rest of the world.

In particular, the destruction of the Chinese environment could be its Achilles heel. The wealthy urban population is changing its consumption patterns. In the realm of land use for instance, they are paving over the countryside for their automobiles and eating more resource intensive foods. But China has a lot less room to expand into an American lifestyle than America had. Water and soil are being consumed faster than the ecosystem can replenish them, and all of this is occurring where still countless millions live on the edge of subsistence. Well before it (or its neighbors like India)—as many anti-globalists fear—takes over every available job on the planet, China's

economy could hit a wall. In countless ways the environment and other resource constraints may disrupt its delicate balancing act and limit growth.

What China faces is known as the concept of “resource peaking”. Natural resources deplete in a normal curve. Peak is the point when there is no more cheap supply to exploit. It is the point at which demand for a resource exceeds the majority of the supply and its value rises as the supply dwindles. The abundant good quality portion of a resource is naturally exploited first. As this supply runs out the overall supply of the resource has been diminished, and what remains is often of inferior quality.

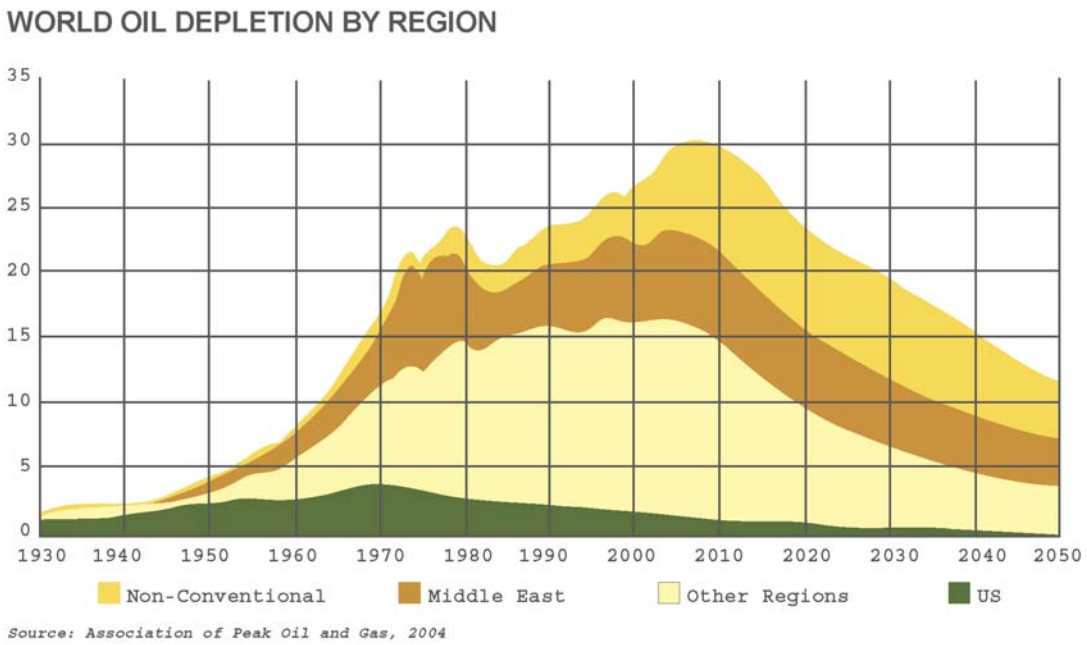
The concept might be easier to understand for Americans when applied to housing. Although it is not perfectly analogous, many Americans have experienced a kind of peaking in housing when the best-located supply has become increasingly expensive and scarce. Alternatives have tradeoffs that make them less desirable, like more driving time and expense.

Despite our sprawling cities, fortunately in North America arable and build-able land will not be peaking anytime soon and we can probably manage our land use, watershed, and housing issues. But just as China is facing the loss of life sustaining resources of land and water, the US may soon confront the issue of resource peaking in the key resources that sustain our economy.

The American Economy Under Resource Constraints

Every society has an “energy regime” on which all its other economic activities are erected. As everyone is well aware our global system is currently dependent on fossil fuels. The industrial revolution and global expansion of capitalism began with coal. Our energy regime today is centered on oil.

Oil is the most convenient and multi-purposed of the fossil fuels. Oil currently accounts for about 40% of the world's commercial energy, and about 90% of transportation energy. Its many products from pesticides to plastics are ubiquitous. Look around your home or work place and everything you see has an oil ratio within it. This is a percentage that either created it, brought it to you, or makes it run. The switch from manufacturing to services in America has not changed the fact that fossil fuels and oil in particular permeate our economy. Moreover, our industrial societies and our financial systems have been built on the assumption of a fuel-supported system of constant growth. Without cheap energy, there cannot be increasing productivity and endless growth.



In the same way most people have not thought about the level of oil dependency in their lives, they have also not thought about the important issues concerning oil's depletion. Oil is not "running out". The problem is that many experts believe that the "easy-to-find" oil is fast depleting.

> "For obvious reasons, people have extracted the easy-to-reach, cheap oil first. The oil pumped first was on land, near the surface, under pressure and light and 'sweet' and easy to refine into gasoline. The remaining oil, sometimes off shore, far from markets, in smaller fields, or of lesser quality, will take ever more money and energy to extract and refine. The rate of extraction will drop. Furthermore, all oil fields eventually reach a point where they become economically, and energetically no longer viable. If it takes the energy of a barrel of oil to extract a barrel of oil, then further extraction is pointless." (Post Carbon Institute)

"Peak oil" is the period when we reach the top of the oil supply curve, and face the slide down the back end of the curve. In other words it is the era when growing supplies of generally cheap oil turn into fast-depleting supplies of ever more expensive oil.

In America the discovery of new oil reserves actually peaked in the 1930's and for the world discoveries of oil peaked in the 1960s. Forty years after American discoveries peaked, American oil extraction peaked in 1970 and ushered in the oil shocks of that decade.

After our first experience with oil shock we found many other sources of easy to extract oil, but they are beginning to peak as well. The globe is now about 40 years beyond its global peak in oil discoveries. Thus, our collective future depends on the discovery of small new deposits and the better exploitation of older reserves, especially from volatile countries, unless we make some kind of energy regime change.

Oil production is currently at about 83 million barrels per day. It has grown in most years over the last century, but once we go beyond the halfway point of all reserves, production becomes ever more likely to decline. Currently the debate is not about whether oil will peak and disrupt the economy, but when it will occur and how will the economy respond. Organizations from Goldman Sachs to the US Geological Survey are placing their bets.

Oil Peak Projections (*Source: Stan Cox, "Goodbye to All That Oil"*)

- British Petroleum, 2010 to 2020
- PFC Energy Consulting, 2010 to 2015
- The Publication *Petroleum Review*, 2007
- Association of the Study of Peak Oil and Gas, 2005 to 2010
- The US Department of Energy, 2037
- US Energy Information Administration (EIA) 2020 to 2030
- Retired Shell Geologist and Princeton Professor Kenneth Deffeyes, November 2005
- King Hubbert, the geologist who created the peak theory and successfully predicted US peak for 1970, predicted world peak near the year 2000.

Whether one believes the oil peak is now or 25 years from now, however, two points should be kept in mind. First, with the explosive growth of China and other industrializing nations, the peak is more likely to be sooner than later. Second, the US and most regions have done nothing substantial in policy to slow down demand or to ensure a smooth energy regime transition.

Current price volatility should also not be the basis for policy. As this is written in mid 2005 oil is hovering between 50 to 60 dollars a barrel. In a few months it could go higher as Goldman Sachs believes it will, predicting 105 dollars a barrel by 2007. But Goldman Sachs could be wrong and oil could also crash back to 25 dollars a barrel if we are not at peak yet. When contemplating the oil peak it is necessary to think in 5, 15 and 25-year time frames, rather than what the price is doing momentarily.

As planners of infrastructure DVRPC is well aware that retrofitting transportation and land use policy alone can take years if not decades to achieve. The very bad news that must be confronted is that virtually all peak predictions are within or very close to the current 25 year planning horizon used by DVRPC and other long-range planners.

Post-Globalization

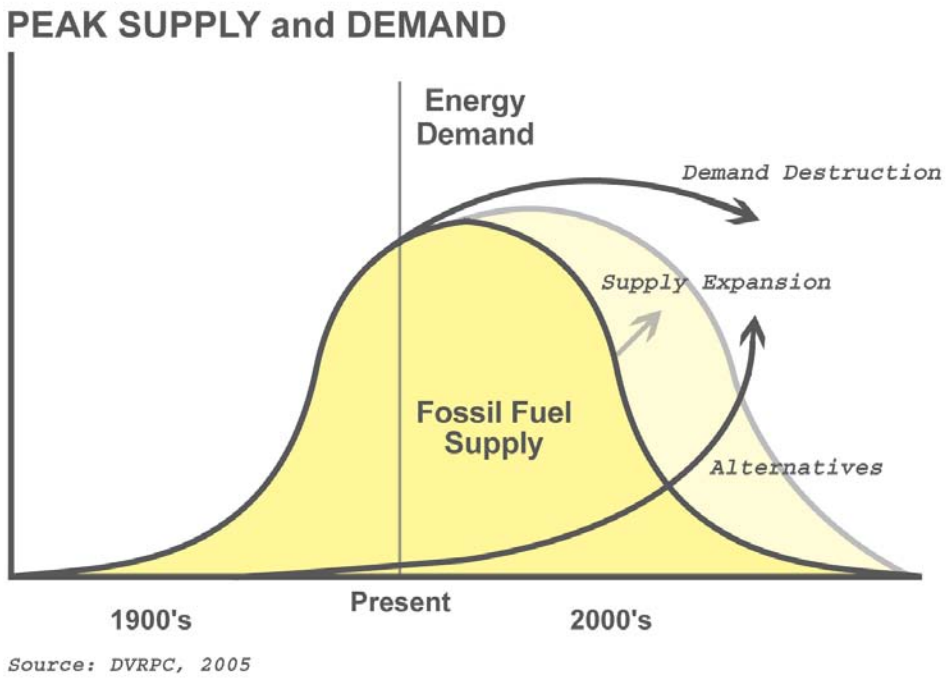
What will these trends mean for our region? Having discussed globalization, the importance of China, and the peaking of oil we can now better answer the questions about what to expect for the future economy and what it will mean for economic development strategy. To the question of whether the world faces continued globalization or a major shift to de-globalization, the most likely answer is neither. Both views have their merits. Reality will probably be a mix of both more globalization and less.

