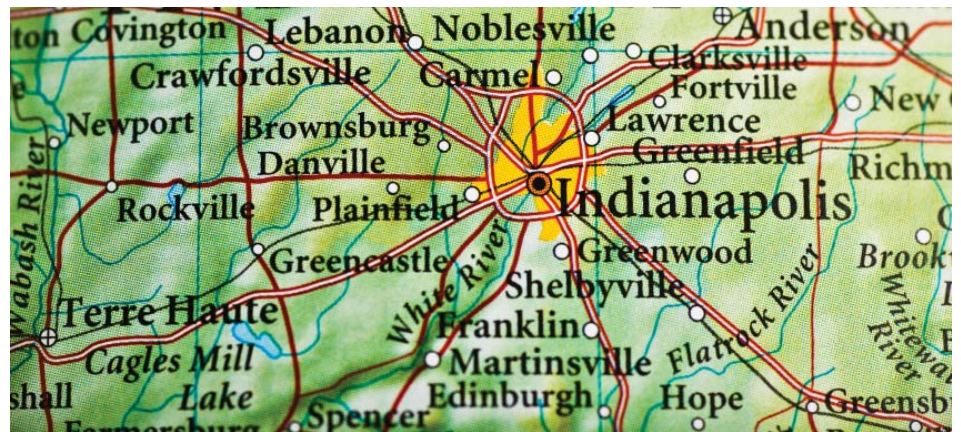


Roadmap to the Green Economy

Indianapolis



Prepared by the Delta Institute, September 27th 2009



Delta



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Acknowledgements

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We are also grateful to local experts who provided information for this report, including: Kären Haley and Allyson Pumphrey from the City of Indianapolis Office of Sustainability; Chris Harrell, Brownfield Redevelopment Coordinator, City of Indianapolis; Matt Waldo, Director of Research and Information, The Indy Partnership; Michael Young, Energy Director, Indianapolis Economic Development, Inc.; Michelle Oertel, Indiana Brownfields Program manager, Indiana Finance Authority; and Anna Jetmore-Vargas, Director of Sustainability, Keramida, Inc. We are also grateful to Eric Burch at the Indiana Office of Energy Development and staff at Keep Indiana Beautiful, Inc., the Indiana Recycling Coalition and the Greater Indianapolis Chamber of Commerce for sharing information about their resources and initiatives.

Introduction

We are witnessing nothing short of the birth of a new economy – the green economy – that has the capacity to help revive the American economy while addressing threats to our global environment and national security. The development of this economy has taken on greater urgency with the influx of federal stimulus funding and incentives for renewable energy, energy efficiency and green workforce development over the past six months.

Cities, states and regions throughout the U. S. are considering how they can combine these new policies and funding with local assets, investment, incentives and market opportunities to create a competitive advantage, generate green business activity and produce green jobs. This is particularly true in weak markets, which desperately need the growth and stability that development of a sustainable business base could bring.

Indianapolis' Position

Although the green economy is still emerging nationally and regionally, Indianapolis is already well positioned with some unique competitive advantages. Our analysis shows that Indianapolis has existing assets that can be capitalized on to create new jobs in emerging green sectors such as:

1. Cleantech R & D and manufacturing of energy equipment components
2. Green building design, construction and retrofitting
3. Waste reduction, recycling and pollution mitigation
4. Sustainable agriculture and horticulture
5. Greening of existing businesses

This Roadmap lays out a pathway and identifies key milestones, additional research, planning and coordinated action is needed to push Indianapolis' green economy.

Purpose of this Report

This report was produced under a grant from the U.S. EPA to examine redevelopment opportunities for brownfield properties in weak markets linked to sustainable business uses. It can serve as a framework that can be built upon by stakeholders, for creating a unified vision and action plan for regional green economic development. Although Indianapolis has many assets and advantages, including a large stock of available industrial sites and properties, much more can be done to identify and support promising green industries and promote the greening of the existing Indianapolis business base.



Defining the Green Economy

There is no one accepted definition of the green economy and different reports include different sectors in their calculations. Some communities are focusing primarily on climate change. Other cities are creating broader sustainability plans or initiatives that include more traditional green sectors such as waste management and pollution mitigation. In order to produce the greatest possible return on investment in sustainability, we believe communities should ultimately define the green economy in the broadest possible terms, with three important observations in mind:

It's About Cleantech – and much more.

The Green Economy is growing in response to climate change as well as looming scarcities in resources such as water, raw materials, land and landfill space. Most national green job reports and regional studies focus on increased investment in renewable energy and energy efficiency and the growth of these industries and jobs. But a few also look at jobs linked to waste reduction, water quality and conservation, pollution mitigation and other sustainability issues such as greener products and local food systems.

It's About Greening Existing Businesses.

Because green jobs are still a very small part of the economy, greening all types of existing industries and businesses should be a key focus of local economic development plans. Greening existing key industries and businesses will not only create demand for businesses in emerging industries but will make existing non-green businesses more competitive. Wasting energy, water and other resources is expensive and likely to become more so in the future. A survey of Fortune 500 companies by the editors of *The State of Green Business 2009* indicated that almost half of those who responded were planning to increase investment in energy efficiency improvements in 2009 despite the slumping economy.

It's About Defining "Green Business."

Defining green business is necessary in order to create a meaningful way to measure growth and outcomes. Identifying who is green or green enough also is creating opportunities for niche professional services that include energy raters, waste auditors, green product certifiers and carbon offset verifiers in addition to consultants, architects, engineers and product designers with expertise in green buildings, green technologies or more environmentally-friendly products. Engineering, law and tax firms are also expanding their environmental and energy practices to assist businesses in navigating a growing field of regulations and financial incentives relating to energy and the environment. Finally, rapid change in the emerging economy is driving growth in organizations that provide education, information and training.

