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# Green Economics and Employment: Possibilities for Massachusetts

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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” 10<sup>th</sup> 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



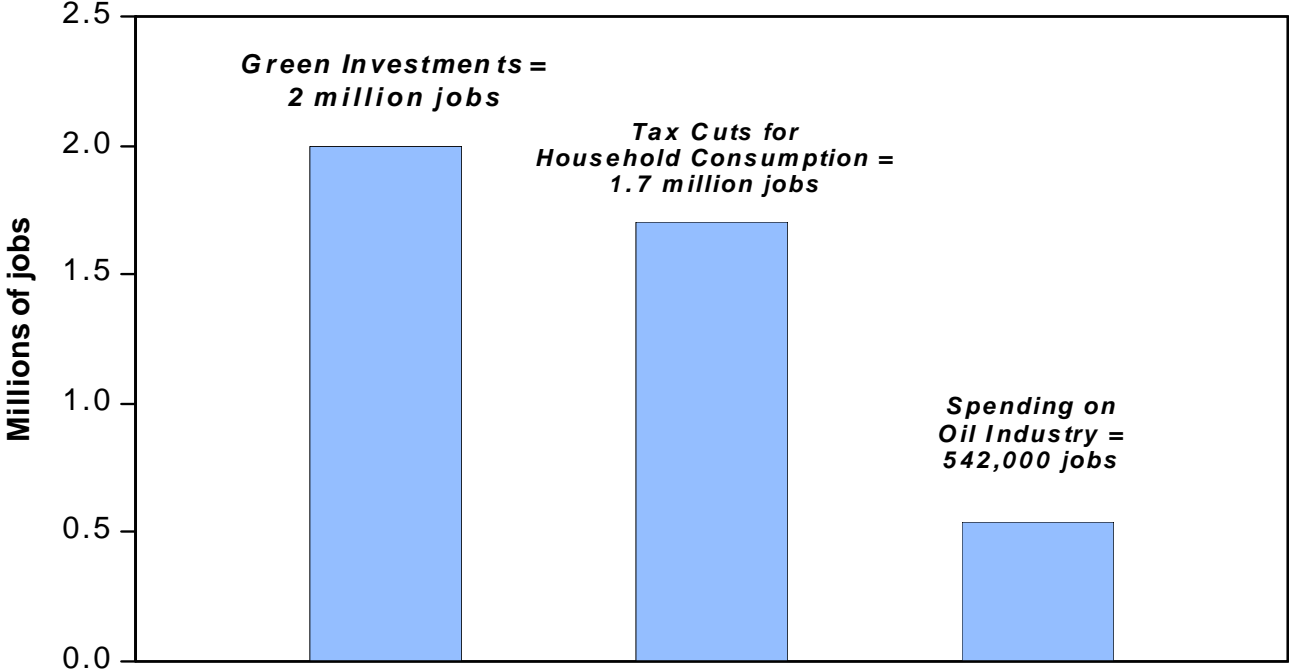
# **Green Recovery Program for U.S. Economy**

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