Globalization is not going away; regardless of resource constraints, technology will continue to render communication cheap. There will still be economies of scale in many industries, especially in the information intensive service sectors.

Moreover, to mitigate some resource constraints many economists believe new technologies that provide energy efficiencies will spawn growth industries that propel regions to the forefront of a new economic world. We could see an economy with a new balance of priorities via energy saving technologies; think green architecture and wind turbines, as well as hybrid automobiles and liquid natural gas terminals. In the aggregate these developments should counteract at least some of the adverse effects of resource depletion.

On the other hand, demand destruction is also likely to occur when resource constraints reach a critical point. Demand destruction is a technical term for severe job losses and reduced economic activity. If someone is out of work they simply will not need as much gas or other energy inputs. No one should ignore the crucial nature of oil and other peaking fossil fuels in the global economy. Resource pressures could spur painful conservation measures such as involuntary reduction of home and business sizes, driving less, or even more mundane things such as doing without tropical fruits in the winter.

By incorporating these points from both globalization and de-globalization one can envision a fascinating new economic landscape. Perhaps, in the same way that modernism has moved to post-modernism, globalization could move to post-globalization: A world that has elements of both the global economy and the more regional economies of the past. In other words, it will still be a high-tech, highly connected world, just with a myriad of major resource constraints compelling some aspects of the economy, probably far more than the average person realizes, to reorganize both more efficiently and more locally. The U.S. economy may still have services economically done by Indians in Bangalore and transmitted electronically for instance, but the cost of energy and material resources could make transportation of many goods and tangible products more expensive over long distances. In short, we must continue to “think globally, but act regionally”.



Summary of Assumptions and Objectives:

This analysis of trends and conditions leads to three primary conclusions:

1. There is growing consensus that ***a major change in the global energy regime will soon impact the economy***. The question is not if but rather how much and how soon.

2. This monumental change means ***there will be great economic opportunities to exploit***. Neither the 'techno-market optimism' nor the 'doomsday cult pessimism' of the ideas of globalization and de-globalization are very useful. Rather than denying compelling signs of change or throwing up our hands in the face of it, we should be mining these changes for economic opportunities. This is a large enough potential economic-shift that regions that take advantage of it will be more successful than those that simply let the tide sweep them away. As the policy journal *Energy* succinctly put it in a September 2004 article on the Peak Oil debate, "Choosing the convention we like the best is not the best means to decide policy when economies, livelihoods, and more may be in the balance."

3. Therefore, as our primary objective, ***economic development strategists should start shifting resources into initiatives to steer the region through this transition***. How much is up to each entity to decide. It will differ according to their answers to the questions of how

much and how soon they think these changes will impact their client businesses and communities, and according to how dedicated they are to long-term economic goals.

To ignite discussion about this objective DVRPC has provided some analysis and plans for a long-term comprehensive economic development strategy for the region.

ANALYSIS

Post-Globalization and the Firm

Economic development planners usually try to orient their thinking to the needs of the firm. They attempt to put themselves into the businessperson's shoes and see how their community can meet business needs. General categories of the needs of the typical firm, not necessarily in priority, include:

- Land
- Labor
- Capital
- Energy
- Management
- Research
- Quality of Life

In a post-global world each of these needs will change. Some will become more important to businesses of the future. One way to conserve wealth and promote economic stability, that has often been overlooked in economic development planning and will likely become more important to firms, is the promotion of local self-sufficiency. By some estimates for every $100 spent on local suppliers $33 stays local, whereas for every $100 spent on global suppliers, only $13 stays local. (Sustainable Business Network of Greater Philadelphia)

Total self-sufficiency is seldom possible. In fact, making ties with the outside world to generate exports is one of the goals of economic development. Self-sufficiency really means minimizing imports from other parts of the country or world, especially in essentials such as energy. Energy is a very significant import. Few communities supply their own fossil fuels. In the typical community 100 percent of its energy is imported. Because energy costs are such a significant part of the burden of firms, even small percentage gains in energy conservation are meaningful.

They imply large amounts of money retained in the community that would have otherwise drained off to other regions.

Numerous techniques could be used to help firms with energy issues. Offering financial incentives to firms that adopt conservation measures is one possibility. Incentives could include tax breaks, special grants, loan programs and loan guarantees. In a post-global scenario, government will need to shift more resources to energy concerns to keep the economy functioning.

Post-globalization could completely reverse the fortunes of land and labor concerns as well. Historically, labor was available and relatively inexpensive while land and location were the primary needs. Currently land is relatively cheap while quality labor is limited and expensive. However, with fossil fuel transportation rising in cost, locations next to inexpensive transportation such as rail and ports could once again become more valuable. As a result center cities and older towns and communities may become more valuable, while locations that require long distance driving for customers, suppliers or employees may become extremely problematic.

Labor on the other hand may become relatively cheap. Global communications will still allow for expensive value-adding professional services to be located off-shore. Demand destruction in the US could make jobs scarce, creating a buyers market for firms looking for a cheap local work force.

This discussion of the post-global firm has only dealt with energy, land and labor, but the relationship of firms to finance, management, research and other factors should also change in unforeseen ways. Currently economic development practitioners use a number of tools to help firms with their finance and management problems. These business tools will have to be fine-tuned for the post-global world. Perhaps new tools will be developed.

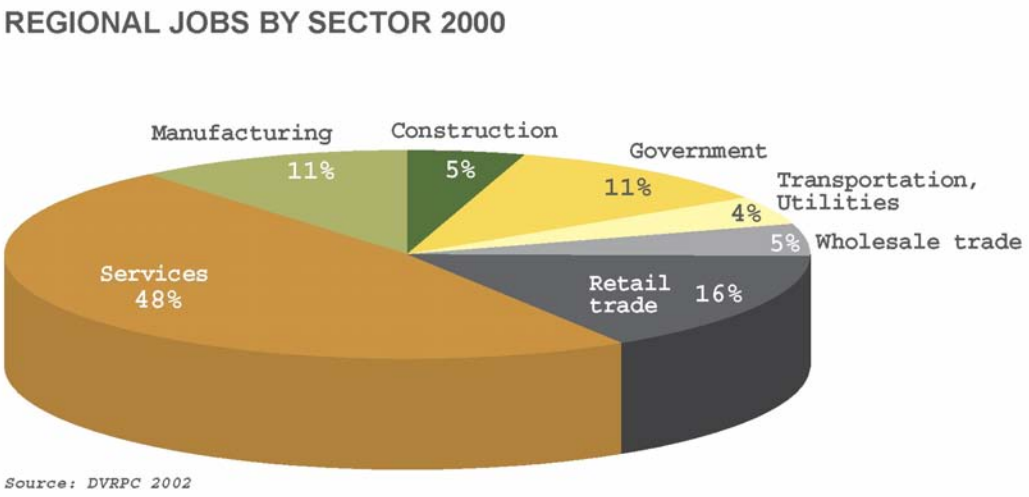
Post-Globalization by Sector

Virtually all industry sectors will be hit with post-globalization, but some sectors will have to make greater changes than others. Increased oil and transportation costs will eventually be passed on to consumers, affecting the price of not only gasoline but all products. The influence of higher oil prices may still be only a dribble. Eventually it may become a torrent.

The rate of inflation is affected by multiple economic factors from changes in interest rates to the level of current economic activity, and one can argue that increased oil prices will have only a marginal impact on organizations that use relatively little oil in the provision of goods and services. Such businesses would be in the financial services and insurance sectors, the health care, education and government sectors, and in many professional and technical services.

Since these sectors dominate our economy some experts claim that oil price hikes will have less of an effect on our economy today than in the past. But one can also prove that as the oil price doubles, inflation increases, influencing all sectors to some degree.

More importantly the viewpoint that oil is no longer important to the economy writes off the value of a number of sectors that together make up 41% of our employment, including transportation, manufacturing, construction, and wholesale and retail trade. These sectors would be heavily burdened by oil price-induced inflation and they would ultimately pass their increased costs onto consumers. Households, especially working and lower middle-class households, would not only



be spending a greater portion of their budgets on essentials like transportation and heating fuel which have direct oil inputs, but also they would be spending more on essentials such as food and clothing due to the indirect costs of oil. In the end, these changes could lead to less spent on healthcare, education, or financial services. In this scenario, if oil peak mitigation policies were not implemented proactively, world supply-demand balance will be achieved through massive demand destruction.

Consider the possible post-globalization futures of the agriculture, transportation, retail trade, wholesale trade and manufacturing sectors, now representing 36% of the regional economy. Starting with agriculture, modern intensive agriculture is highly dependent on fossil fuel inputs. Oil, and oil's sister fossil fuel natural gas (which may be in an even steeper arc of depletion) is used to pump irrigation water, replace nutrients in the soil, and to provide pest control. With rising costs of these direct fossil fuel inputs as well as the greater transportation costs, food prices will inevitably rise.

Transportation would be the sector most directly impacted by more expensive fuel and it is the sector whose rising expense could severely impact not just agriculture distribution but also the movement of goods, customers and workers in many other sectors. Transportation in America is presently over 90% dependent on oil, especially the cheap crude that is easily transported and converted to fuels. As they operate now, auto, airline and truck freight travel could become cost prohibitive to many households and businesses.

Everyone will be aware of rising prices at the pump, but the end of cheap oil may impact the transportation system in unforeseen ways. Both auto and truck freight could suffer as road repair suffers. The interstate highway system requires constant maintenance, which will be harder to achieve with less gas tax revenue.

Airline travel would be even shakier. The airline industry can hardly stay afloat in the current cheap fuel environment. Rising fuel prices could be just the thing to push it over the edge. This in turn would have an effect on the tourism and convention industries for example.

In addition to tourism other retail trade could be affected in the extreme. The big box business model may become untenable. It used to be said that as GM went so went America. In today's service economy this may be true for Wal-Mart, the big box giant and America's largest employer.

Wal-Mart and other retail sector businesses may have to change their business models significantly when the cheap-oil era ends. Currently this model is absolutely dependent on the cheap transportation of goods from China and the ability of households to purchase those goods by arriving at the Wal-Mart super stores by auto. The company claims that its profits drop in relation to gas price increases. In 2004, before prices had reached current levels, Wal-Mart Chief Executive Lee Scott said high gasoline prices reduced the typical Wal-Mart customer's disposable income by an average of more than $7 each week. (*Reuters News Service, May 13, 2005*) This phenomena could magnify, making Wal-Mart and retail chains like it much less of a bargain.