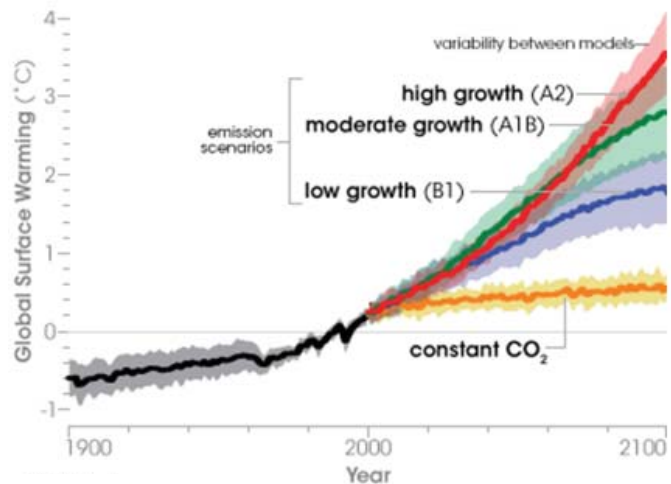


Green Economy Drivers

Climate change and resource scarcity are game-changing concepts that are gaining steam at a national level and are likely to create winners and losers in the U.S. economy in the coming decades. Although it is not certain if the pending American Climate and Energy Security Act (ACESA) will pass this year, many major energy users are taking a proactive approach in anticipation of the adoption of federal carbon regulations. Global corporations are implementing sustainability plans for European plants where energy and waste are already heavily regulated. Key green economy drivers include:

- **Business Cost Savings and Competitiveness.**

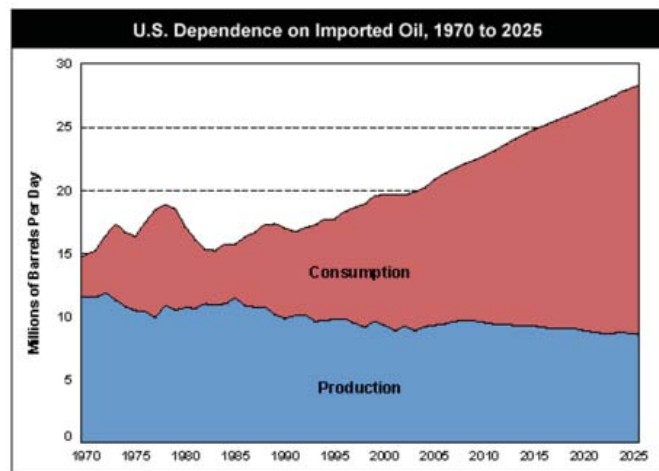
GreenBlz.com's State of Green Business 2009 reports that major U.S. corporations are not only seeking to cut costs but to add value to the top line by creating new product or service opportunities or positioning existing ones to be more competitive. Walmart is the latest corporate giant to announce that its suppliers are required to meet specific sustainability standards. Samsung Electronics also recently announced that it wants to cut its factory emissions by 50% in four years and develop eco-friendly products. Pharmaceutical giant Baxter has similar goals to reduce its carbon footprint and is pushing the standards down to its subsidiaries. As larger companies invest big dollars to go green, they are putting pressure on their suppliers and competitors to do the same.



Source: IPCC, 2007 Report

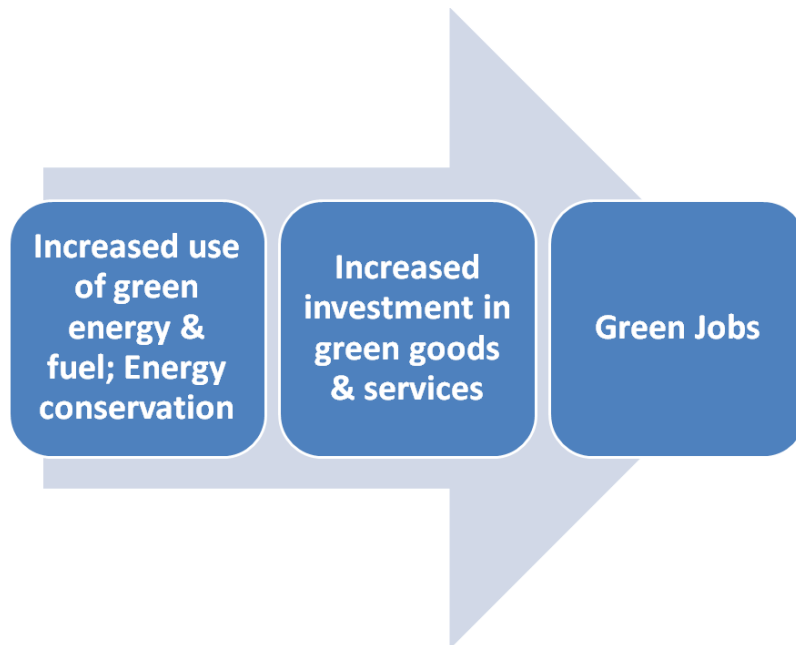
- **Energy Independence and Other Social and Environmental Policies.**

T. Boone Pickens has spent millions on a personal campaign to raise public awareness and support about the need for energy independence. A few celebrities and some faith-based groups have raised awareness about social justice issues and fair trade practices. Major industry trade groups and Fortune 500 corporations have formed alliances with environmental organizations in the past two years, such as the Blue Green Alliance (United Steel Workers and Sierra Club) and the U.S. Climate Action Partnership (with BP America and Duke Energy among its 14 founding members). More than 600 colleges and university presidents have made climate change commitments within the last 18 months.



Source: Energy Information Administration, *Annual Energy Outlook 2004*

National Green Economy Trends



National reports estimate the current number of green jobs at as few as 750,000 to as many as 9 million depending on definition of the green economy. All these estimates include jobs linked to renewable energy and energy efficiency, but some also include green products and services. These national reports also project continued steady growth and investment despite the current slumping economy based on federal stimulus spending and the prospect of a federal renewable energy standard.

