

Green Recovery since the American Recovery and Reinvestment Act (ARRA)

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Assessing the ARRA: Principle

- The ARRA overall as a stimulus
 - \$787 billion in government spending
 - Severity of recession
 - Unemployment today
- Green Recovery in ARRA
 - Establishes new principle in economic policy
 - Building a clean-energy economy is good for jobs and economic growth
 - \$100 billion in total government spending

Breakdown of ARRA Green Recovery Spending

TABLE 1
Environmental spending through the ARRA
 Billions of dollars

Type of funding	Direct public spending	Grants	Tax incentives	Loan guarantees	Bonds	Total
Federal spending						
Renewable energy	\$2.5	\$2.3	\$16.0	\$4.0	\$0.6	\$25.3
Energy efficiency	7.2	14.4	2.0	0	0.8	24.4
Transportation	0.6	20.1	2.1	0	0.3	23.0
Grid	6.6	4.4	0	2.0	0	13.0
Nuclear decontamination	6.0	0	0	0	0	6.0
Fossil		3.4	0	0	0	3.4
Science	1.6	0	0	0	0	1.6
Other	2.3	0.7	0	0	0	3.0
Government admin	0.75		0	0	0	0.8
Total	\$27.6	\$45.3	\$20.0	\$6.0	\$1.7	\$100.5

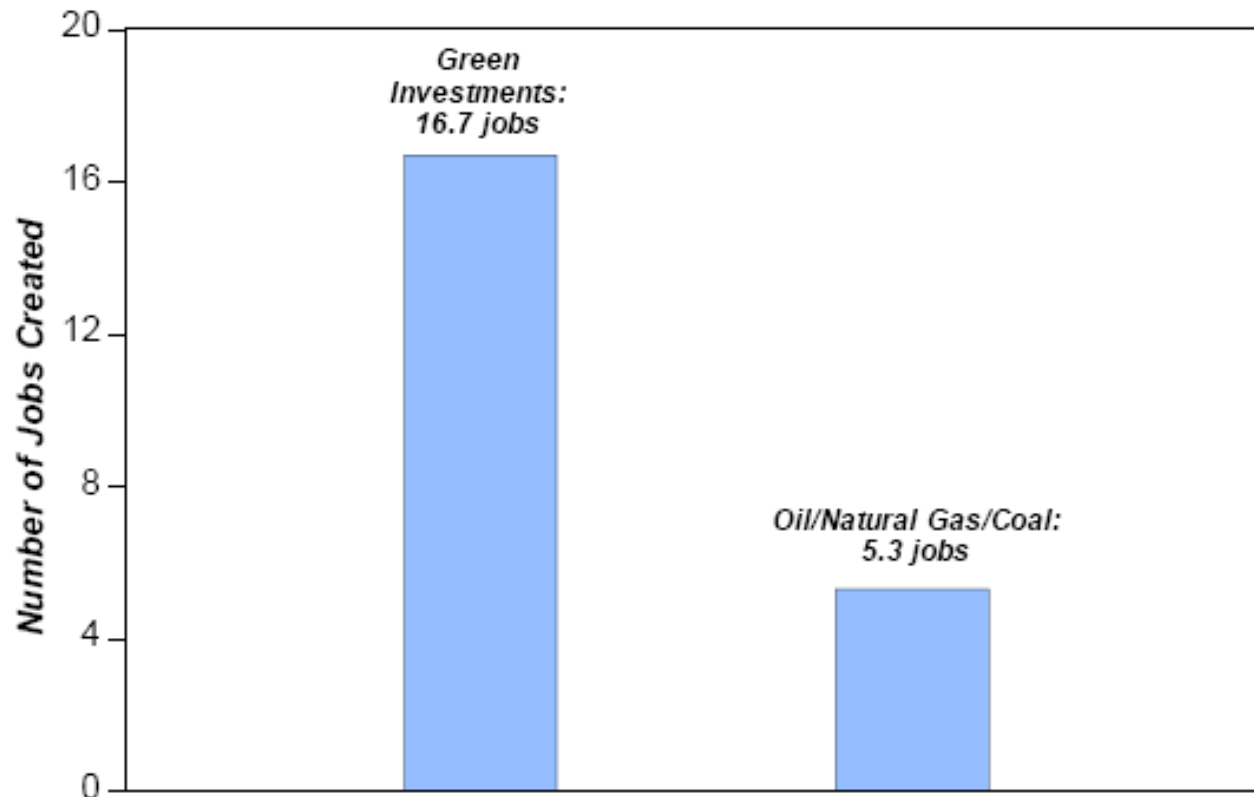
Direct Government Spending and Incentives

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Total	\$27.6	\$45.3	\$20.0	\$6.0	\$1.7	\$100.5
State/local government and private investment						
State/local government and private spending induced by federal funds: <i>as proportion of federal funds</i>	0	Ranges by program between 0–3 times federal spending	Up to 2.3 times federal spending	Up to 10 times federal spending	Up to 3 times federal spending	–
State/local government and private spending induced by federal funds: <i>as dollar amounts</i>	0	\$68 estimated (= 1.5 times federal spending average)	Up to \$46	Up to \$60	Up to \$5.1	Up to \$179.1
Total, all sources	\$27.6 billion	Up to \$113.3	Up to \$66	Up to \$66	Up to \$6.8	Up to \$280.0

Green Investment Program

- **Energy Efficiency Measures—70%**
 - Building retrofits—40%
 - Public transportation and freight rail—20%
 - “Smart grid” electrical systems—10%
- **Renewable Energy Measures—30%**
 - Wind power—10%
 - Solar power—10%
 - Non-food biomass—10%

**Figure 1. Job Creation through \$1 Million in Spending:
Green Investments vs. Fossil Fuels**



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

Note: Employment estimates include direct, indirect, and induced jobs.