Both retailers and manufacturers will suffer from increased supply chain and distribution costs. These costs will increase faster than other business costs. Logistics productivity will decrease and suppliers of both goods and services will be forced to develop business models that use less transportation. Moreover, increased oil prices will mean an increase in the cost of raw materials of many products. Tens of thousands of the common products we enjoy today, from paints to pharmaceuticals, are made out of oil. They will become increasingly scarce or unavailable.

In summary the bad news is that due to the rise in oil prices, decreasing transportation flexibility translates into higher production and distribution costs. Inventory costs will increase. Retail

consumer traffic patterns and buying habits will change. Food costs will go up. The list of probable change is very long. Oil dependent enterprises will be forced to make significant adjustments.

But it is not all bad news. One possible outcome is that in an effort to drive down their costs, suppliers will attempt to accelerate their use of computer based inventory management systems and the Internet for distribution. On-line transactions can be tracked in order to tighten the distribution channel and reduce the need for excess inventory. Consumers will be encouraged to make their purchases from the supplier's website, rather than drive to the store. Home delivery services could proliferate, taking advantage of the efficiencies of linked trips.

The degree these strategies will be successful is unknown, but they do have some potential. The ability to solve some of these constraints with new technologies is the essence of the post-global business world. We have not left the 20th century for the 19th, but rather for the 21st century, an economy that has elements of both economic eras.

Finally, another possible outcome of post-globalization is an up-tick in local manufacturing. Manufacturing has been in decline in America over the past three decades largely due to globalization. However, that trend could reverse. Manufacturing of some goods could come back to the region as just-in-time delivery gradually migrates to local warehousing operations and some production moves closer to local consumers.

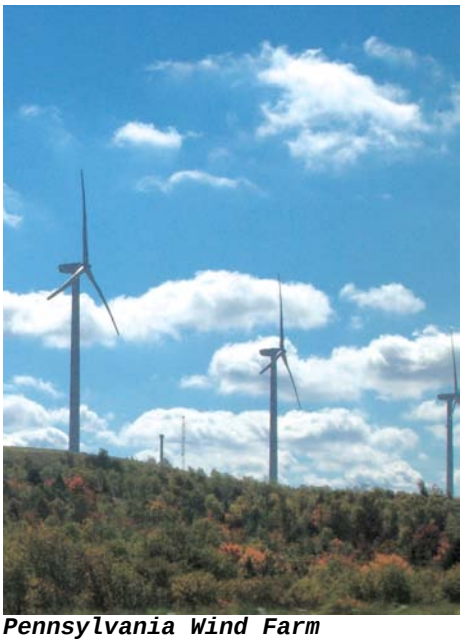
Post-Globalization and the Delaware Valley

The pressure of resource constraints could also spur new industries and clusters of industries that become the engine of our regional economy. Keep in mind the discussion of China and its environmental and resource constraints; the Chinese government is not oblivious to these problems and is pursuing policy to "Green" itself in sectors such as transportation and energy. Along with the actions of the EU and some American states, including Pennsylvania, these initiatives could serve as an economic engine for accelerating the development of green and energy saving industries around the world.

Governor Rendell has proposed an ambitious environmental and jobs plan to help make Pennsylvania a leader in emerging energy technologies. Rendell's plan promotes well-known alternatives such as wind, solar, and biomass as well as technologies that cleanly generate energy from waste coal and coal-bed methane. Other Pennsylvania legislation proposes requiring 10% of the state's energy to be generated alternatively within a decade.

The continued high tech aspects of a post-global economy could also generate growth for the region. The reports completed by DVRPC in 2003, *Analyzing the Region's Economic Base by*

Sector and *Analyzing the Region's Manufacturing Base*, noted the emergence of some interesting clusters that could bode well for the Delaware Valley in a world of post-globalization.



Pennsylvania Wind Farm

In the service sector, these industries include computer systems design integrators and other computer services, business that will continue to have relevance in the still highly connected post-global economy. And the region's specialties in engineering, the life sciences, and environmental consulting could also grow into prominent industries.

Although the manufacturing sector has been declining in the region, as it has been across the US and even around the world due to productivity and technology breakthroughs, the sector is still a valuable contributor to our economy.

From the region's current base we could see a revival in manufacturing activity. The manufacturing journal Industry Week states it well,

> "History tells us that new technology and innovation will return U.S. manufacturing to its former glory. In the '70s, low-cost foreign manufacturers captured the once-lucrative chip manufacturing business. U.S. manufacturers roared back with advances in microprocessors and launched the PC revolution. By the 1980s, PC manufacturing--the high technology of the day--moved offshore. Once again, U.S. high-tech manufacturing regrouped with new technologies clustered around the Internet and high-speed telecommunications." (Industry Week, June, 2003)

In a post-global world, our unique manufacturing base could be the incubator of industries that come back to the region to take advantage of proximity efficiencies as well as the incubator of growth industries that exploit the new realities of peak oil and other post-global resource constraints.

STRATEGY ACTION STEPS

Action Step 1: Foster Eco-Industry Clusters

Biotech is an industry in vogue amongst economic development practitioners. The competition for investment in this field is stiff. Every region wants to become a prominent center for biotechnology. An opportunity that economic development practitioners may not have considered for our region, however, is in Eco-Industries.

Along with the environmental concerns of global warming, water quality and sprawl, the arrival of Peak Oil early in this century suggests that this new sector in eco-industries could be huge. The fact it is off the radars of most regions means that most of its potential is available to be exploited.

With only 5% of the world's population, the American economy uses a quarter of the world's energy and material resources. This disparity leaves only room for another 15% of the world to live as we do now. Clearly there is a market and a future for a more sustainable economic model, starting with energy but affecting multiple sectors. As energy pressures increase, this market will begin to take off, perhaps in the coming decade.

Economists usually argue against resource depletion doomsday scenarios because of their belief that the market will eventually fill in the gap. The economists may be right, but if economic development has any value the most successful regions will be those that aggressively seek new opportunities. They will be the metro regions that spawn the industries to solve the problems of our society's conversion to a new energy regime and confront other sustainability issues. Essentially they will be turning energy efficiency and ecological sustainability into a competitive economic advantage.

There have been a number of different names for this burgeoning new economic sector, terms such as natural capitalism and the restoration economy (*Storm Cunningham, August, 2003*). For brevity we will call this new sector the Eco-Economy, the term coined by Lester Brown of the Earth Policy Institute.

Development through a New Energy Regime

The Eco-Economy has many options for new growth industries. Obvious candidates would be in the development of renewable energy systems including wind generation, hydrogen fuel cells, or solar. Much sophisticated energy technology in these areas is being driven by state and local government initiatives such as Pennsylvania Governor Rendell's plans described earlier. This state level interest has translated into a strong business cycle for renewable energy that is acting

as a catalyst for the increasing presence of renewable energy in the US market. All over the country states are setting minimum renewable energy requirements for utilities. Additionally, states are using combinations of tax breaks and government outlays to shift utilities from fossil fuels.

Seeing the potential in the renewable energy industries, many major metropolitan areas are getting on board with renewable energy initiatives as well. So far Chicago, Austin, San Francisco, Boston and Seattle have stood out with their energy programs. As David Reynolds of the Chicago Department of Environment stated, "The idea isn't just conserving energy…It's also about increasing Chicago's competitive edge as a place of business" (*Neil Pierce, August, 2004*)

Photovoltaic Technology, Chester County

Renewable energy is not just a vision for the future; clean energy is already a fast growing industry expected to grow from 10 to 100 billion dollars within the decade. Besides government the industry includes major players such as British Petroleum, General Electric, Sharp and Shell.

Wind technology is one of the fastest growing sections of this industry. Wind has quickly become cost competitive with fossil fuels. According to Clean Edge Inc. a San Francisco based clean energy consulting firm, wind was a 7.5 billion dollar industry in 2003 and is expected to grow to a 47 billion dollar industry within a few years. Wind currently supplies 1% of US energy but the geography in North American could allow for it to be several times larger. Increasingly, renewable energy technologies and energy efficiency technologies will become high growth opportunities. Our region should be a player in these emerging fields.

Development through New Transportation Systems

Retrofitting the transportation sector with more sustainable technologies could be a huge job-generating engine. Oil based fuels are unique in that they provide the portability and energy density transportation requires. Oil is special in that it is much better suited for transportation than other sources of energy, including uranium, coal, natural gas, rivers, wind, and the sun. Changing our oil based fleet and infrastructure is an incredibly large project that will require a great deal of government intervention. Whether we change our land use, trip habits, or reinvent our current fleet to other fuels, it will not be easy or quick.

Federal funding is essential for the transportation sector. The SAFETEA-LU federal transportation legislation will provide needed funding for infrastructure upgrades and maintenance for the next four years, but more and different kinds of transportation investments will be needed to support a shift in our energy regime.

The DVRPC long-range plan defines the region's transportation policies and investments through the year 2030. The plan seeks to reduce congestion, enhance the environment and reduce gasoline consumption by promoting the use of public transit, bicycle and pedestrian facilities, telecommuting and ridesharing.

DVRPC Transportation Initiatives

In addition, both the plan and the short-term capital improvement program already support the use of low-emission vehicles, low-polluting fuels, and cleaner fleets through investments in SEPTA hybrid electric/diesel buses and a regional car-sharing program. In coming years there will be more opportunities to support these types of initiatives, which in turn can support new businesses and technologies developed within the region.

At the national level, The Apollo Alliance is a diverse group including the Sierra Club, the Natural Resource Defense Council, and many unions. They are promoting an economic development plan that would invest 30 billion dollars annually for a decade to boost renewable energy, while retrofitting transportation infrastructure for more efficiency by promoting multimodal transportation systems, hybrid and other automobile efficiency technologies.