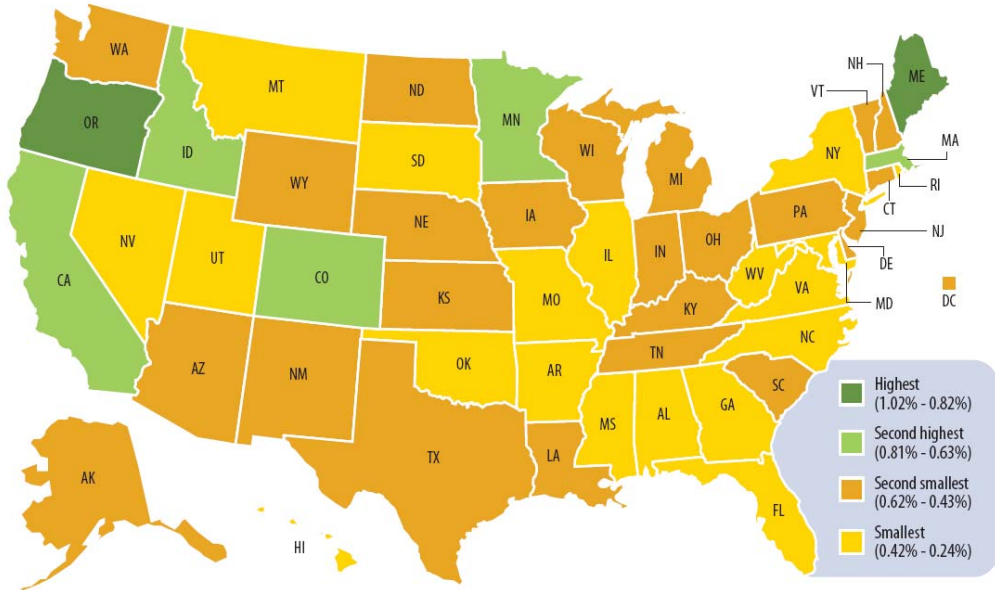
The Green Economy: National Estimates		
Jobs 750,000 to 9 million (2006 & 2007)	Sales > \$1 trillion (2007)	Venture Capital Investment \$12.9 billion (2006 - 2008)

The Green Economy is Still Emerging:

Despite all the enthusiasm for emerging cleantech and green industries, it's important to remember that these green jobs are less than 0.5% of total jobs now. On a state by state basis, Oregon is the highest with just 1.02%. Even so, cleantech has been described by some venture capital investors as being where IT was 30 years ago or where biotech was 10 years ago. It is growing fast but is just getting started.

CLEAN ENERGY ECONOMIES AS A SHARE OF STATES' OVERALL ECONOMIES

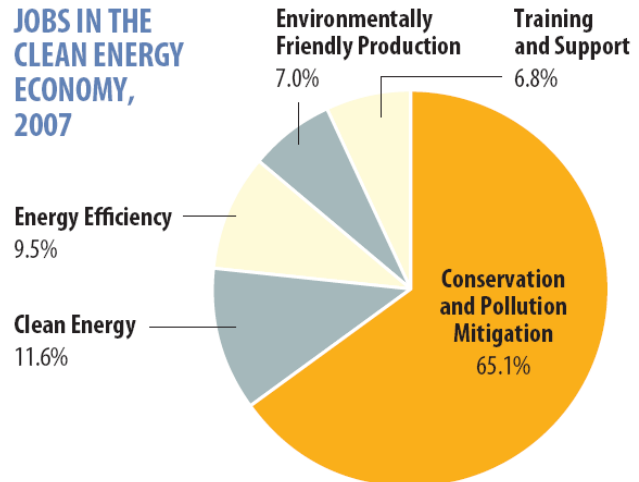
It is important for states to know just how many of their total jobs fall within the clean energy economy. Nationally, jobs in the clean energy economy accounted for 0.49 percent of all jobs in 2007; 22 states exceeded that national average.



Source: The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America, Pew Charitable Trust, June 2009

Other Green Jobs:

Repowering Jobs, Businesses and Investments Across America, published by The Pew Charitable Trusts in 2009, estimates that 65% of current clean economy jobs are in the Conservation and Pollution Mitigation category, which including jobs in water and wastewater treatment, recycling, environmental consulting and remediation services.



Source: The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America, Pew Charitable Trust, June 2009

Regional Assets and Advantages

Indianapolis' green economy will grow on the same basic assumption as most other national green job reports – that federal and private sector investment in renewable energy and energy efficiency will continue to drive growth in the national green economy as well as many local economies. However, Indy's existing key industries and assets offer opportunities for green economic development that go well above and beyond Cleantech, and provide a necessary foundation for growth in the alternative and renewable energy sector. A number of industry groups have been identified by Indianapolis Economic Development Inc. (IEDI) as having unique competitive advantages and potential for wealth generation:

Key Existing Industries

Life Sciences	biotech and biopharmaceutical research with universities
Advanced Manufacturing	high-skilled jobs in new technologies in automotive, aerospace, pharma and medical devices
Logistics	freight carriers (FedEx, UPS), distribution centers, logistics specialists
Information Technology	computer system design, telecommunications services, etc.
Motorsports	racing teams, organizations, marketing and related retail businesses
Energy	cleantec - renewable energy, alternative fuel and transportation R & D

Of these targeted industries, Advanced Manufacturing provides the most obvious opportunity for related manufacturing of highly advanced renewable energy equipment such as wind turbine components.

Relevant Economic Assets

Existing economic assets that the City can draw upon to build its green economy include:

- **Large Population and Building Stock:** Indianapolis has a relatively large population base and building stock compared to other parts of the state. This provides opportunities to develop businesses to sustainably manage its relatively large electric loads and waste streams.
- **Share of Stimulus Funding:** The City's relatively large population also ensures that it will receive a significant share of some formula-based federal stimulus funds such as Energy Efficiency Community Block Grant (EECBG) and State Energy Program (SEP) grant funds. In May 2009, the City of Indianapolis selected contractors and applied for \$8 million in EECBG formula funding. When awarded sometime in late 2009, the City intends to use a portion of this funding for a Green Building revolving loan fund to private businesses for green building investment. In July, the U.S. Department of Energy also announced the award of \$52.7 million to fund weatherization of almost 20,000 homes across the state over the next three years. The Indiana Office of Energy Development has also already been awarded \$27 million in State Energy Program funding, with more to come upon successful implementation of its plan.
- **Ample supply of available commercial and industrial property in weak market areas:** These properties can be an asset for start-up businesses needing affordable land or facilities. The City has compiled an extensive inventory of vacant or underutilized commercial and industrial in the Martindale - Brightwood and King Park neighborhoods north of downtown Indianapolis. Although once a thriving industrial corridor, it has now been designated a Smart Growth Corridor with unique opportunities for infill and transit-oriented development. The future of this corridor is in part dependent on plans for a new commuter rail line. If a new commuter rail line is approved, redevelopment for all types of uses will be enhanced, including for green businesses.

