Green Jobs Strategies for Brownfields

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Redevelopment Economics

- Green Job Strategies
- Climate Benefits of Smart Growth
- Brownfields Strategies
- Site Redevelopment Analysis and Financing
- Incentives to Support Smart Growth
- Economic Impact Analysis
- Grant Applications

National Brownfields Coalition

Brownfields Federal Policy supported by:

Brownfields and Green Jobs

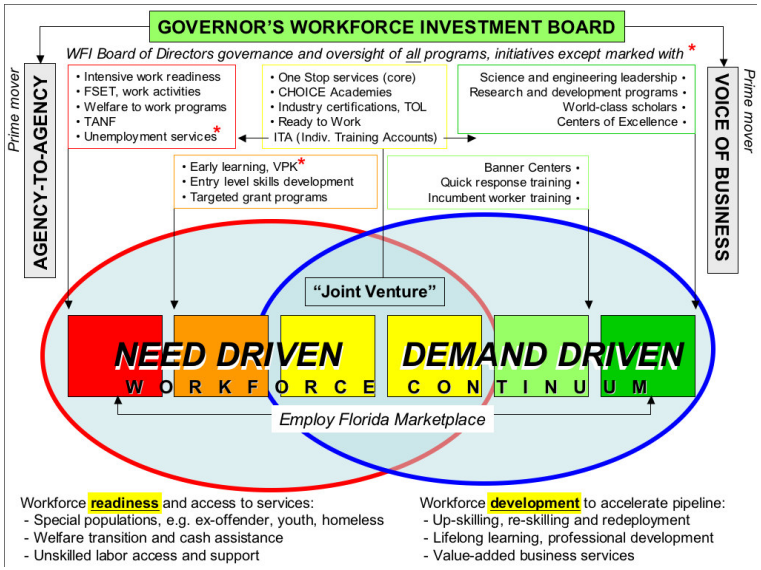
1. Green job growth
2. Strategies that place green jobs and renewable energy on brownfields
3. Green job strategy for Allegheny River Towns

Brownfields and Green Jobs

- Green job growth should go to sustainable locations:
  - Infrastructure in place
  - Near transit and close to urban activity centers
  - Close to lower income populations

Defining Green Jobs - Florida

- Workforce Florida:
  - **"A green job increases the conservation and sustainability of natural resources for the benefit of Floridians. This includes jobs that reduce energy usage or lower carbon emissions, and protect Florida's natural resources. Green jobs should provide worker-friendly conditions, pay sustainable wages and offer opportunities for continued skill training and career growth."**



Defining Green Jobs

- **Renewable energy production**
- **Component manufacturing for renewables**
- **Green buildings and energy efficiency in the building sector**
- **Waste reduction**
- **Environmental and energy management services**
- **Clean transportation**
- **Sustainable agriculture**
- **Sustainable practices in conventional businesses –**
  - **SMART certified manufacturing;**
  - **Fortune 500 companies - over 50.0% issuing sustainability reports in 2007;**
  - **SMART© Consensus Sustainable Product Standards.**

US Green Job Growth

- USCM projection:
  - 750,000 currently to more than 4.2 million by 2038.
- Pew Climate:
  - Jobs in renewable energy grew 9.1% annually, 2003-2007
- American Solar Energy Society (ASES)
  - Jobs in energy efficiency and renewables grew by 8.4 mil in 2007
  - Will grow to 38 mil by 2030 (35% of the economy).
- Apollo Alliance:
  - 380,000 in component parts manufacturing for renewable energy
- McGraw-Hill – green building sector
  - Residential
    - current 6-10% of market,
    - Expected to triple to $40 - $70 billion in 2013
  - Commercial
    - Current 10 -12%
    - Projected to triple to $56 to $70 billion

EPA Repower America

- Renewable energy – land needs. States with Renewable Energy Portfolio requirements – 6,700 MW by 2025
- EPA tracks:
  - 480,000 sites/15 million acres contaminated properties
  - 10,000 abandoned coal mines
- Screening – 5,000 sites and 1.1 million acres potentially suitable for PV

EPA Re-Power America

Buffalo – Wind farm on Contaminated Bethlehem Steel Property

- EPA Fact Sheet – "construction could occur without excavating the contaminated soil. Instead, the windmill foundations, service roads and green space cover the contamination."
- Wind turbines will generate over 50 million kilowatt-hours of electricity each year, enough electricity to power 9,000 homes.