SUSTAINABLE ECONOMIC INITIATIVES SINCE 2001 in the DELAWARE VALLEY

YEAR	INITIATIVE	SPONSORS	MISSION
2001	Coalition formed to increase use of renewable energy.	Renewable energy businesses, non-profits, and government in PA,NJ, DE, and MD	Renewable Energy
2001	New Jersey launches state-level Industries Of the Future (NJIOF) program; goal is involvement of all New Jersey manufacturers in the development and implementation of energy saving and waste reducing technologies.	New Jersey industry and government alliance led by the New Jersey Small Business Development Center	Energy Efficiency
2003	Rebuild Philadelphia expands green schools program to University of Pennsylvania and Drexel and to low income neighborhood groups.	City of Philadelphia	Green Buildings
2003	Greater Philadelphia Clean Cities plans for the first E85 (85% Ethanol) station in Center City, Philadelphia.	Utilities, non-profits and governments in Philadelphia, Bucks, Chester, Delaware and Montgomery Counties	Alternative Transportation
2003	Incentive program for biobased products and fuels with the following goals: -Increase the number of biobased products on state contract from zero to 10 in each state. -Displace 1 million gallons of heating oil with biodiesel. -Establish ten E-85 and ten B-20 new refueling stations in the four state region.	States of PA, NJ, DE, and MD and The CONEG Policy Research Center, The New Uses Council, the Biobased Products Manufacturers Association, and World Energy Alternatives	Biofuels
2003	Pennsylvania Energy Harvest grant program created; $176,685 in grants awarded to 3 projects in Southeastern Pennsylvania.	Pennsylvania Department of Environmental Protection (DEP)	Renewable Energy, Alternative Fuels
2004	2nd round of Pennsylvania Energy Harvest grants; $1,046,996 awarded for 11 projects in Southeastern Pennsylvania.	Pennsylvania Department of Environmental Protection (DEP)	Renewable Energy, Alternative Fuels
2004	Alternative Energy Portfolio Standard adopted; goal of 18% of states energy from clean sources in 15 years.	Commonwealth of Pennsylvania	Clean Energy
2004	Pennsylvania reauthorizes the Pennsylvania Energy Development Authority and awards $2,318,700 to 6 projects in Southeastern PA.	Commonwealth of Pennsylvania	Energy, Renewable Energy,
2005	3rd round of Pennsylvania Energy Harvest grants; $302,360 awarded for 6 projects in Southeastern Pennsylvania.	Pennsylvania Department of Environmental Protection (DEP)	Renewable Energy, Alternative Fuels
2005	NJ BPU teams with BP Solar and Home Depot to offer solar systems in 65 areas throughout New Jersey. This is in addition to their 70% rebate for consumer solar systems.	New Jersey Board of Public Utilities (NJ BPU)	Solar Energy

Source: US Department of Energy, 2005

Additionally, a powerful alliance of military and intelligence experts are imploring the current administration to reduce US consumption of oil in the name of national security (*NY Times, April, 2005*). A consensus is forming that since over two-thirds of our oil is used for transportation, it is the area on which to focus government efforts. The US military, often a source of research and development, is already studying the conversion of its fleet of vehicles to non-fossil fuel dependent systems. (*Amory Lovins, October 5, 2005*)

With so many powerful forces on the left and the right of the political spectrum focusing on the issues of transportation and oil dependence, economic development opportunities in this area are probably less than a decade away.

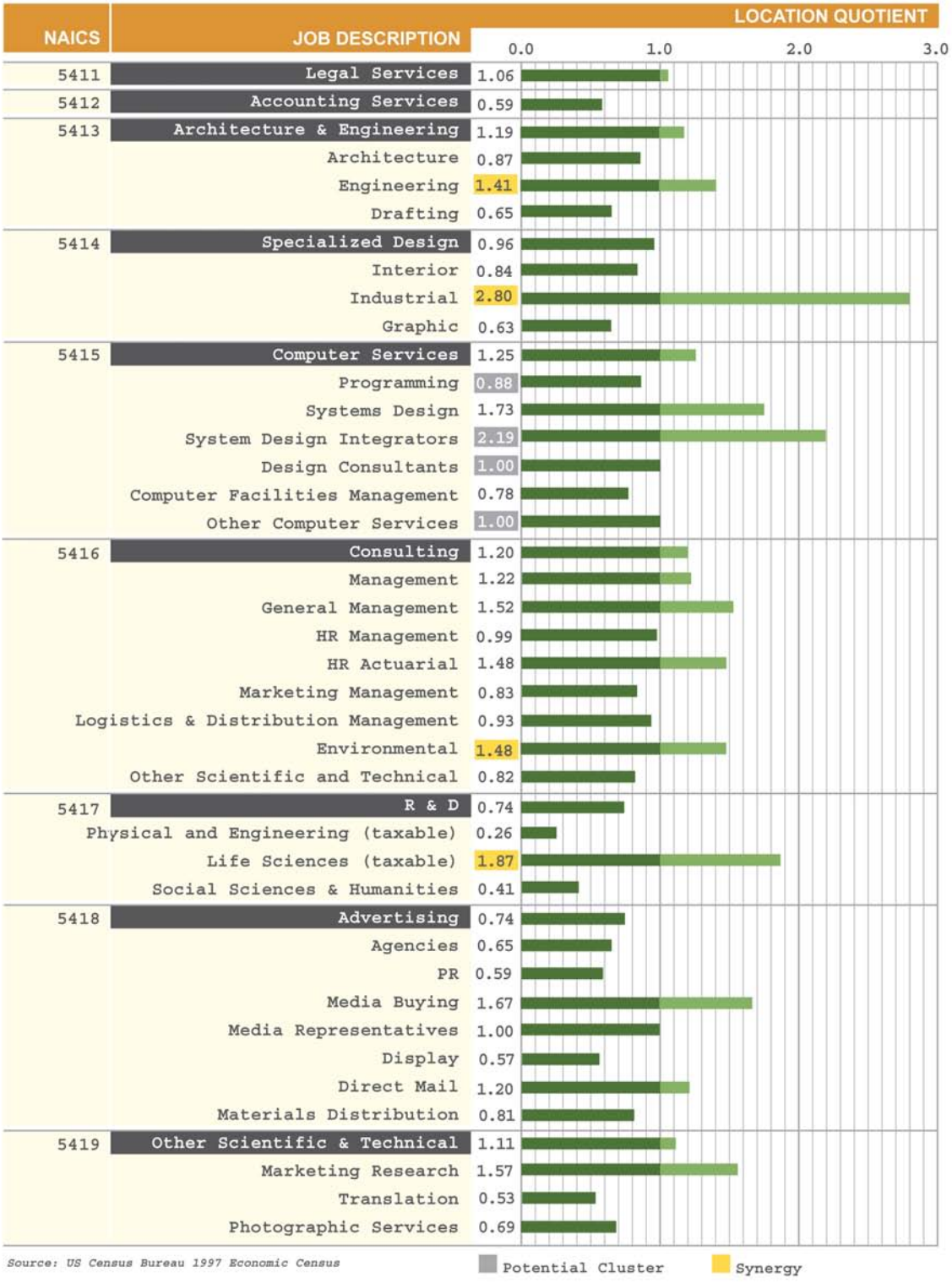
Development through Green Industries

Other fields that could grow in the new Eco-Economy include brown fields remediation, adaptive reuse, green architecture, watershed or stream restoration and historic preservation to name just a few facets of this burgeoning new sector. These industries are in a period of consolidation before entering a high growth stage. As these industries become more advanced they will also begin to form synergies between themselves.

In the words of Storm Cunningham, editor of the quarterly *Restoration Economy Leader*, “The communities that bring together a critical mass of government, academic, and business organizations to address restorative development will carve out an economic niche for themselves that will likely last for a long time...Unlike the Internet bubble, during which everyone wanted to be a Silicon Valley phenomenon, the restoration economy is solid and will continue to grow for decades.”

Our region is in a unique position to take advantage of the upward trends in these industries. The following figure, from DVRPC’s Analytical Report # 10, *Analyzing the Region's Economic Base by Sector*, indicates some of our strengths in the professional and scientific services, NAICS code 54, and how these strengths may interact with each other to form economic synergies and clusters. Sectors with location quotients above one represent exporting industries. This figure shows that by the late 1990’s the Delaware Valley was already a leader in environmental consulting as well as life science research. Industrial design and engineering were also strong, and the region had at that time a burgeoning cluster in computer networking. If developed appropriately, all of these industries could make us a leader in many aspects of the eco-economy.

REGIONAL LOCATION QUOTIENTS FOR NAICS 54



Source: US Census Bureau 1997 Economic Census

Action Step 2: Promote Location Efficiency

A truly comprehensive strategy should not be limited to the promotion of eco-industries. Site selection assistance has been a significant role of economic development. In a post-global economy where location becomes more critical to many businesses, this role will likely intensify. As a region we should be promoting location efficiency for both firms and communities.

Earlier this report discussed how business location decisions may change, noting that with fossil fuel-based transportation becoming more costly, locations next to less expensive transportation options such as rail and ports could become preferable. As a result center cities and older towns and communities in these locations may also become more valuable, while locations that require long distance driving for customers, suppliers or employees may become problematic. Moreover, whether or not older communities are located on ports or near rail they may have location efficiencies characteristic of their pre-auto era development patterns, such as access and orientation to transit. Redistributing jobs and populations to these existing communities is already a major component of DVRPC's 2030 vision for regional growth management. In a post-global economy we may need to strengthen these growth management measures.

Locating firms in developed locations will not be as easy as allowing the development of green-fields has been on our region's fringe. Along with current incentives such as tax breaks, grants, and loans, firms will require assistance negotiating the complex regulatory issues of developing in existing communities.

Financial incentive programs already exist in both New Jersey and Pennsylvania to promote business expansion and attraction. New Jersey has developed the Business Employment Incentive Program to provide grants for state income taxes based on the number of jobs created by relocating or expanding businesses. Pennsylvania's incentive program is more site-oriented. It has created Keystone Opportunity Zones, parcel specific areas with reduced tax burdens. These programs could be expanded to meet the needs of firms burdened by rising energy costs. Additionally, these programs will need to become more focused on locations that create efficiencies in transportation and land use.

Promoting location efficiency policies is a three-step process. It starts with the characteristics of the actual sites, moves up to the characteristics of the community, and is further enhanced by the way in which these sites and communities are connected to each other.

Green Buildings

The first policy step should be a renewed focus on building in a more "green" way. A green building, also known as a sustainable building, is a building that is built, renovated, or operated for resource efficiency and ecological fitness. Water efficiency, materials efficiency and energy efficiency, as well as the ecological attributes of a site, are all considered when building green. To dramatically improve building energy performance, firms can employ passive solar design strategies that include the shape and orientation of the structure. Buildings can practically heat and cool themselves via these passive solar designs. Geothermal heat pumps can help transfer heat, and lighting systems can utilize natural light as well as energy saving high efficiency lighting systems. To promote recycling firms can select sustainable construction materials with high-recycled content. Dual plumbing systems can use recycled water for toilets or gray water systems that recover rainwater for irrigation. Finally by adapting alternative energy systems, such as photovoltaic solar panels, fuel cells, or wind turbines, firms may even produce energy beyond their immediate needs.