Current Business and Political Support:

A number of public and private Indy groups are currently providing support, resources and incentives for green business development, notably:

- Energy Systems Network Partners (www.cincorp.com/energysystemsnetwork) is a new initiative of the Central Indiana Corporate Partnership focusing on the cleantech sector including renewable energy and plug-in hybrid vehicles.
- Indiana Office of Energy Development's State Energy Program provides alternative energy grants for investment in renewable energy production and green building improvements.
- Indiana Green Building Executive Order [08-14] requires state buildings to earn LEED Silver, Energy Star, 2 Green Globes or equivalent rating.
- City of Indianapolis, Office of Sustainability has a commitment to greening of the City-County Building and administration of energy efficiency block grant program that is expected to be awarded sometime in late 2009 for a Green Building revolving loan fund.
- City of Indianapolis has made a \$1.7 million federally mandated investment in stormwater management. The 20-year project will result in a new combined sewer outfall (CSO) system designed to curb the flow of raw sewage into rivers and streams.
- Indy Land Bank acquires abandoned, tax delinquent and other problem properties within Marion County and makes them available to non-profit and for-profit developers.
- The Indy Partnership provides research, information and needed coordination on economic development for the 10-county Indianapolis region. (www.indypartnership.com)
- McKinney Family Foundation has provided funding for the City's Office of Sustainability and other specific sustainability initiatives within the City of Indianapolis.
- Keep Indiana Beautiful Inc. (www.kibi.org/recycle/) provides a web-based Recycle & Reuse Guide listing businesses and organizations that reuse or recycle a wide range of waste material.
- Indiana Department of Environmental Management offers recycling grants (currently suspended until late 2010 but which had provided millions in low-interest loans for companies incorporating waste into their manufacturing process).
- Indiana Aquaculture Association is supporting the development of new sustainable agriculture methods. (www.acquanic.org/iaa/)
- Kansas State University, Technical Assistance for Brownfields (TAB) program has funding from EPA to provide technical assistance, especially relating to urban agriculture.

There are many other Indy-area organizations working on green development that are providing crucial information, technical assistance and support. See "Key Resources" on page 18 for more information and links.

Federal Stimulus Funding

In addition to the stimulus grants that have already been described, billions in other federal stimulus funding from the February 2009 American Recovery and Reinvestment Act (ARRA) is relevant to the green economy, including:

- U.S. Dept. of Energy and Treasury Dept. are providing cash grants or tax credits for renewable energy producers or manufacturers for 10% or 30% of project cost.
- U.S. Treasury Dept. has allocated additional authority for Clean Renewable Energy Bonds (CREBS) providing low or no-interest financing for public or nonprofit energy projects.
- Indiana is getting \$39 million in federal funds to help modernize the energy grid, which will be matched by industry dollars. Indianapolis Power and Light will spend nearly \$49 million to install more than 28,000 meters for commercial, residential and industrial customers; provide energy use information to customers; improve service restoration and efficiency; and enable two-way communications and control capabilities.

Another wave of federal funding is also included in the pending American Clean Energy Security Act (ACESA). Visit <http://deltabrownfields.wordpress.com> for frequent updates on funding streams.

In addition, local green businesses may have access to some private financial tools such as energy service company (ESCO) financing, carbon credits and private grants from foundations.

Utility Company Support

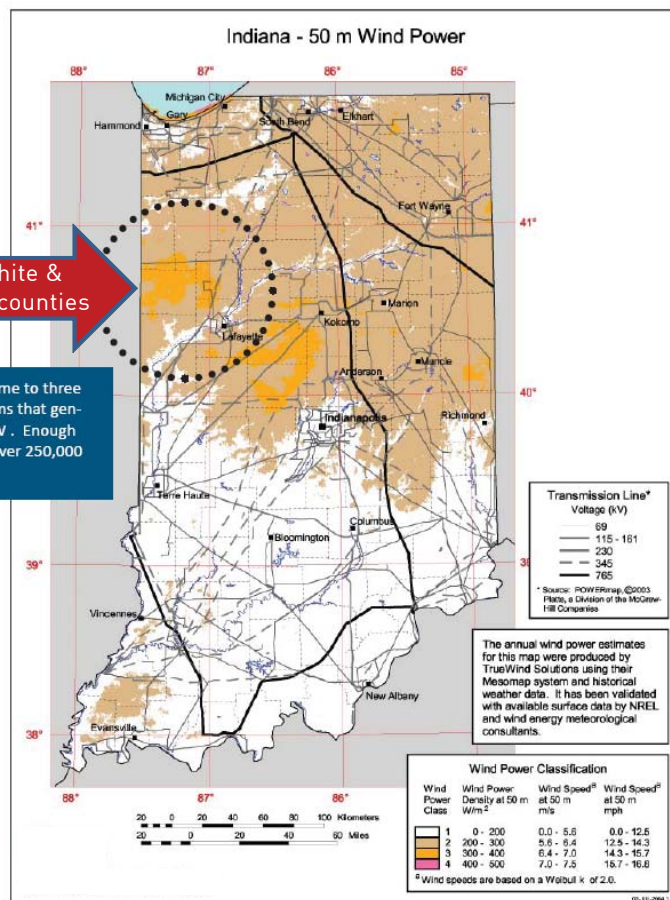
Utility companies are supporting Indiana's clean tech jobs by developing wind farms (e.g., BP Alternative Energy/Dominion Energy, Orion Energy) and by purchasing power from these farms.

Several large-scale existing wind installations in Benton and Tippecanoe counties located roughly 90 miles of Northwest Indiana have added more than 500 MW of renewable power to the Indiana grid within the past two years. AEP-Appalachian Power/AEP-Indiana Michigan Power and Indiana Power & Light are also supporting Indiana's wind industry by agreeing to buy power from the new wind farm developments.

Indiana Power & Light also offers a green power purchasing option for residential customers to create demand albeit currently on a very small scale for alternative energy.

Benton, White & Tippecanoe counties

Fowler Ridge is home to three separate wind farms that generate over 800 MW. Enough energy to power over 250,000 households.



Source: U.S. Dept. of Energy
National Renewable Energy
Laboratory

Green Job Projections for Indianapolis

Although Indiana’s ranking in current green jobs does not put it in the top 10 nationally, it ranks fourth nationally in the rate of growth among larger states. Indiana’s clean energy jobs grew 17.9% from 1998 to 2007 – faster than any other State besides Oregon, Tennessee and Colorado, and faster than all other Midwest states. As a percentage of the state’s total economy, Indiana is a bit above the national average with just 0.52%. A total of 3.3 million jobs may seem like a lot in absolute numbers, but it is still low when compared to Indiana’s total employment.