TABLE 10

Breakdown of job creation through green investments versus fossil fuels by formal credential levels

Based on \$1 million of spending

	1) Green investments	2) Fossil fuels	3) Difference in job creation (= column 1–2)
Total job creation	16.7	5.3	11.4
High-credentialed jobs			
• B.A. or above	3.9	1.5	2.4
• \$24.50 average wage	(23.3% of green investment jobs)	(28.3% of fossil fuel jobs)	
Mid-credentialed jobs			
• Some college but not B.A.	4.8	1.6	3.2
• \$14.60 average wage	(28.7% of green investment jobs)	(30.2% of fossil fuel jobs)	
Low-credentialed jobs			
• High school degree or less	8.0	2.2	5.8
• \$12.00 average wage	(47.9% of green investment jobs)	(41.5% of fossil fuel jobs)	
Note: Low-credentialed jobs with decent earnings potential			
• \$15.00 average wage	4.8	0.7	4.1
	(28.7% of green investment jobs)	(13.2% of fossil fuel jobs)	

TABLE 3

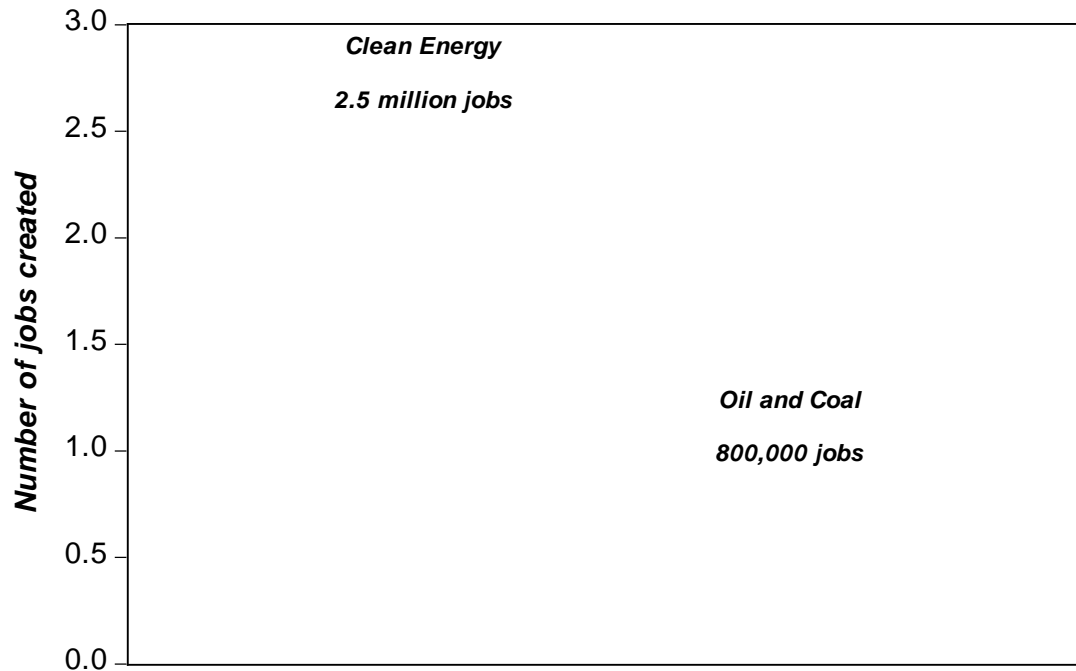
Breakdown of \$150 billion in potential annual U.S. clean-energy investment

Includes only clean-energy investment areas that expand job opportunities

Clean-energy investment area	Potential annual investment level
Energy efficiency	
Building retrofits	\$80 billion
Smart grid	\$20 billion
Public transportation	\$5 billion
Cogeneration	\$5 billion
Renewable energy	
On grid renewable electricity	\$30 billion
Off grid renewable electricity	\$3 billion
Off grid renewable—nonelectrical	\$3 billion
Alternative motor fuels	\$5 billion
Total	\$151 billion

Source: See discussion in text.

Job Creation through \$150 Billion Clean Energy Investment Program



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

But Where Are the Jobs Today?

TABLE 2
Congressional Budget Office estimated rate of ARRA spending on renewable energy and energy efficiency

Year of ARRA spending	Percentage of total direct federal spending in given year	Cumulative percentage of direct federal spending as of given year
2009	2.6%	2.6%
2010	12.2%	14.8% (2009–10 spending)
2011	19.9%	34.7% (2009–11 spending)
2012	22.1%	56.8% (2009–12 spending)
2013	17.6%	74.4% (2009–13 spending)
2014	15.1%	90.0% (2009–14 spending)
2015	6.2%	95.7% (2009–15 spending)
2016	1.6%	97.3% (2009–16 spending)

Ways to Accelerate Green Recovery

- **Building Retrofits**
 - Improving Market Connections
 - Financial intermediation and spreading risk
- **Transportation**
 - Public Transportation:
 - Government procurement for buses
 - Loan Guarantees for building electric cars
 - \$500 million for GM Delaware plant
- **Smart-Grid Investments**
 - \$4.3 billion in new investments

Building the Green New Deal: Impact of Clean Energy Investments

- Fights Global Warming
- Promotes Energy Independence
- Net Employment Creation of 2 – 2.5 Million Jobs
 - Can operate as both short- and long-run program