The Cusano Environmental Education Center, Delaware County (courtesy USFWS)

Features include: Energy Star Rated, Geothermal Heat Pump, Passive Solar, Recycled-materials

A green building does not necessarily cost more up front. If efficiency is properly modeled from inception, component-building costs may actually decrease. But most of all a green building saves through lower operating costs over its lifespan. Firms willing to build green should receive policy assistance. The Apollo Alliance recommends the financing strategies of revolving funds, and energy savings performance contracts for example. Revolving funds are set aside to provide low to no interest loans to businesses interested in green building. The savings in energy repay the loan. The cities of Duluth, Minnesota and Escanaba, Michigan are already experimenting with revolving funds. Energy Savings performance contracts enables businesses to receive detailed assessments of potential energy savings as well as the contracts to perform the retrofits. Redlands California is experimenting with this tool. (The Apollo Alliance, High Performance Cities Guide, 2004)

Simply retrofitting or building new green structures, however, without changing how these buildings relate to each other will not be sufficient. The next policy step will be to strengthen the location efficiencies of entire communities.

Smart Growth

Smart Growth is the term in vogue for promoting location efficiency. Smart Growth America is a national network of state, local and national organizations promoting a diversity of causes from historic preservation, to better transit, to open space protection. The smart growth movement has been criticized for trying to encompass too many issues, a litany of good planning rather than a focused strategy. As resource constraints intensify Smart Growth may become a more focused imperative for firms than simply a wish list of community advocates.

Embedded firmly in the center of Smart Growth is the idea of reinvesting in centers, which is also a central tenet of the DVRPC Year 2030 Plan. By redeveloping existing communities government can cut duplicative infrastructure costs. Additionally, the densities and spatial relationships of older development patterns have an inherent energy savings.

Destination 2030, DVRPC's current long-range plan, recognizes the diverse character of our region's communities, but also advocates for a more efficient and sustainable pattern of regional growth and associated infrastructure investment. By building on the strength of our core cities through redevelopment and renewal, we can maintain and enhance the quality of life and increase their appeal as a place to live, work and visit. Older suburbs and boroughs, many of which grew initially around transit lines, offer an opportunity for affordable housing, a walking and bicycling environment, easy access to transit and a strong community identity. Efforts to enhance the character and environment of these communities through investments in local schools, brown-field redevelopment, enhancement of arts and culture, and historic preservation will create a positive environment both for new residents and for new business investment.

In our region's growing suburbs, the DVRPC plan encourages new growth and development to locate within and around defined centers and along major transportation corridors. Through growth management and improved community design, a more concentrated and energy-efficient development pattern would emerge, with higher densities to provide the critical mass that can support new transit services and other mobility alternatives to the single-occupant automobile. The perceived negative impacts of this higher-density development can be mitigated through greater attention to the quality of design and architectural character, in terms of the location and arrangement of buildings and parking areas, landscaping, signage and other design features. Preservation and creation of a coordinated system of open space and recreational areas is also a priority goal and strategy in these communities.

Transit-oriented Development

As energy and gasoline prices continue to rise, the advantages of our region's rail and transit infrastructure will continue to become clear. Communities that are well served by transit will have a location advantage for both new residents and new businesses seeking an accessible labor force and customer base. While many communities in the Delaware Valley initially developed over a century ago around the emerging rail network, we are now re-discovering the art and advantages of transit-oriented development.

Transit-oriented development (TOD) is compact, mixed use development within an easy walk of a transit station. Its pedestrian-oriented design encourages residents and workers to drive their cars less and ride mass transit more.

Adaptive Reuse and Transit-oriented Development, Burlington County

TOD can be done successfully with different modes of public transit, such as heavy commuter rail, light rail, bus rapid transit, and inter-modal facilities that combine these different modes. The closer the development is to the transit, the more successful the TOD. Preferably, the development should cluster around the station gradually decreasing as development moves away from the core. Commercial development should be located closest to the transit creating an economic center. However, residential development would also be a part of the mix with minimum required densities. One half mile or further from a station would be less dense but still relatively compact.

The economic justification for TOD is slowly becoming apparent. The Denver Regional Transportation District, for example, in promoting their region's expanding TOD program made the observation that,

> "… land values within a ¼-mile from a Light Rail station generally experience a substantial premium (average of 20%) over similar properties located more than ¾ of a mile from the station. Retail and office buildings are experiencing lower vacancy rates and up to 50% increase in rental rates. A portion of the premium is due to the comparative density, but a portion is also due to the desirability of these areas, and

the amenity value of transit. TOD's create a "critical mass" of activity that benefits surrounding businesses and generates significant economic activity for the community beyond the boundaries of the transit village itself."

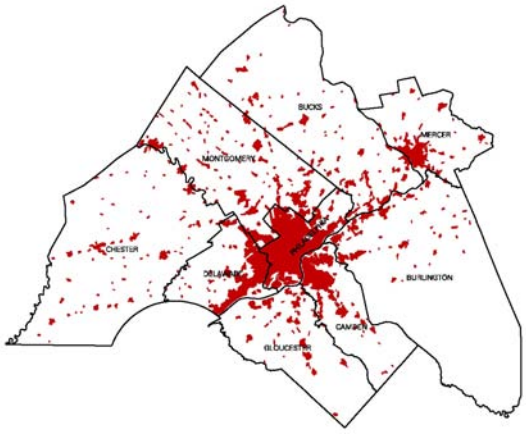
A system of TODs along the rail corridors of the Delaware Valley in the aggregate could generate substantial energy savings and other economic clustering benefits for the region. The Delaware Valley already has multiple TOD sites due to our historic rail and transit systems. As the constraints of the post-global economy intensify, these rail and transit assets already bestow our region with a competitive economic advantage.

During the past 50 years of sprawling development some of these TOD sites have deteriorated. DVRPC has conducted an inventory of over 40 potential TOD sites within our region that are appropriately located with the available infrastructure to support new development. DVRPC is working directly with a number of communities to advance their transit-oriented development plans. Both Pennsylvania and New Jersey have grant funding and technical assistance programs to encourage communities to plan for and implement TODs. The economic development benefits of Business Employment Incentives and Keystone Opportunity Zones can be maximized if coupled with these TOD plans.

Action Step 3: Invest in the Environment

Notwithstanding more recent redevelopment in our cities and suburbs, suburban sprawl has been the dominant form of development in the region for decades. In the later half of the twentieth century the rate of land developed in the Delaware Valley has increased at five times the rate of population growth. Since 1970 this trend has accelerated, with the rate of land developed increasing nine times the rate of population growth.

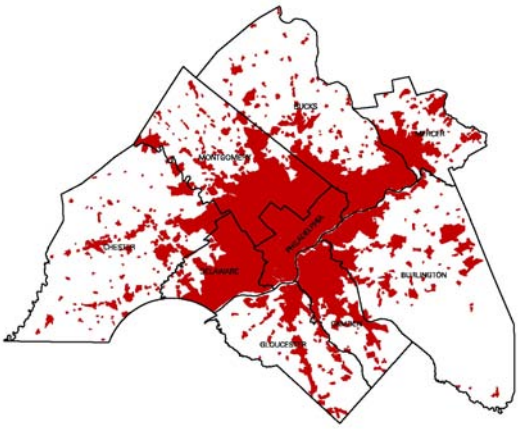
Extent of Regional Development 1930



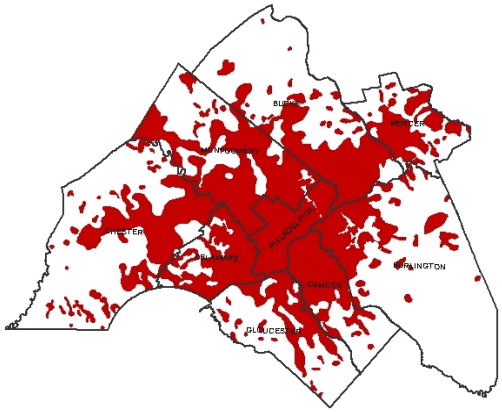
While acknowledging these realities, DVRPC is promoting the redirection of a significant share of this growth back into our region's older towns and centers. Minimizing sprawl is central to DVRPC's growth management vision for the region to 2030.

The following images were taken from the DVRPC 2030 plan. They demonstrate the effects of sprawl from 1930 to 2000. The DVRPC's vision is to counteract this growth

Extent of Regional Development 1970



Extent of Regional Development 2000



by redeveloping centers, including smaller boroughs and neighborhood centers, as well as larger county and regional centers, such as King of Prussia and Center City.

Clear economic benefits of this growth management plan are the elimination of duplicative infrastructure costs and reducing the need to spend public funds on expensive traffic mitigation strategies. From an economic perspective environmental benefits of this plan are often considered fortunate by-products. The DVRPC believes this viewpoint is shortsighted. The prosperity of the Delaware Valley is closely tied to the quality of the region's land, air and water.

The Delaware Valley is located at the heart of a dense North America population corridor; the land in our region is some of the most threatened in the states of New Jersey and Pennsylvania. We must invest in our environment to avoid the potential of an acute environmental crisis and its economic impacts. This report has two recommendations for investing in our environment: open space protection and "re-visioning" sprawl.

Open Space Protection

Promoting location efficiency will have positive environmental consequences in addition to its economic benefits, but the best economic strategy will consider more than the developed areas where firms locate. Developed space and open space are complementary. While promoting location efficiency the region must also be protecting open spaces outside our business centers.

There are multiple economic reasons to protect open space. The environment provides vital services essentially for free. These services mostly occur in our region's protected, open lands.

- Tree canopies and forests: Absorb urban storm water, sequester air pollution and provide energy savings for developed areas.
- Wetlands: Clean ground and surface water, and mitigate coastal and other flooding.
- Reparative Vegetation Buffers: Stop soil erosion, filter pollution, and maintain water quality.

When these systems join forces as a healthy eco-system, they limit economic risk to the region. They provide an insurance policy against the externalities of our economic activity.