Indy Green Jobs Estimates		
8,900	17,000	40,000
Green jobs in Indianapolis (12 th in nation) (2006)	Clean Energy Economy Jobs in Indiana (13 th in nation) (2007)	The number of clean energy jobs Indiana could gain in the next 10 years

Green job growth is likely to include both white collar and blue collar opportunities in both thriving areas as well as some weaker market parts of the City. R & D for Electric Vehicles and Renewable Energy Components Manufacturing, as well as parts of the Green Building sector, rely heavily on highly-skilled workers and relationships with university-based tech transfer offices. Waste reduction, urban agriculture and other parts of the Green Building sector offer opportunities for lower-skilled workers and may require larger, more affordable industrial sites that are more commonly found in weak market areas.

Types of Green Jobs	
Higher Skill	Lower-Skill
Early-stages - R & D	Weatherization
Manufacturing	Other green building/ construction
Pollution Mitigation Services	Recycling and material recovery
Services for Green Building	Urban agriculture transitional job training

A Vision for Indianapolis

Based on an analysis of national trends and local assets and advantages, Indianapolis has strong competitive advantages and opportunities for building its green economy in the following business sectors:

1. CLEANTECH AND RENEWABLE ENERGY

R & D for Electric Vehicles:

Existing innovation resources are providing a foundation for growth in the development of new alternative energy technology, and specifically new systems and components for a new generation of electric vehicles. Two current projects include the Hoosier Hybrid Partnership, focusing on bringing more cost-effective light-, medium- and heavy-duty trucks to market, and Project Plug-IN, focusing on “smart grid” technologies for plug-in vehicles for Central Indiana commuters in a unique large-scale pilot project. These developments are being spurred on by a Federal commitment to put one million plug-in hybrid vehicles on the road by 2015 and Federal stimulus grant awards to retool the auto supply industry. Several local companies (EnerDel, Inc. - \$118.5 million; Allison Transmission - \$63 million; and Remy Inc. - \$60 million) have been award grants to develop batteries and component manufacturing to supply this industry.



Manufacturing of Renewable Energy Components:

An average wind turbine uses 250 tons of steel. This gives steel-producing states like Indiana a potential competitive advantage. A Hoosier Environmental Council Report identifies over 1,300 existing firms in Indiana including 161 in Marion County with potential to manufacture renewable energy equipment. Speakers at the recent WIndiana2009 conference describe strong need for certain components (e.g., gearboxes). This has prompted one Muncie-based manufacturing firm to host a follow-up meeting for potential partners and suppliers. The IndyPartnership has also developed information on wind component manufacturers and other companies working in wind energy in the *Indianapolis Region Renewable Energy Components Manufacturing Report*, which identifies research institutions, component manufacturers and other companies working in other “cleantech” sectors including energy efficiency, energy storage, second generation biofuels and smart grid technologies.

2. GREEN BUILDING PRODUCTS AND SERVICES

Green building generates jobs in the construction and building trades, technical and professional services, green building products, dealers and wholesalers. Cities like Indianapolis have an inherent advantage for building retrofits, as well, due to their larger stock of older buildings and a large base of professional services firms (architects, engineers and consultants). It is difficult to identify existing businesses or measure growth in the green building sector since there are no industry codes for green developers, contractors or architects, or for manufacturing or installation of green roofing materials. However, a significant increase in LEED building certifications is an indicator that the green building trend in the region is on the rise. Other notable local green building related activities include growth of the local chapter of the US Green Building Council, which is developing a partnership for green building demonstration projects with Habitat for Humanity; significant investments by the Indianapolis public schools for green retrofits in 27 schools and LEED certification in 25 of them; and the Smart Growth Renewal Partnership, a collaboration between the City, the American Institute of Architects’ (AIA) Sustainable Design Assessment Team (SDAT) program and Ball State University to explore a model redevelopment district in the Martindale-Brightwood neighborhoods. The Environmental Defense Fund’s web-based green jobs map identifies roughly 90 green businesses of which roughly 75% provide equipment or services for improving the efficiency of buildings.

3. WASTE REDUCTION, RECYCLING AND POLLUTION MITIGATION

This category of clean economy jobs includes material recovery, recycling, air pollution remediation, removal of hazardous materials from industrial sites, treating water and wastewater, and environmental consulting. The City recently invested \$1.7 billion in the development of a Combined Sewer Outfall System and other green infrastructure that will result in reduced stormwater runoff and reduction in source pollution. There are a growing number of electronic waste recyclers and resellers of used building materials from deconstruction activity. Indianapolis Habitat for Humanity currently operates this type of reuse center. There are many other types of waste and pollution reduction business opportunities and, according to some studies, these industries could generate more green jobs than most of the faster-growing renewable energy and energy efficiency technology sectors. As with the other sectors, there is no standard definition or directory of existing businesses, but national reports can provide a starting point. Indy does not have the same landfill capacity or cost issues that are driving waste reduction in other cities but still has a competitive advantage over other parts of the state due to its large population and related waste streams.



4. SUSTAINABLE AGRICULTURE AND HORTICULTURE

Local agriculture and horticulture is blooming in many Midwest cities despite the harsh winters. Organizations such as Growing Power in Milwaukee and Growing Home, Windy City Harvest and Sweet Beginnings in Chicago are examples of enterprises that are tapping into the healthy local food movement, while providing transitional job training in landscaping and farming as well as education focusing on nutrition and environmental practices. A few agricultural entrepreneurs in Indiana are also tapping into this industry. Keep Indiana Beautiful has teamed up with the City to launch a “Brown lots to green plots” program and the Indy Co-Op will soon open its first store. Bell Aquaculture in Albany, Ind. has been operating the largest U.S. perch farm and processing plant inside warehouse-like buildings.

5. GREENING EXISTING BUSINESSES

Greening existing businesses by reducing energy costs, increasing efficiency and cutting waste can improve competitiveness and create thousands of professional support jobs. Comprehensive efforts are already underway in many existing industries, such as schools, healthcare, hotels, and restaurants and these businesses require support, training, new products and suppliers in order to go green. Some national reports count “Training and Support” as a major category in the green economy. This category includes: Business Services (lawyers, PR and marketing, etc.), Finance and Investment (accountants, investment bankers, carbon credit traders) and Research and Advocacy establishments (including engineers, technicians and cost estimators). Delta’s own limited survey of a dozen existing green businesses in Indianapolis found that most fell in this category.



