Green Economics and Employment: Possibilities for Massachusetts

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Environment, Economic Growth and Jobs

• Conventional Wisdom
  – Inevitable trade-off between environment and jobs
  – Trade-off more severe under current recession
  – Need to postpone environmental initiatives under current economic crisis
Alternative Perspective: Green Investments as Answer to Recession

• Major new source of job creation
• Investments in energy efficiency will pay for themselves relatively quickly
• Promotes energy independence and oil price stability
• Promotes financial stability
• Not just “green jobs”
  – Any job can be “green”
Recent and Ongoing Major Initiatives in Massachusetts

• **MA Renewable Energy Trust (MRET)**
  – Funded by 0.05 cents/kilowatt-hour surcharge on utility customers
  – $28 million expenditures in 2007
  – Major source of clean energy investments in MA
    • $12.7 million for “large renewables
    • $9 million for “affordable green housing”
MA Initiatives, cont.

• Green Jobs Act of 2008
  – $68 million over five years

• Green Communities Act of 2008
  – $22.5 million to retrofit 8,400 public schools

• Tax Incentives
  – 2005-06 Home Energy Efficiency Tax Credit
    • 2006: 64,117 tax filers, $27.2 million in credits
  – Renewable Energy Source Credit
    • 2006: 1,400 tax filers, $710,000 in credits

• “Clean Energy Cluster” supports 14,400 jobs
  – 6,300 jobs in energy efficiency
  – Renewable energy fastest growing
  – “Poised to become” 10th largest job cluster in state

• Major employment areas
  – Renewable energy entities
  – Energy efficiency demand response
  – Consulting and support
  – University research centers
Scale and Scope: Need for Dramatic Expansion

• MA Employment for 2007: 3.4 million
  – “Clean Energy Cluster” = 0.4% of total employment

• MA State Spending for 2009: $43 billion
  – MRET = 0.07% of total spending
Green Recovery Program for U.S. Economy

• $120 Billion in Government Spending
  – $50 billion in tax credits
  – $46 billion in direct spending
  – $4 billion in loan guarantees

• 2 million increase in employment
Green Investments

• **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%
Total Job Creation through $100 Billion in Spending

Green Investments = 2 million jobs

Tax Cuts for Household Consumption = 1.7 million jobs

Spending on Oil Industry = 542,000 jobs

Source: U.S. Bureau of Economic Analysis and authors’ calculations
Why Green Investments Create More Jobs

• Three factors in job creation
  – Direct jobs
  – Indirect Jobs
  – Induced jobs

• Why some types of spending create more jobs?
  – “Labor intensity” of spending
  – Domestic Content
  – Wages higher or lower?
Additional Employment Effects

• Range of jobs
  – Spread of occupations
  – Geographic equity
  – Construction and manufacturing

• Opportunities for job ladders

• What is a “green job?”
<table>
<thead>
<tr>
<th>Strategies for Green Economy Investments</th>
<th>Representative Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building Retrofitting</strong></td>
<td>Electricians, Heating/Air Conditioning Installers, Carpenters, Construction Equipment Operators, Roofers, Insulation Workers, Carpenter Helpers, Industrial Truck Drivers, Construction Managers, Building Inspectors</td>
</tr>
<tr>
<td><strong>Mass Transit</strong></td>
<td>Civil Engineers, Rail Track Layers, Electricians, Welders, Metal Fabricators, Engine Assemblers, Production Helpers, Bus Drivers, First-Line Transportation Supervisors, Dispatchers</td>
</tr>
<tr>
<td><strong>Energy-Efficient Automobiles</strong></td>
<td>Computer Software Engineers, Electrical Engineers, Engineering Technicians, Welders, Transportation Equipment Painters, Metal Fabricators, Computer-Controlled Machine Operators, Engine Assemblers, Production Helpers, Operations Managers</td>
</tr>
<tr>
<td><strong>Wind Power</strong></td>
<td>Environmental Engineers, Iron and Steel Workers, Millwrights, Sheet Metal Workers, Machinists, Electrical Equipment Assemblers, Construction Equipment Operators, Industrial Truck Drivers, Industrial Production Managers, First-Line Production Supervisors</td>
</tr>
<tr>
<td><strong>Cellulosic Biofuels</strong></td>
<td>Chemical Engineers, Chemists, Chemical Equipment Operators, Chemical Technicians, Mixing and Blending Machine Operators, Agricultural Workers, Industrial Truck Drivers, Farm Product Purchasers, Agricultural and Forestry Supervisors, Agricultural Inspectors</td>
</tr>
</tbody>
</table>
Impact on Massachusetts

• How to distribute total funds
  – MA Share = $2.3 billion

• Job Creation in MA = 42,530

• September 2008 MA unemployment
  – Falls from 5.3 to 4.1 percent
### Table 2
Annual Savings from Investment in Home Retrofit
*Example is for Average Household, $2,500 Retrofit*

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Annual Household Income</td>
<td>$60,000</td>
</tr>
<tr>
<td>Annual Household Energy Expenditures (5% of total income)</td>
<td>$3,000</td>
</tr>
<tr>
<td>Potential Annual Savings from $2,500 Retrofit (30% of current expenditure level)</td>
<td>$900</td>
</tr>
</tbody>
</table>
What If No Federal Program?
Simple MA Govt. Loan Guarantee Program

- $1 billion in private loans
- Loan guarantee is 75 percent
  - $750 million is guaranteed by MA government
- Government only pays when loan defaults
  - Assume 4% default rate
  - Government obligation = $30 million
    - $750 million x 0.04 = $30 million
    - $30 million billion is 0.7 percent of MA budget
      - Roughly equal to MRET budget
National/MA Green Investments as Transformative Program

• Fights Global Warming
• Creates Millions of Decent Jobs
  – 42,000 in Massachusetts
• Is Affordable
• Will Help Stabilize Financial Markets
• Promotes Energy Independence