Locating Renewable Energy on Brownfields– State Model

- Arizona Bureau of Land Management examining 42 brownfield sites totaling 26,000 acres, including:
  - Landfills
  - abandoned mine lands
  - gravel pits
  - hazardous material sites
  - former airfields
  - trash dumps

Climate Strategies that Target Brownfields – Local Models

- Cincinnati counts redeveloped brownfields as part of carbon reduction:
  - For every 0.23 acres of existing forest that is maintained, approximately 1 metric ton of CO2 emissions is saved.
  - For every 0.01 acres of deforestation of greenfield properties avoided, approximately 1 metric ton of CO2 emissions is saved.
  - For every 25.6 tree seedlings planted on a redeveloped brownfield site, approximately 1 metric ton of CO2 emissions is saved.
  - For every 680 pounds of waste not placed in a landfill by incorporating recycling of construction and demolition materials into brownfield redevelopment, approximately 1 metric ton of CO2 emissions is saved.
  - For every 0.18 cars eliminated from the roadways as a result of building businesses closer to the urban population through brownfield redevelopment, approximately 1 metric ton of CO2 emissions is saved.
  - For every person that resides in a clustered mixed-use development instead of a suburban-style residential subdivision, approximately 2.7 metric tons of CO2 emissions is saved

Green Job Strategies that Target Brownfields – Local Models

- Los Angeles
  - Developed a "clean tech" campaign
  - Targeted a 20-acre brownfield site for a green tech cluster
  - Established two green job incentive funds:
    - a $15 million port-related Technology Advancement Program (TAP);
    - Los Angeles City Employees' Retirement System - $46 million set aside.

Green Job Strategies that Target Brownfields – Local Models

- Kansas City "Green Zone" – Concentrates resources to 150 under-served area:
  - Job training
  - human resource services
  - business incentives

Green Job Strategy for Allegheny River Towns

- **Evans Paull, Redevelopment Economics** – Brownfields, green buildings and economic analysis tools
- **Chris Steele, CWS Consulting** - Private sector site selection perspective to the community's side of the table (reverse site selection)
- **Richard Greene** – Clean and renewable energy market, funding and incentives
- **Rayo Bhumgara, Sustainable Strategies 2050** – Property re-use and clean technology/ renewable energy and green jobs

Green Job Strategy for Allegheny River Towns

- Economic analysis and competitive advantage
  - Shift share and location quotient analysis
  - Evaluate competitive areas
- Examine models and competitors
- Assess area green assets
- Inventory incentives and compare…
- Business growth and opportunities
  - Current green businesses
  - Start-ups
  - Other businesses that could branch out
  - Green tech cluster???
- Examine potential matches between business expansion opportunities and the land/space available.
- Explore green tech incubator

Fort Pitt Brewery and Eco-clean Burners

Green Job Strategy for Allegheny River Towns

Economic Analysis:

- Test regional strength in green job-related sectors
- Employment trends in green-related sectors;
  - Shift-Share and Location Quotient Analysis
- Regional competitiveness analysis
  - Comparison to "Fourteen Competitor" cities through site location rating system
  - Competitor regional green industrial parks
- ***Conclusion: Pittsburgh is very competitive for green job growth***

Competitive analysis - Erie, PA:

- HeroBX Bio-Fuels re-use of International Paper site, Erie PA, 38 jobs

Models or Competitors?

Green Job Strategy for Allegheny River Towns

Keystone Industrial Port Complex in 2,400-acre US Steel, Fairless Hills, PA

- Start-up solar material manufacturer AE Polysilicon Corporation,
- Spanish wind energy manufacturer Gamesa Wind US LLC, and
- Bard Bio-fuels, a 60 Mgy soybean-based biodiesel plant

Incentives - $11.92 million in loans, grants, tax incentives

Dollars Leveraged: $104 million

Jobs Leveraged: 450

Models or Competitors?