Challenges and Barriers



Many of the challenges facing emerging green industries are similar to challenges for other industries such as biotech 10 years ago or information technology 30 years ago. Although green is becoming more mainstream, there is still very limited demand for green energy, goods and services that cost more than non-green counterparts. Competition and high capital costs are bigger challenges in energy-related sectors. The need for access to financing, training, information and support networks are common challenges that cut across all green categories.

1. Limited Market Demand

Renewable power currently is less than 4% of all power generation nationally and is often produced at a higher cost than fossil-fuel based power. Energy developers (buyers of renewable energy equipment) are looking for sweeping national policies to create stronger demand for renewable energy. Six other Midwest states (IL, MI, OH, WI, MN, and IA) have adopted clean energy purchasing policies and standards to support the development of wind and other renewable energy in their states. State policies are in part responsible for the higher levels of installed wind capacity in these states. Indiana is in a minority of states that don't have a Renewable Energy Purchasing Standard (RPS) or even a standard. Although wind development is happening in parts of Indiana without an RPS, we learned through our research that Indiana Power & Lights' decision to invest in the Benton County wind farm was based in part of the anticipation of Renewable Energy Standard adoption.

Comparison of RES and RPS Policies Across the Midwest

State	Renewable Standard	Purchasing Commitment
Minnesota	25% by 2025; Xcel Energy 30% by 2020	State: None Minneapolis: 10% above state and federal mandates by 2015
Illinois	25% by 2025	State: 5% by 2010, 15% by 2020 Chicago: 20% by 2005
Ohio	25% by 2025 (12.5% from renewables)	State: None
Wisconsin	10% by 2015	Six largest state agencies: 20% by 2011
Michigan	10% by 2015	State: None Lansing: 10% renewable energy by 2010, 15% by 2015, 20% by 2020
Iowa	105 MW	State: 10% by 2010
Indiana	None	State: None

Indiana also has a very limited policies related to "Net Metering," which allows utility customers to receive credit for at least a portion of the surplus renewable power that they generate. The state doesn't allow many sectors to apply, has limited eligibility policy and low limits on the amount of renewable power that qualifies. Proposed Indiana legislation failed in the last session. However, Federal climate change legislation may result in a federal standard similar to the one that is already adopted by many states (25% by 2025).

Net Metering in Midwestern States

State	Limit on Overall Enrollment
Minnesota	None
Illinois	1% of the total peak demand supplied by a utility during the previous year (includes net-metered systems and dual-metered systems up to 2 MW)
Ohio	1% of utility's peak demand
Wisconsin	None
Michigan	0.75% of a utility's peak load from the preceding year (0.5% for true net metering and 0.25% for modified net metering of systems up to 150 kW)
Iowa	None
Indiana	0.1% of a utility's most recent peak summer load (utilities may impose this limit at their discretion)

Green building recognition programs are another type of incentive that is stimulating investment in green building products and services. The number of existing and pending buildings seeking LEED-certification is one indicator that investors and consultants may investigate in assessing the market for green building products or services. Indianapolis is currently lagging behind other Midwest cities in the number of existing and pending LEED-certified buildings, although the number is on the rise. The City may need to develop other information or incentives in order to tell a stronger story about its climate for green building. Additionally, stronger education and incentives may be needed to encourage more building owners to consider enrolling in green building programs.



Some states and cities are also updating their energy and land use codes to create demand for more energy efficient construction and speed the permitting process for energy equipment such as wind turbines and solar panels. A few cities are also considering updates relating to urban agriculture.

2. Global and Regional Competition

- Offshore manufacturing of renewable energy components:** Overseas manufacturers are capturing large parts of the component manufacturing market. The San Jose-based solar panel company that is developing an Exelon Solar field in Chicago is having panels manufactured in the Philippines. Even wind turbine blades are being made in China, defying the common assumption that they are too big to ship overseas.
- Other states invest more to attract wind and solar manufacturers.** A number of other Midwest states are currently aggressively courting some of the same green jobs that have promise for Central Indiana. Michigan, Ohio and Iowa have invested more than \$20 million each in subsidy packages to attract wind and solar manufacturers.
- Businesses in other states are competing to commercialize new technologies (electric cars, renewable energy).** Other midwestern states, in particular Michigan and Ohio, are also competing for and receiving large amounts of stimulus money to support alternative fuel and electric vehicle production. Michigan companies such as Compact Power and KD ABG MI LLC have been awarded hundreds of millions of dollars for production of lithium-ion batteries for hybrid and electric vehicles.

- Other states have strong support network for energy technologies: Michigan has a strong track record in cleantech innovation, ranking third in the number of cleantech patents over the last 10 years, and an established support center for the development and commercialization of energy-related technologies (NextEnergy).

3. Financing Gaps

Capital financing is especially important for utility-scale energy projects, which require tens of millions in start-up capital. Financing is also needed to fund smaller-scale renewable energy and energy-efficiency projects and other types of green businesses. In addition, most stimulus incentives require some nonfederal match. Other financing options must be made available, including:

- **Venture capital investment.** Venture Capital has historically been concentrated in a handful of states with more than half of all VC investment in the state of California. Venture capital investment in clean technology hit an all-time high in 2008 but has subsided since. Although all Midwest states lag behind California, Texas, Florida and Massachusetts in attracting VC investment, Indiana attracted less than Missouri, Michigan, Ohio, Illinois and Iowa in the amount of VC investment in cleantech in the last three years according to a recent Pew Center report.
- **Debt financing and loan guarantee programs.** Banks are far more risk averse today than they were a year ago. The current credit crunch is making it difficult for start-up businesses to secure conventional financing. Loan guarantee programs can help secure more favorable loan terms, but federal energy department loan guarantee programs are not likely to benefit many small or medium-sized businesses due to rigorous application requirements and nonrefundable application fees.
- **Nontraditional financing sources.** Despite billions in new Federal stimulus funding, few non-traditional programs are geared toward small or medium-sized businesses, especially startup businesses. Green and greening businesses could benefit from Production Tax Credits/ Investment Tax Credits and cash grants in lieu of these (under IRS Code Section 1603), tax-exempt bonds for renewable energy production such as Clean Renewable Energy Bonds (CREBs) and for energy conservation projects such as Qualified Energy Conservation Bonds (QECBs). Other new types of subsidies can add revenue to a deal, such as the sale of carbon offset credits for certain types of greenhouse gas reducing activities. Favorable debt financing and in some cases equity investment is also made possible by other Treasury Department incentives such as New Markets Tax Credits (NMTC).

