

# ***How Green Investments Can Promote Recovery and Prosperity in Ohio***

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# Green Recovery/Green Prosperity

- **Environmental and Employment imperatives**
  - Antagonistic or mutually reinforcing goals?
- **Green Pathways Out of Poverty**
  - *Employment creation*
    - Opportunities for low-credentialed workers
  - *Lowering living costs through:*
    - Building retrofits
    - Public Transportation
  - **Can this work in weak market settings?**

# Overall Clean Energy Investment Transition

- **Main Forces Behind Transition**
  - ARRA: February 2009 Stimulus/Spending Program
  - ACESA: Carbon Cap/Setting Regulatory Environment
  - Longer-term clean-energy industrial policies
  - Independent Technological Developments and Market Deepening
    - Induced Innovation/Self-sustaining growth
- **How Will Overall Transition Impact Job Creation and Poverty Reduction?**

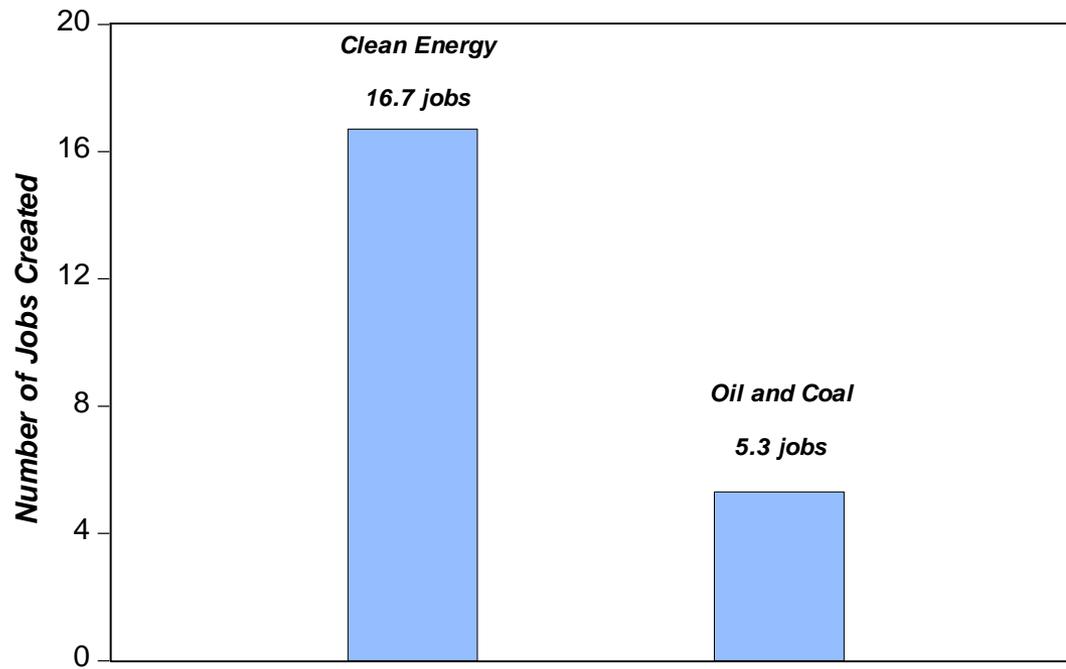
# Job Creation

- **Investments in *anything* will create jobs**
  - But: *how many* jobs per dollar of expenditure?
- **Clean Energy Investments is excellent source of job creation**
  - relative to fossil fuel energy

# Representative Clean-Energy Investment Program

- **Energy Efficiency Measures**
  - Building retrofits—40%
  - Public transportation and freight rail—20%
  - “Smart grid” electrical systems—10%
- **Renewable Energy Measures**
  - Wind power—10%
  - Solar power—10%
  - Non-food biomass—10%

## Job Creation in the U.S. through \$1 Million in Spending



Source: Input-Output Tables of U.S. Commerce Department

# Main Sources of Differences in Job Creation per \$1 million

- **Labor Intensity**

- Spending on workers vs. spending on equipment, buildings, land, energy
  - Retrofitting buildings vs. pumping or refining oil

- **Domestic Content**

- Hiring people within the U.S. versus purchasing imports

# Gross vs. Net Job Creation from Clean Energy Transition

- **Assume:** Matching new investments in clean energy with reductions in fossil fuel industry
- **Gross Job Creation:**
  - Clean energy: 16.7 jobs/\$1 million
  - Fossil fuels: 5.3 jobs/\$1 million
- **Net Job Creation:**
  - 11.4 jobs/\$1 million (=16.7 – 5.3)

