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Green Economics and Employment: Possibilities for Massachusetts

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U Mass Clean Energy Connections Conference

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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

MA Clean Energy Industry Census (2007)

- **“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

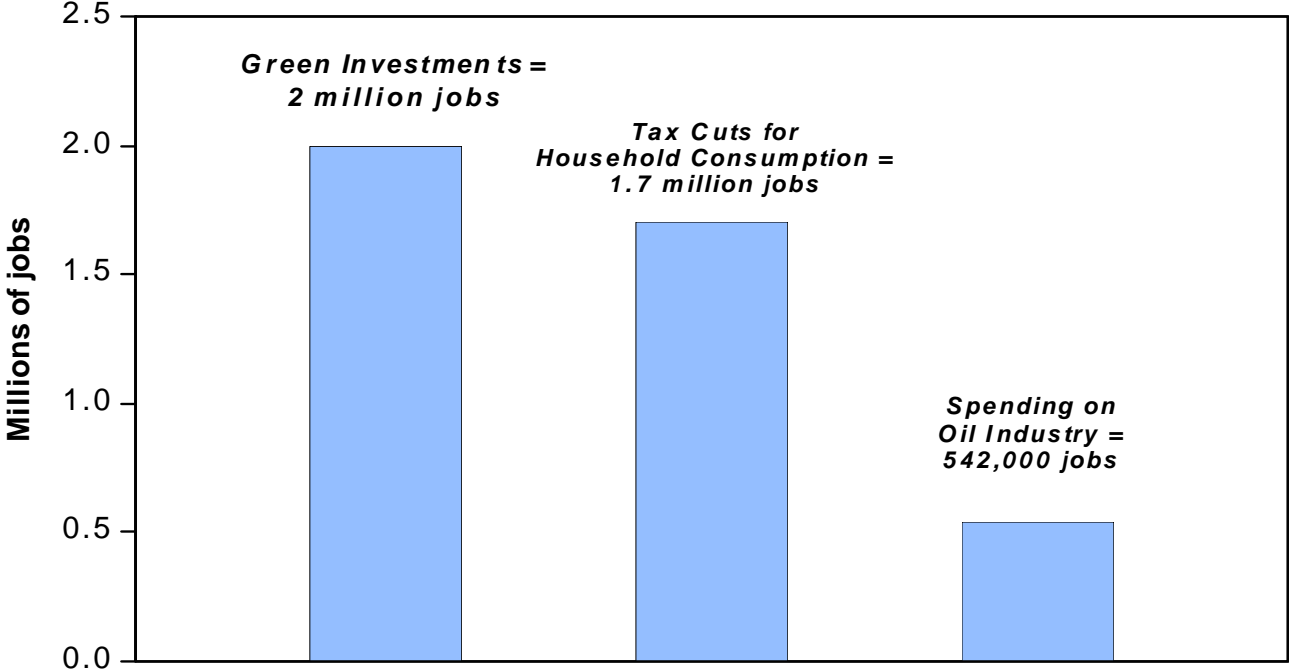
Green Recovery Program for U.S. Economy

- **\$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



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?”**

Strategies for Green Economy Investments	Representative Jobs
Building Retrofitting	Electricians, Heating/Air Conditioning Installers, Carpenters, Construction Equipment Operators, Roofers, Insulation Workers, Carpenter Helpers, Industrial Truck Drivers, Construction Managers, Building Inspectors
Mass Transit	Civil Engineers, Rail Track Layers, Electricians, Welders, Metal Fabricators, Engine Assemblers, Production Helpers, Bus Drivers, First-Line Transportation Supervisors, Dispatchers
Energy-Efficient Automobiles	Computer Software Engineers, Electrical Engineers, Engineering Technicians, Welders, Transportation Equipment Painters, Metal Fabricators, Computer-Controlled Machine Operators, Engine Assemblers, Production Helpers, Operations Managers
Wind Power	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
Solar Power	Electrical Engineers, Electricians, Industrial Machinery Mechanics, Welders, Metal Fabricators, Electrical Equipment Assemblers, Construction Equipment Operators, Installation Helpers, Laborers, Construction Managers
Cellulosic Biofuels	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

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

Annual Household Income	\$60,000
Annual Household Energy Expenditures (5% of total income)	\$3,000
Potential Annual Savings from \$2,500 Retrofit (30% of current expenditure level)	\$900

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