4. Workforce Development

There is an immediate need for additional qualified workers in some specialized sectors such as home weatherization. Stimulus funding must be spent quickly and private investment and education campaigns must be developed to sustain jobs in weatherization work after stimulus funding is spent. In other green sectors, such as deconstruction, training requirements for workers are still developing.

5. Timely Information and Education

Information and announcements on new economic incentives are issued by the U.S. Department of Energy on a weekly basis. None of these is easy to understand and some are only available for a limited time until stimulus funding runs out. Most companies will need more than a glossary to navigate these incentives and other non-traditional financing tools. State and local government agencies may lack capacity to conduct outreach or assist businesses in qualifying for assistance.

Green businesses and institutions are also likely to need information and technical assistance in understanding and accessing other new incentives, such as new carbon offset credits for a broader range of activities that reduce greenhouse gases. Green businesses and other institutional buyers may have specialized market development needs, supplier requirements, or assistance identifying local green suppliers. Education on the value of investing in green products and services is key, along with incentives to make them cost-competitive with non-green alternatives.

Start-up businesses may need help identifying affordable sites for demonstration projects or incubator space, while foreign-owned component manufacturers might be looking for modern, energy-efficient industrial buildings. Government and nonprofit organizations can keep inventories of available properties that are easy to search and sort and work to reposition sites for redevelopment.

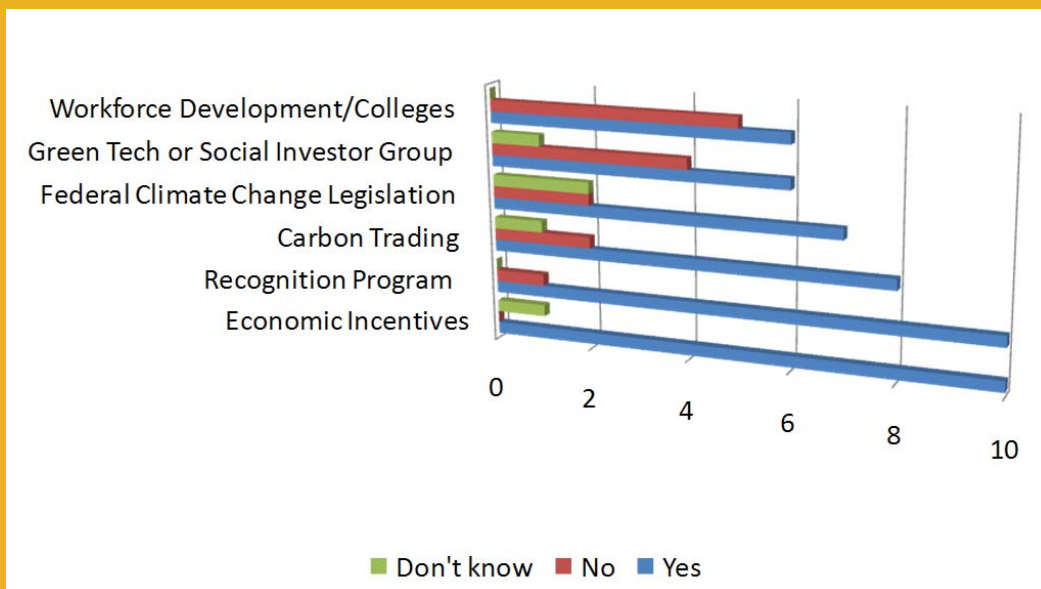
Small and medium-sized businesses are also likely to need help deciding how to “go green” or assess the costs and benefits of various options. There may not be any clear standards for what is green for a particular industry, business or product or any track-record for new technologies. Trade associations and other nonprofit business support groups can provide education, training and technical assistance.

6. Organizations and Support Networks

Some emerging sectors already have existing support networks, such as the Energy Systems Network supporting research and development around new electric vehicles. Support for other emerging green sectors such as Manufacturing of Renewable Energy Components is not as clear. More than half a dozen government and non-government support groups are assisting the manufacturing sector, in addition to efforts by component businesses themselves. New partnerships may be needed to coordinate these efforts and identify common needs and resources to support renewable energy component manufacturing in a more robust way. Similar coordination of efforts will be needed to address the challenges for other non-manufacturing green sectors.

Green Business Educational Needs

Delta Institute worked with Indianapolis consultant Anna Jetmore-Vargas of Keramida and New Day Group to conduct research into the needs and wants of green businesses in the Indianapolis area. Jetmore-Vargas conducted phone interviews with a selection of 11 local businesses representing a range of sizes and types. Her findings provided a snapshot of information, education and training needs relative to the green economy. Read the full report at <http://deltabrownfields.wordpress.com>.



Recommendations

This report has described green opportunities for Indianapolis, (but are not the only ones that could emerge). Although the potential is great, the challenges outlined above are many and complex. It will take combined efforts of government, nonprofit business support groups and businesses leaders to create a better climate for green economic development by:

Increase Capital Financing	As previously mentioned, energy businesses and other emerging green industries will benefit from the development of a Midwest Clean Ventures Capital Fund, creation of private loan guarantees and development of other innovative funding mechanisms. In addition to grants and tax credits, government can consider some new tools such as CREBs, QECBs and New Market Tax Credits. Businesses can explore internal revolving loan funds.
Create Demand for Green Businesses	Provide information and access to incentives, reduce policy regulatory barriers, and develop industry-specific standards, certifications and recognition programs.
Improve Support Networks	Establish one-stop renewable energy and/or green business development centers to help provide direction, share ideas across sectors, support component manufacturers, integrators and aggregators, and provide technical assistance to start-ups and small- to medium-sized businesses entering the green market. For instance, form partnerships to support urban agricultures and other green sectors.
Improve Education, and Training	Collaborate with colleges, academic institutions, nonprofit and job development and training agencies to deliver the management and technical knowledge and skills to support the green economy.
Provide Technical Assistance	Engage technical assistance to research federal incentives and waste-related businesses, work on reuse demonstration projects for brownfield sites and assist in the development of favorable local policies and incentives.