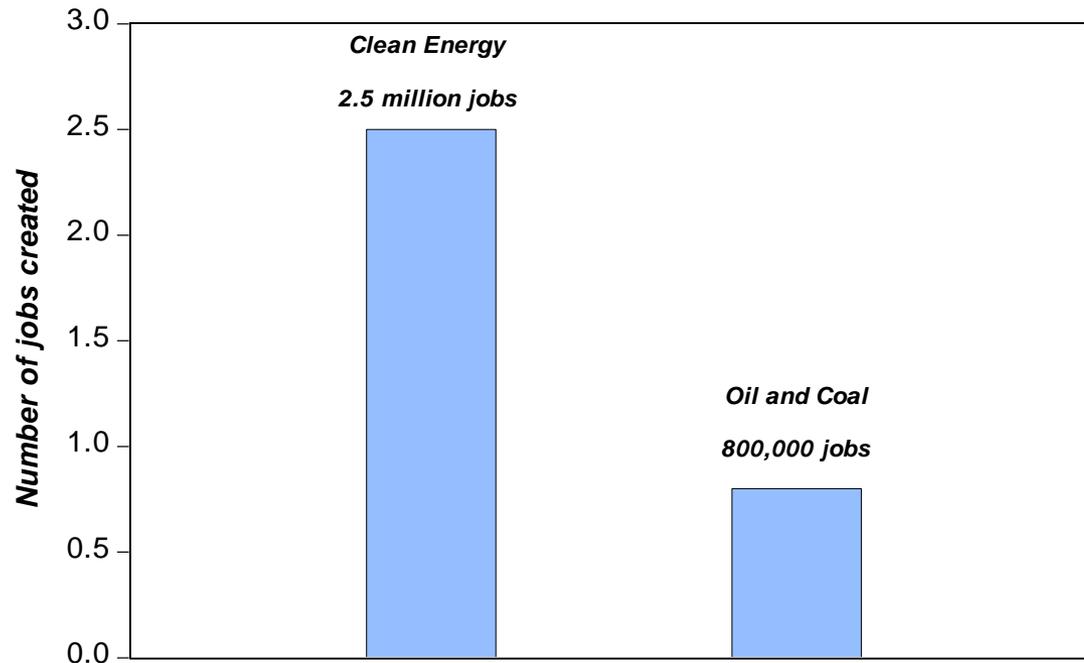
# Bad Jobs?

**Table 5.**  
**Breakdown of Job Creation through Green Investments**  
**versus Fossil Fuels by Formal Credential Levels**

(based on \$1 million of spending)

|  | <b>1) Green Investments</b>             | <b>2) Fossil Fuels</b>             | <b>3) Difference in Job Creation (= column 1 – 2)</b> |
|--|---|------------------------------------|---|
| <b>Total job creation</b>  | 16.7                                    | 5.3                                | 11.4  |
| <b>High-credentialed jobs</b><br>-- <i>BA or above</i><br>-- <i>\$24.50 average wage</i>               | 3.9<br>(23.3% of green investment jobs) | 1.5<br>(28.3% of fossil fuel jobs) | 2.4   |
| <b>Mid-credentialed jobs</b><br>-- <i>Some college but not BA</i><br>-- <i>\$14.60 average wage</i>    | 4.8<br>(28.7% of green investment jobs) | 1.6<br>(30.2% of fossil fuel jobs) | 3.2   |
| <b>Low-credentialed jobs</b><br>-- <i>High school degree or less</i><br>-- <i>\$12.00 average wage</i> | 8.0<br>(47.9% of green investment jobs) | 2.2<br>(41.5% of fossil fuel jobs) | 5.8   |
| <b>Note: Low-credentialed jobs with decent earnings potential</b><br>-- <i>\$15.00 average wage</i>    | 4.8<br>(28.7% of green investment jobs) | 0.7<br>(13.2% of fossil fuel jobs) | 4.1   |

# Job Creation through \$150 Billion Clean Energy Investment Program



Source: Input-Output Tables of U.S. Department of Commerce

# Job Creation in Cleveland

**TABLE 2. NET EMPLOYMENT EXPANSION THROUGH \$1.1 BILLION SHIFT FROM FOSSIL FUELS TO CLEAN ENERGY (BASED ON 2008 LABOR MARKET)**

|   |             |
|---|-------------|
| Job creation                                      | 10,421 jobs |
| Unemployment rate before clean-energy investments | 6.6%        |
| Unemployment rate after clean-energy investments  | 5.6%        |

source: 2004-2008 Current Population Survey; Bureau of Labor Statistics 2008, IMPLAN.