In the worst case scenarios excessive environmental degradation can cause systemic economic collapse. When an ecosystem fails, so does the economy. Throughout history whole societies and cities have collapsed that have ignored the health of their environments. The Delaware Valley is not immune to this process. The ultimate contribution of open space protection to the economy therefore is to limit this economic risk.

Economic development policy must not be so shortsighted that it ignores these critical environmental issues. While an economic strategy may not be directly involved in environmental protection it should not be working against it. Open space policies across our region are already putting pressure on development, priming the region for the shift back into urban centers. Coupled with the resource constraints of a post-global economy and concerns about environmental events such as climate change, this small shift could become a torrent. Economic Development practitioners must be prepared for this change.

Beyond Sprawl

In 2003 a DVRPC report on the manufacturing sector noted that the sprawl economy has become a critical support to the remaining manufacturing jobs in our region, as well as a major economic engine for the region. “From mortgage financiers, to construction contractors, to furniture movers, sprawl stimulates the local economy in a myriad of ways. In the most recent recession, the Sprawl Economy has been one of the few bright spots of economic activity.” The following chart from that report indicates sprawl related jobs in just the manufacturing sector.

The manufacturing report also claimed, “a variety of factors—water and air quality issues, continuing traffic snarls, … and even public health concerns—suggest a change [to the Sprawl Economy] will come”. (*DVRPC, Analyzing the Region’s Manufacturing Base, October 2003*) The greatest impact on sprawl, however, is likely to be the energy constraints of peak oil described in this report. The Sprawl Economy will not fare well in a post-global world.

REGIONAL SPRAWL ECONOMY MANUFACTURING JOBS

NAICS	CATEGORY	JOBS	LQ Above 1
324	Petroleum & coal products mfg	4707	2.93
[32411]	[Petroleum Refineries]	[3354]	[3.43]
[32412]	[Asphalt paving, roofing, mfg]	[375]	[1.88]
325	Chemical mfg	21387	1.62
3255	Paint, coating, & adhesive mfg	1841	1.64
326	Plastics & rubber products mfg	11455	-
3261	Plastics product mfg	10393	-
331	Primary metal mfg	9586	1.05
3311	Iron & steel mills & ferroalloy mfg	3815	1.7
3312	Steel product mfg from purchased steel	1287	1.32
[33121]	[Iron & steel pipes and tubes]	[744]	[1.80]
3313	Alumina & aluminum	1296	1.02
332	Fabricated metal product mfg	28785	1.09
[332114]	[Custom roll forming]	[315]	[1.39]
3323	Architectural & structural metals mfg	6048	1.06
[33232]	[Ornamental & Arictectural Metals]	[4699]	[1.32]
3327	Machine shops, turned product, & screw, nut, & bolt mfg	9365	1.48
[33272]	[Bolts, nuts and screws]	[3960]	[1.99]
3329	Other fabricated metal product mfg	6253	1.28
[332913]	[Plumbing Fixtures and Trim]	[750]	[3.10]
[332996]	[Fabricated pipe and pipe fitting]	[736]	[1.68]
335	Electrical equipment, appliance, & component mfg	7227	-
3351	Electric lighting equipment mfg	2570	2.3
[335121]	[Residential Electric Lighting Fixtures]	[1306]	[4.95]
[335122]	[Commercial Electric Lighting Fixtures]	[976]	[2.83]
336	Transportation equipment mfg	18157	-
3363	Motor vehicle parts mfg	10455	-
337	Furniture & related product mfg	7671	-
3371	Household & institutional furniture & kitchen cabinet mfg	2920	-
3372	Office furniture (including fixtures) mfg	4529	1.74
[337212]	Custom Architectural Woodwork	[773]	[2.13]

Source: DVRPC, 2003, Analyzing the Region's Manufacturing Base

A Brookings Institute study from 2001 indicates our region is high in job-sprawl, a diffuse pattern of employment where a majority of jobs are located 10 miles beyond the primary central business district. With nearly 60% of our employment 10 miles beyond the CBD and only 16.5% within it, Brookings places Philadelphia in the decentralized employment metros category. (*Edward Glaeser, July, 2001*)

For many municipalities in our sprawling region, whose prospects are not bright in a post-global world, it will be essential to look for economic development opportunities in unusual places. Agriculture for example has been off the economic development radar in urban regions for

decades. Indeed, jobs have been so insignificant in this sector that agriculture often does not appear in a break down of the region's employment. But this may no longer be a sector to ignore. Despite the region's sprawling development patterns, over 500,000 acres of land still remain in agricultural use, representing over 20% of all land in the nine-county area. The post-global problems expected to impact the agriculture sector also provide opportunities. There are two prominent possibilities: local organic farming and bio-fuels.

Regardless of judgments about the economic value of food related jobs, food service is a major part of our economy. Martin Shields, Penn State professor of agriculture and regional economics, attests to the importance of food service in Southeastern PA. According to Dr Shields, of the top 10 growth industries in Southeastern PA, food and drink services ranked number 7, adding at least 3000 new jobs to our region since 2000. For the rest of Pennsylvania, however, in the same period food and drink services had the greatest job growth, accounting for over 10,000 jobs. With a total of 13,000 plus jobs, food and drink services were the fourth fastest growing occupation category in this decade. (Martin Shields, September 2005)

The New Jersey side of the region is showing similar levels of job creation in this industry. The New Jersey Department of Labor conducts 10-year occupational and industry projections. Food and drink services ranks fifth among top ten growth industries from 2002 to 2012. Rather than having the inputs of this industry shipped in from elsewhere, we could strive to retain some food industry dollars locally by promoting local agriculture. In this scenario some low-income food service jobs could be replaced with the more specialized jobs of urban agriculture.

Locally raised food and organic farming are quickly becoming profitable agriculture alternatives. While these types of agriculture lack economies of scale they do have the advantages typical to smaller businesses such as closer consumer relationships and nimbler market response. In the constantly changing markets of health and dietary concerns these characteristics could be more valuable. But more than these market strengths, locally and organically grown food has the advantage of being less fossil fuel driven than agribusiness. This attribute should be an advantage in a post-global economy. Many small farmers interested in the profits of the local, organic farm markets shun the organic term, thus the industry has been dubbed "low-input farming". The new name gets to the point of why the organic market is an emerging economic opportunity in many communities. The question is whether or not low-input farming is viable in the sprawling Delaware Valley.

A premier example of local low-input farming is in the Kensington neighborhood of North Philadelphia. Greensgrow Farms was founded in 1997 on the site of a former industrial brown-field, "with the idea of selling right off the farm produce to Philadelphia chefs". As the Greensgrow website claims, "We picked it in the morning and delivered it that afternoon. To insure freshness

and save on bridge tolls, we built Greensgrow Farms just 3 miles from downtown Philadelphia. Today Greensgrow is a nationally recognized leader in urban farming, still selling to local restaurants."

Greensgrow Farms, Philadelphia County

(Photos courtesy of Greensgrow Farms)

If low-input farming can be successful in Kensington, it can be done in other communities in our region. As both the market for these products and the costs of "high-input" agribusiness increases, low-input farming may become a feasible economic development strategy.

The emerging Bio-fuels industry is another example of an agriculture opportunity in the region. Local bio-fuel plants would also provide manufacturing jobs. Bio-fuels are short for fuels produced from biomass. Corn-based ethanol has existed since the 1970s; however, there are new technologies that allow ethanol and bio-diesels to be produced from a myriad of agricultural raw materials. Even recycled cooking grease and oil can be turned into bio-fuels, and these fuels can often be used in conventional engines with minor to no modifications.

Bio-fuels manufacturing is similar to the fermenting and distilling techniques of a brewery. Due to environmental laws requiring ethanol fuel additives these manufacturing facilities are already producing 12% of the gas content of U.S. fuel. Moreover, this market is growing as states switch controversial additives like MTBE to eco-friendlier bio-fuels. The United States Department of Agriculture estimated that a 100-million gallons a year ethanol facility would create 2,250 local jobs in a single community (*U.S. Department of Energy, September, 2001*). As fossil fuel costs increase, the demand for these facilities will likely grow as well. To find sustainable economic opportunities like low-input farming and bio-fuels requires nontraditional economic development

thinking. The region must not let biases against certain sectors or industries, insignificant in the recent past, color our search for the economic opportunities of the future.

Action Step 4: Become a Model Region

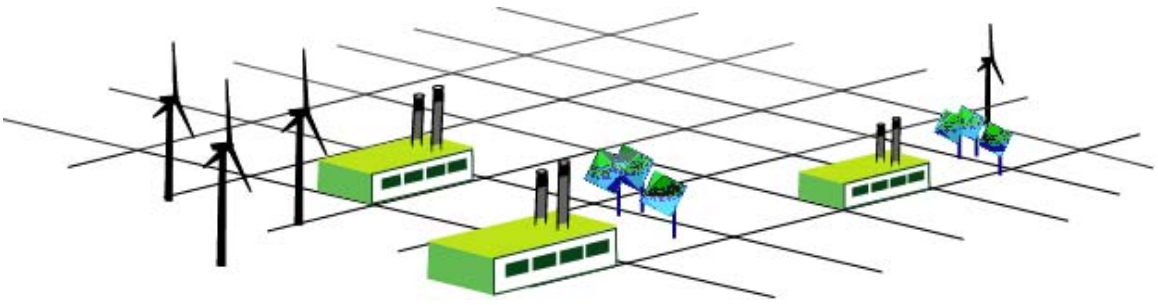
The next action step is to bring action steps 1 (fostering eco-industry clusters) 2 (promoting location efficiency) and 3 (investing in the environment) into a unified vision. The Delaware Valley could become a model sustainable region.

In this model, transit and other smart transportation investments will connect dense nodes of mixed-use development in established centers. These centers will produce some of their own energy from the new energy regime, and will be built and employ green technologies from emerging green industries. Additionally these nodes will be working symbiotically with nearby open space and some former sprawl that can participate in the economy via new industries such as low-input agriculture and bio-fuel production.