Green Job Strategy for Allegheny River Towns

Detroit (Wixom) - Energy Park Reuse of Ford Plant

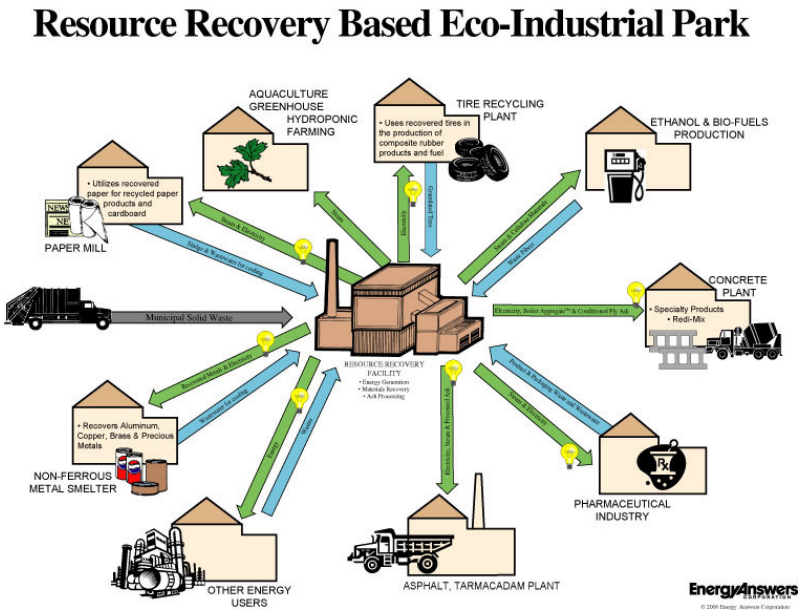
- Renewable energy park
- 2,800 jobs
- Xtreme Power (advanced battery manufacturer)
- Clairvoyant Energy (PV manufacturers)
- $100 million in tax breaks

Models or Competitors?

Green Job Strategy for Allegheny River Towns

Baltimore – CHP Plant could Anchor Industrial Redevelopment

- Energy Answers – Combined Heat and Power reuse of FMC fertilizer plant
- 120 MW plant
- 150-160 jobs
- Using 20 acres of 90-ac FMC plant, remainder complimentary industrial



Green Job Strategy for Allegheny River Towns

Current Business Base – assess potential for expansion from within:

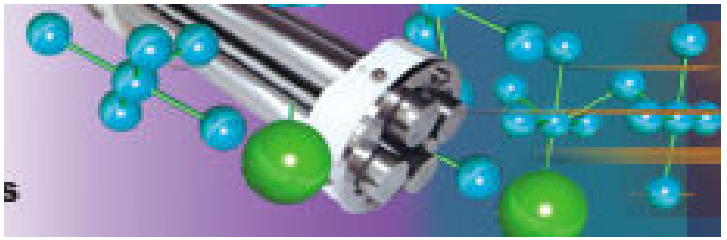
- Current base of green jobs – identify potential for expansion
- Business relationships, supplier networks
- Conventional businesses adding sustainability elements and new green product lines

- Exterior Technologies – solar skylights

- Flabeg Corp – concave mirrors for solar

Green Job Strategy for Allegheny River Towns

- Converteam – electrical systems for solar and wind



- Extrel Corp – spectrometers for bio-diesel and air monitoring

- Thar Technologies – supercritical fluid alternatives to solvents

Conclusion - Existing Business Base:

- ***Potential for adding 500 jobs just by accommodating the growth plans of existing green businesses***
- ***Business retention/ outreach as key***

Green Job Strategy for Allegheny River Towns

Assessment Of Green Assets

- Research and tech transfer
  - University research institutes
  - Federal research facility
  - Tech transfer support
- Labor and training resources
- Inventory federal, state, and local incentives applicable to green jobs
- Public sector and "leading by example"
- Marketing and communications for green jobs
- Natural features, trails, green infrastructure
- Public sector - leading by example – Allegheny Co jail – solar hot water system

Conclusion:

- ***Need over-arching regional green tech cluster.***

Green Job Strategy for Allegheny River Towns

Elements of Recommended strategy

- Expand from within through business retention, concentrating on sustainable manufacturing
- Marketing for relocations from outside the region
- Supporting start-ups and small business growth
- Maximizing area green assets
- Creating regional green tech cluster
- Funding sources to support green tech business expansion and relocation
- Funding sources for project implementation
- Structuring and targeting the ARTEZ Revolving Loan Fund (RLF) for maximum impact
- Identifying potential funding sources to supplement the ARTEZ RLF
- Policy issues for state and local government
- Supporting private green tech incubator

Brownfields and Sustainability

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