Next Steps

1. Plan for Green Reuse of One or Two Priority Brownfield Sites

In developing this report, Delta was able to identify some potential sustainable reuse ideas for brownfields in weaker market areas such as the Martindale - Brightwood neighborhood and the larger Smart Growth Corridor. An immediate next step is to form a technical assistance team to work with the City and the Delta Institute over the next 6-12 months to:

- Identify priority redevelopment sites
- Identify existing green businesses and support organizations
- Assess the feasibility of specific sustainable reuse opportunities
- Identify leadership, partners and funding for implementation

2. Plan for Green Economy Summit

A second immediate next step is to form a steering committee to plan a green economic summit. Although many elements of a plan are already happening, a summit would help crystallize a broader base of support around a common vision and definition of Indy's Green Economy and lay out specific action items for various stakeholder groups, including government, NGOs and business.

3. Engage Stakeholders in the Action Plan

Government, nonprofit business support groups and individual businesses all have a role to play in a Green Economic Development Action Plan. Here are some preliminary recommendations for important economic development stakeholder groups:



Key Resources

Business and Renewable Manufacturing

1. The Central Indiana Corporate Partnership – (R & D, demonstration projects) & Energy Systems Network partners <http://www.cincorp.com/> and <http://www.cincorp.com/energysystemsnetwork/>
2. The Indy Partnership – (research and marketing information) <http://www.indypartnership.com/>
3. Indiana Office of Energy Development - (wind trade show, Alternative Power & Energy grants) <http://www.in.gov/oed>
4. Hoosier Environmental Council – (education and advocacy) <http://www.hecweb.org/>

Green Building Products and Services

1. US Green Building Council: Indiana chapter – (education, advocacy & technical assistance relating to LEED) www.usgbc-in.org
2. Gov. Daniels – (Executive Order requiring green building certification for state buildings) <http://www.in.gov/gov/>
3. City of Indianapolis, Office of Sustainability – (includes EE Community Block Grants) <http://www.sustainindy.org/index.cfm>
4. Indiana Housing and Community Dev. Authority (IHCDA) – (administration of weatherization grant funds) <http://www.in.gov/ihcda/>

Waste Reduction, Recycling and Pollution Mitigation

1. Keep Indianapolis Beautiful Inc. (information and marketing support) <http://www.kibi.org/index.html>
2. Indiana Department of Environmental Management (IDEM) – (grants currently suspended) <http://www.in.gov/idem/>
3. Indiana Recycling Coalition <http://www.indianarecycling.org/>
4. Division of Community Development, Dept of Metropolitan Development, City of Indianapolis <http://www.indy.gov/eGov/City/DMD/Community/Pages/home.aspx>
6. Central Indiana Clean Air Partnership <http://www.indycicap.org/>

Agriculture and Horticulture

1. Purdue University Cooperative Extension Service <http://www.ag.purdue.edu/extension/pages/default.aspx>
2. Indiana Aquaculture Association <http://aquanic.org/iaa/>
3. Kansas State University, Technical Assistance for Brownfields (TAB) program <http://www.engg.ksu.edu/CHSR/outreach/tab/>

Other organizations working on green development

1. Indianapolis Economic Development Inc. – (support for targeted industries; new energy staff) <http://www.indianapoliseconomicdevelopment.com/>
2. Greater Indianapolis Chamber of Commerce – (Green Business Initiative) <http://www.indychamber.com/>
3. Indiana Finance Authority <http://www.in.gov/ifa/>
4. Indiana Association of Community Economic Development (IACED) <http://www.iaced.org/>
5. Ball State College of Architecture & Planning <http://www.bsu.edu/cap/>

Great Lakes or Midwest region support organizations

1. Midwest Energy Efficiency Alliance www.mwalliance.org
2. Great Lakes Wind Network – (education and technical assistance) <http://www.glwn.org/>
3. German American Chamber of Commerce of the Midwest – (education and networking events)
<http://www.gacom.org/gacom-home/index.html>
4. Delta Institute (www.delta-institute.org), Green Business Development Center – (info. and technical assistance for small and medium-sized green businesses in the Great Lakes region)
<http://www.delta-institute.org/enewsletter/volume4/issue1/GainingGround4.1.4.php>

National wind and solar associations

1. American Wind Energy Association (AWEA)
<http://www.awea.org/>
2. American Solar Energy Society (ASES)
<http://www.ases.org/>

Additional Tools and Information

The following information and tools can be found on the Delta Institute's Green Economy website at www.delta-institute.org/greeneconomy.

- Industry codes for conducting research on potential green businesses
- Sample Green Business Survey
- Table of Funding and Incentives

Additional information, data and tools related to green economic development are available online at www.deltabrownfields.wordpress.com, where you can also sign up for Delta's *Growing the Green Economy* blog and newsletter. To find out more about Delta's technical assistance and training programs, visit www.delta-institute.org.

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About Delta Institute

The [Delta Institute](#) is a Chicago-based nonprofit organization leading the transformation of the Great Lakes region into a vital center of the Green Economy. With our affiliate [The Delta Redevelopment Institute](#), we are helping blaze a trail to the green economy so that businesses, communities and individuals throughout our region can share in its benefits. Delta fills funding gaps and implements innovative programs that promote a healthy environment, a strong economy and thriving, vibrant communities in the areas of Energy Efficiency and Climate Change Programs; Green Business and Government; Pollution Prevention, Remediation, and Reuse Investments; Sustainable Community Economic Development and Information Dissemination and Capacity Building.

Other Delta Green Economic Resources

[Delta's Green Business Development Center](#) helps green and greening businesses make economically, environmentally and socially sound choices about greening their operations, buildings, products and supply chains. For more information about consulting, planning and financial services, visit www.delta-institute.org/greenbusiness.

[Delta Training Institute](#) provides workshops and training programs designed to unlock the potential of the green economy for businesses, municipalities and support organizations throughout our region. For information on upcoming programs and customized training options, visit www.delta-institute.org/greeneconomy.

[Growing the Green Economy blog and newsletter](#): A frequently updated source of news, information and support for green economic development. Sign up for frequent information updates and alerts at <http://deltabrownfields.wordpress.com>

Find out more about how The Delta Institute can help your business or community by visiting www.delta-institute.org or call us at (312) 554-0900.



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