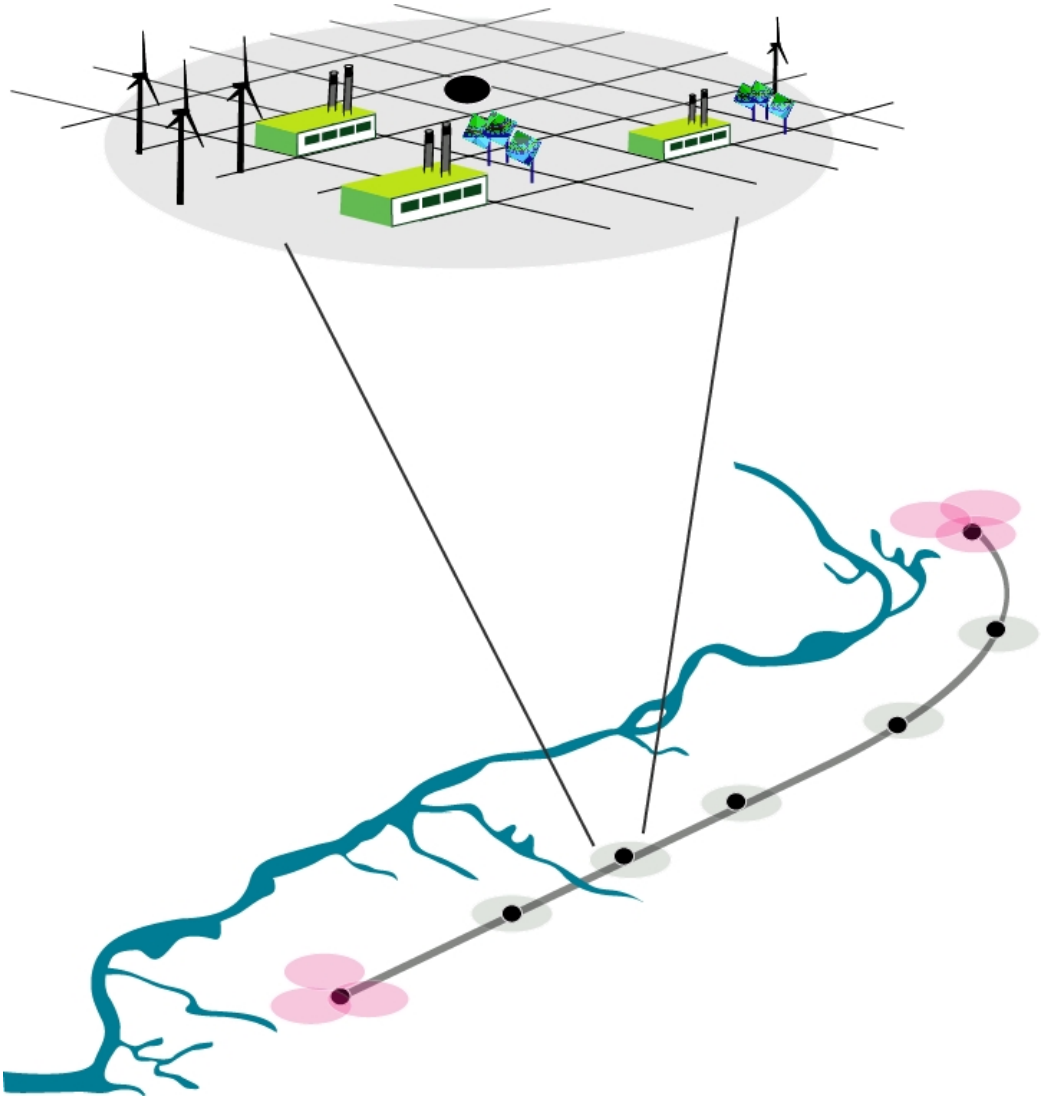
Essentially, these centers and their surrounding areas would be ‘city cells’, analogous to the cells in a living organism: producing some of their necessities while also being connected to the economy of the region. Since different industries or institutions will dominate each of these city cells, this model allows for the economic benefits of specialization and sustainability.

This is not simply a utopian vision but a strategic layering of the emerging trends discussed in this report. Without the vision, however, the parts may not realize their potential. To be truly catalytic these strands of a sustainable economy must be juxtaposed in the same geographic space. The model region is easier to represent pictorially.

1: Green buildings or green industry clusters

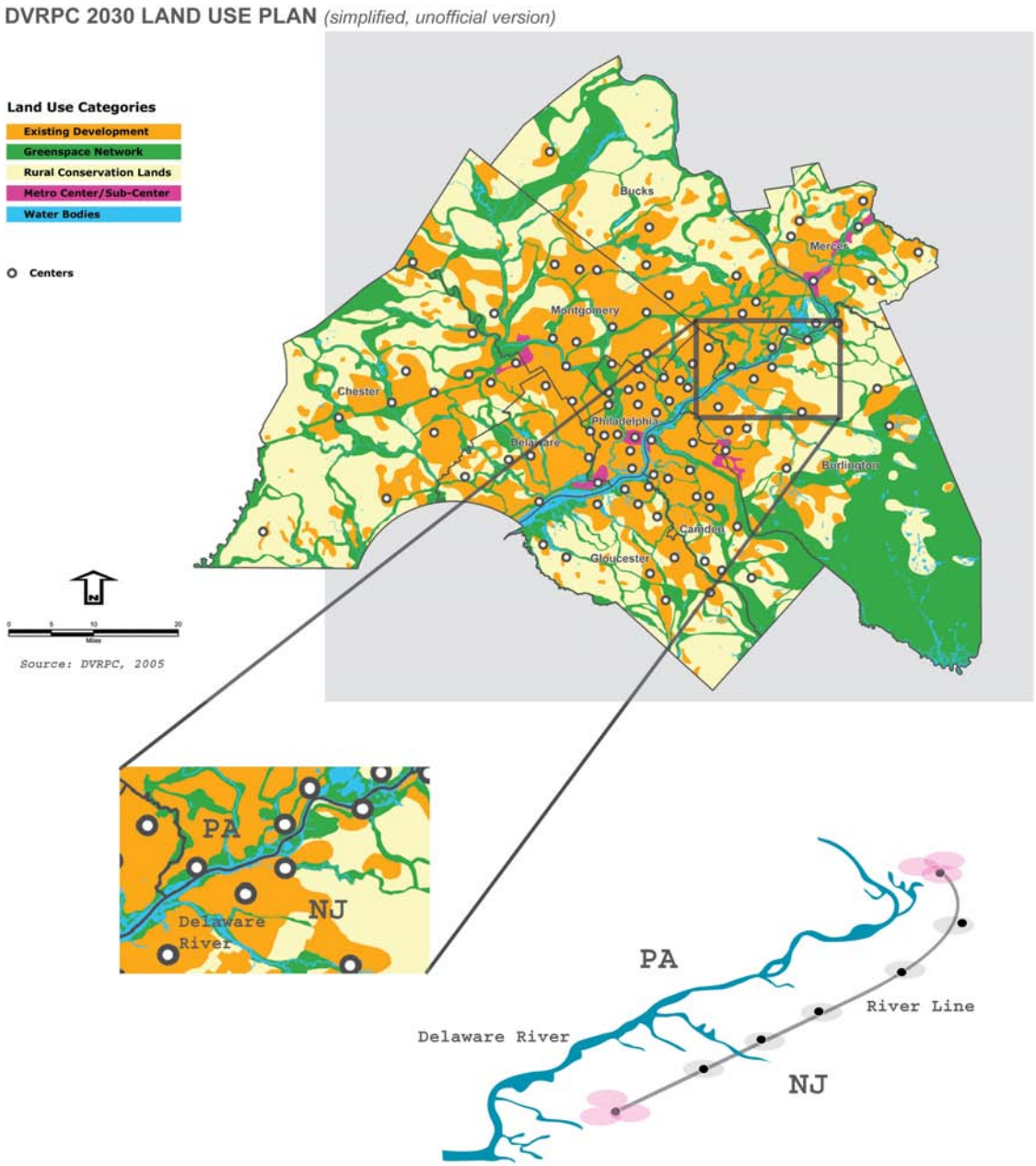


2. Located in dense cells of mixed-use development in established centers



3. Connected to other cells by transit and other smart transportation investments

4. And integrated with nearby open space and former sprawl



Action Step 5: Eco-Brand the Delaware Valley

There are numerous ways Greater Philadelphia could profit from the energy and resource challenges that will be facing our economy in the coming decades, but an Eco-economy could be much more than a basket of profitable industries and public investments. It could even be more than just a local vision. It could also be the brand the Delaware Valley desperately needs.

In recent years there has been a lot of discussion about the need to market our region. The consensus is that our region has most of what it needs to succeed—quality amenities, diverse industries, geographic proximity to global centers such as New York and Washington DC, but few people outside the region seem to see it.

Indeed, marketing was the dominant theme at a discussion held not long ago at a DVRPC-sponsored vision session with representatives of our region's major economic development entities. As that group concluded, the region needs to do a better job of packaging and selling itself. But the idea that we can simply 'better sell' the region is extremely outdated.

Modern marketing implies a lot more than a flashy advertisement or a good media-relations campaign. These promotions are known in the business world as aspects of branding and they come at the end of an involved process of focusing the region's resources into a strategic plan. By fostering the Eco-economy in this report's first four action steps we have the outlines of that plan. After those goals are set into motion, we can safely move on to branding.

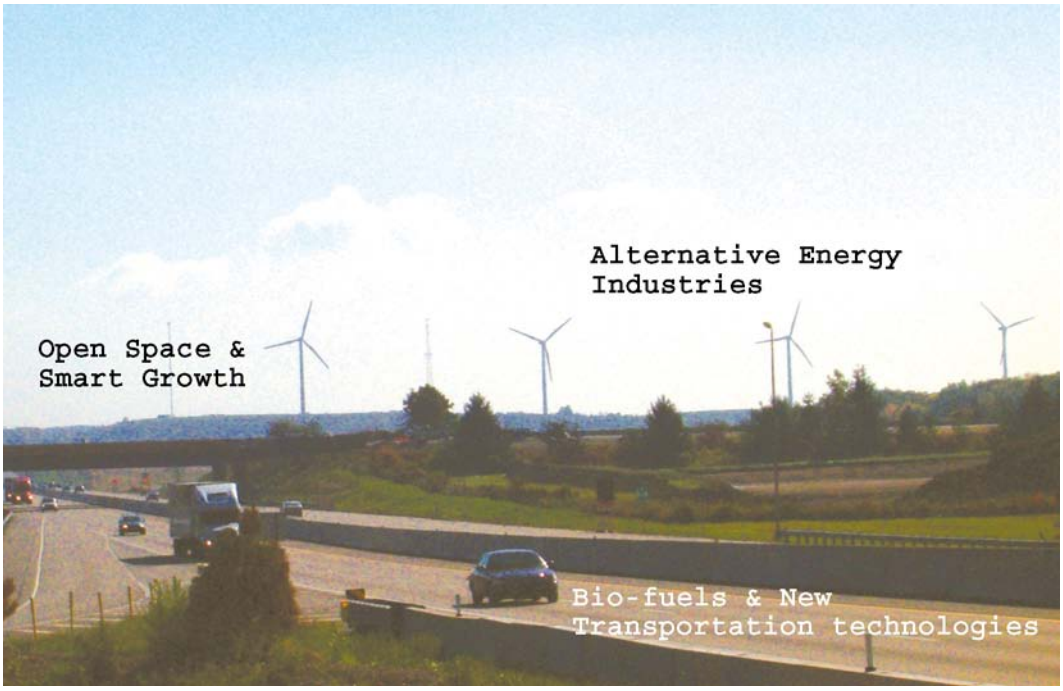
The campaign to eco-brand Greater Philadelphia must take who we are and the challenges we will face and make them attractive to the outside world. To do that successfully we cannot simply tinker with policy, taxes, or infrastructure. Nor can we simply put a ribbon on these things in the form of a glossy brochure. Ultimately we have to touch people's emotive side. We are not just setting regional policy; we must be creating lifestyles and meaning. This is the essence of the highly visible aspect of marketing, the advertisements and other marketing materials, that permeate our lives.