# Breakdown of Cleveland Job Creation

TABLE 3. BREAKDOWN OF NET JOB EXPANSION BY FORMAL EDUCATION CREDENTIALS

|  |                                       |
|--|---------------------------------------|
| College degree jobs <ul style="list-style-type: none"><li>• B.A. or above</li><li>• \$24.60 average wage</li></ul>                   | 2,309<br>(22.2% of clean-energy jobs) |
| Some college jobs <ul style="list-style-type: none"><li>• some college but not B.A.</li><li>• \$15.00 average wage</li></ul>         | 2,890<br>(27.7% of clean-energy jobs) |
| High school or less jobs <ul style="list-style-type: none"><li>• high school degree or less</li><li>• \$12.50 average wage</li></ul> | 5,222<br>(50.1% of clean-energy jobs) |
| High school or less jobs with decent earnings potential <ul style="list-style-type: none"><li>• \$15.40 average wage</li></ul>       | 4,290<br>(41.2% of clean-energy jobs) |

source: 2004-2008 Current Population Survey; IMPLAN.

# Job Creation in Ohio's 13<sup>th</sup> Congressional District

TABLE 2. NET EMPLOYMENT EXPANSION THROUGH \$290 MILLION SHIFT FROM FOSSIL FUELS TO CLEAN ENERGY (BASED ON 2008 LABOR MARKET)

|   |            |
|---|------------|
| Job creation                                      | 2,920 jobs |
| Unemployment rate before clean-energy investments | 6.9%       |
| Unemployment rate after clean-energy investments  | 6.0%       |

source: 2004-2008 Current Population Survey; Bureau of Labor Statistics 2008, IMPLAN.

# Breakdown of Job Creation in 13<sup>th</sup> District

TABLE 3. BREAKDOWN OF NET JOB EXPANSION BY FORMAL EDUCATION CREDENTIALS

|  |   |
|--|---|
| <p>College degree jobs</p> <ul style="list-style-type: none"> <li>• B.A. or above</li> <li>• \$24.40 average wage</li> </ul>                   | <p>670<br/>(23.0% of clean-energy jobs)</p>   |
| <p>Some college jobs</p> <ul style="list-style-type: none"> <li>• some college but not B.A.</li> <li>• \$14.80 average wage</li> </ul>         | <p>944<br/>(32.3% of clean-energy jobs)</p>   |
| <p>High school or less jobs</p> <ul style="list-style-type: none"> <li>• high school degree or less</li> <li>• \$12.50 average wage</li> </ul> | <p>1,305<br/>(44.7% of clean-energy jobs)</p> |
| <p>High school or less jobs with decent earnings potential</p> <ul style="list-style-type: none"> <li>• \$15.00 average wage</li> </ul>        | <p>1,078<br/>(36.9% of clean-energy jobs)</p> |

# Poverty Reduction: 3 Factors

- **Job Creation**
  - More jobs across all categories
  - Relative abundance of jobs for people with High School degrees or less
- **Home energy retrofits lowers utility bills**
  - Could reduce living costs up to 4%
- **Improved Public transportation**
  - Average reductions up to 4% of living costs
  - Up to 10% if replacing a car is possible

# Why Expect Green Investments in Cleveland and Akron?

- **Building Retrofits**

- Low risk/high returns
- Government subsidies/market deepening
- Large source of job creation/dollar
  - Domestic content—97 percent

- **Public Transportation**

- Highly efficient source of job creation/dollar
- Relatively small investment yields large benefits for low-income households

# Longer-Term Renewable Energy Opportunities

- **Offshore Great Lakes Wind Farm**
  - Could generate up 250,000 Mw of wind power
    - 12 times total wind capacity in U.S. today
  - Costs of wind power already competitive with coal
- **\$500 billion - \$1 trillion over 10 years**
  - Job creation: 660,000 – 1.2 million/year
    - 165,000 – 325,000 in manufacturing
- **Need Industrial Policies**
  - Comparable to Pentagon Industrial Policies
  - R&D, Financing, Procurement

# **Building a Clean Energy Economy as Transformative Agenda**

- Imperative of fighting climate change
- Promotes job creation
- Promotes poverty reduction
- Can be new engine of economic growth