Highly successful businesses from Nike to Starbucks understand the power of branding. They realize they are not simply selling goods and services, some coffee or a pair of shoes. They understand that they are selling an identity. Nike sells the athletic identity and lifestyle. An individual who puts on a pair of Nikes is connecting to athletes who "just do it". Starbucks on the other hand sells community. It is not really coffee but more the cache of being cool, and part of the latte sipping urban set. What is the identity of Greater Philadelphia? More importantly, how can it be linked to the talent and emerging firms of the Eco-economy that we will desperately need?

Sustainability is more than hype; it is an emerging business in which we can excel as a region. We should rethink our current economic development policies in order to brand the region and complement our emerging eco-industries and sustainable public policies. Most of all, we need a campaign that appeals to people's analytical and emotional selves. Of course tax policy, reinvesting in centers, building linkages between capital and talent all matter, but they are made more potent when they are saddled to a campaign that can inspire people. Most people, especially the kinds of people we need to grow our economy, want to be a part of something big.

The Delaware Valley already has many great assets. That is not our problem. We need a compelling reason for people to want to be here and make this region grow. We need an idea to energize our people. A sustainable Philadelphia that is creating the Eco-economy of the future could be that idea. These industries will be with us for a long time, perhaps well after biotechnology and other current industries have run their course or have located offshore like so many other new technologies. This is a long-range economic development plan that could stick. It is not just a good idea; it is the right idea at the right time.

Vision for a Sustainable Delaware Valley



CONCLUSIONS

In 2004 Robert L. Hirsch, senior energy adviser at Science Applications International Corporation, was commissioned by the US Department of Energy to research energy issues facing the United States. Hirsch's report concluded that, "world oil peaking is going to happen, and that only the timing is uncertain."

Alan Greenspan apparently has read and taken heed of Hirsch's message claiming in 2005 in a speech to the Japan Business Federation that, "We [the global economy] will begin the transition to the next major sources of energy, perhaps before mid-century, as production from conventional oil reservoirs, according to central-tendency scenarios of the U.S. Department of Energy, is projected to peak. In fact, the development and application of new sources of energy, especially non-conventional sources of oil, is already in train. Nonetheless, the transition will take time."

Hirsch's report was more emphatic than Greenspan about the economic impact of this transition. "The development of the US economy and lifestyle has been fundamentally shaped by the availability of abundant, low-cost oil. Oil scarcity and several-fold oil price increases due to world oil production peaking could have dramatic impacts…the economic loss to the United States could be measured on a trillion-dollar scale."

Whether the peaking of oil and gas is now or two decades from now, it is clear that supply and demand balance in the energy sector is tight. Even minor supply disruptions have been causing increased price volatility, and the economy of the Delaware Valley is already experiencing this volatility. As fossil fuels peak in production, the jolt the Hirsch Report, Alan Greenspan, and multiple other sources are anticipating could be overwhelming to our local economy.

As a transportation and regional planning body, DVRPC appreciates the difficulty in responding to such a major disruption to our energy regime. Relative to the lead times of implementing many technical and policy solutions, shortages could come soon. There is a likelihood that this change will occur within the 25-year time horizon of the DVRPC comprehensive plan.

DVRPC strives to look beyond present conditions and near-term projections and to visualize positive solutions to accommodate long-term changes. The anticipated change in our national and local energy regimes is not all doom and gloom. This monumental change portends great economic opportunities as well as hardships: including growth from the spread of new energy sources and technologies, growth from the development of new transportation systems and growth from the expansion of new green industries.

Conclusions

From the economic base of the Delaware Valley's internationally renowned strengths in environmental consulting, bioresearch and development, and engineering, our region can surely take advantage of some of the emerging opportunities in the burgeoning Eco-economy.

From the infrastructural base of the Delaware Valley's efficiently designed centers, extensive rail networks, and historic ports, our region can surely become a model of sustainability.

As a first step, in this report DVRPC has recommended the following action priorities:

1. **Foster Eco-Industry Clusters**

2. **Promote Location Efficiency**

3. **Invest in the Environment**

4. **Become A Model Region**

5. **Eco-Brand the Delaware Valley**

These five suggestions only provide the basic framework of what will be necessary. Leadership will be needed to launch feasible yet innovative strategies for implementing these ideas. A focused vision and collective action will yield many more good ideas yet to be identified.

The time for strategic action is now. As the next step, economic development strategists within the region should work together to begin formulating specific plans and shifting resources into these initiatives. With vision, determination, and action, we can move the region toward a successful post-global future.

REFERENCES

"Biofuels and Agriculture: A Factsheet for Farmers", published by US Department of Energy, September, 2001.

Brown, Lester R., Earth Policy Institute, www.earth-policy.org.

Campbell, Colin., Association of Peak Oil and Gas, www.peakoil.net.

Cox, Stan., "*Goodbye To All That Oil"*, published by Alternet News, April 4, 2005.

Cunningham, Strom., "*Restoration Development the New Growth Strategy for Communities of All Sizes*", published by Public Management Magazine, August 2003.

"Cusano Environmental Education Center, Case Study", Published by U.S. EPA Office of Energy Efficiency and Renewable Energy, 2005.

Denver Regional Transportation District, www.rdt-denver.com.

Editor, New York Times., *"The Missing Energy Strategy",* Published by New York Times, April 19, 2005.

Glaeser, Edward., *"Job Sprawl: Employment Location in U.S. Metropolitan Areas"*, published by Brookings Institution, July, 2001.

Gordon, Kate., "High Performance Cities: A Guide to Energy Saving Policies for Urban Areas, published by The Apollo Alliance, 2004.

Green Buildings 2005 Open House, www.phillysolar.org.

Greensgrow Farms, www.greensgrow.org.

Greenspan, Alan., "*Energy*" lecture before the Japan Business Foundation Tokyo, Japan, October 17, 2005.

References

Hirsch, Robert L., *"Peaking of World Oil Production: Impacts, Mitigation and Risk Management"*, Science Applications International Corporation, 2004.

International Monetary Fund, Economic Forum: China In the Global Economy Prospects and Challenges, October 19, 2004.

Kaiser, Emily., "Wal-Mart, Target Earning Rise, Oil Prices a Worry", published by Reuters News Service, May 13, 2004.

Lovins, Amory., *"Winning the Oil End Game"* lecture Academy of Natural Sciences, October 5th, 2005.

McClenahen, John., "*Waking Up to a New World*", published by Industry Week, June 1, 2003.

Meadows, Denis, Meadows, Donella and Randers, Jorgen., "*Limits to Growth: The 30-year Update*", published by Chelsea Green, 2004.

Pierce, Neil., *"States and Cities Taking 'Green' Energy Lead"*, published by Washington Post Writers Group, August 8, 2004.

Post Carbon Institute, www.postcarbon.org.

Shields, Martin., *"Road to 2005, The Economy, Jobs, Income, Population, and Forecasts",* lecture PA State Data Center Annual Data User Conference, September, 2005.

Sustainable Business Network of Greater Philadelphia, sbnphiladelphia.org

The Apollo Alliance, www.apolloalliance.org.

United States Department of Energy: Energy Efficiency and Renewable Energy, www.eere.energy.gov.

United States Census Bureau, 1997 Economic Census, www.census.gov.

Title of Report: A Post-Global Economic Development Strategy

Publication No.: 06004

Date Published: March 2006

Geographic Area Covered: Nine county Delaware Valley region, including Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania and Burlington, Camden, Gloucester, and Mercer counties in New Jersey

Key Words: Economic Development, Strategy, Globalization, Energy, Energy Regime, Peak-Oil, Post-Globalization, Sustainable Development, Alternative Energy, Renewable Energy, Green Industry, Green Building, Eco-Industry, Smart Growth, Transit-Oriented Development, Low-Input Agriculture, Bio-fuels, Location Efficiency, Eco-Branding, Industry Clusters

ABSTRACT: The development of the US economy has been fundamentally shaped by the availability of abundant, low-cost energy. There is growing consensus, however, that a major change in the global energy regime will impact the economy shortly. The question is not if, but rather how soon and how much. Efforts will be needed to create alternative energy sources, to increase energy efficiency, and to redesign major urban systems. Economic globalization may also be radically redirected as a new 'post-global' paradigm emerges which includes elements of both globalization and localization.

To harness the economic potential of these changes, this report recommends that economic development entities in the Delaware Valley begin retooling their efforts. As part of a comprehensive economic development strategy for the region, this report also recommends making smarter transportation investments, coupling these investments with more sustainable land-use patterns, fostering clusters in emerging eco-industries, and maximizing the value of these initiatives by eco-branding the region as a sustainability center.

Delaware Valley Regional Planning Commission
190 North Independence Mall West
Philadelphia, PA 19106-2582
Phone: 215-592-1800
Fax: 215-592-9125
Internet: www.dvrpc.org

Staff contact: Kevin W. Adams, Regional Planner
Direct phone: 215-238-2826
E-mail: kadams@dvrpc.org

Delaware Valley
Regional Planning
Commission

190 N. Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215-592-1800
www.dvrpc.org