

RECOVERY IN ENERGY  
AND THE ENVIRONMENT:  
USE AND DISTRIBUTION  
OF RECOVERY ACT  
AWARDS IN OHIO

A REPORT FROM  
POLICY MATTERS OHIO

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## **Recovery in Energy and the Environment:** Use and distribution of Recovery Act awards in Ohio

### **Executive summary**

The billion dollars in Recovery Act clean energy and environmental funds awarded as of June 30, 2010 to companies, organizations, governmental entities and individuals in Ohio were aggressively pursued and quickly spent. The state ranked 7<sup>th</sup> in use of award funding in the Department of Energy's cumulative summary dated September 24, 2010. Distribution of these federally funded allocations and awards has favored counties with severe economic distress. The emphasis on clean energy investment in the federal stimulus has promoted the momentum of our own Bipartisan Jobs Stimulus of 2008: By early spring, it was announced that Ohio led the states in number of clean energy and environmental jobs created with Recovery Act funding.

The American Recovery and Reinvestment Act of 2009 was needed in Ohio. In August over 600,000 Ohioans were looking for work in an economy where the unemployment rate had been over ten percent for going on two years. Recovery Act funding for clean energy and conservation offers an economic jumpstart in key domestic and international growth sectors. Moreover, clean energy sectors have multiple spin-offs, like lowering household and factory costs and reducing the carbon emissions that drive unpredictable weather like the winds of Hurricane Ike in Columbus and the devastating floods around Toledo.

In this paper, we look at the national commitment to energy and the environment under the Recovery Act and examine the use of those funds across the state. We examine estimated funding by county to see if places hit hardest by the recession are seeing relief from the important infrastructure and job creation programs in these categories. We focus on the largest clean energy programs, describing awards and use of funds.

We find that in Ohio, the highest per-capita funding occurred in the most economically distressed counties. Significant funding through water and sanitary infrastructure programs administered by the EPA supported construction jobs and improved infrastructure. Rural counties showed particular benefit on a per-capita basis. The economic distress of rural counties is high: Ohio ranks third among the states in number of rural jobs lost in this recession. At the same time, per-capita investment in urban counties lags the state average.

In many clean energy programs, Ohio is a leader. Ohio leads the nation in home weatherization; we are among the top in Midwestern and adjacent states in use of the energy efficiency programming; and our state has been described as one of the top ten 'driving' states in application of Smart Grid funds. Ohio manufacturing facilities ranked fourth in the nation in use of the Advanced Manufacturing Tax Credit ("48C" tax credits), their \$125 million in tax credit allocation absorbing 7.6

percent of the total national allocation. The U.S. Treasury's "1603 tax credit" (a grants-in-lieu-of tax credit program for clean energy generation) will subsidize 29 new clean energy generation projects in Ohio, although the projects are smaller, on average, than those in neighboring states. New incentives for clean energy generation signed into law at the end of September are expected to boost activity in this program by year's end. Overall, we found Recovery Act investment in energy and the environment has been well utilized across Ohio.

At the same time, our exploration of the extensive data and reporting on the Recovery Act left us both overwhelmed with quantity and underwhelmed with organization and specificity. There is no shortage of financial reports and lists of awards. Dates vary and there is subjectivity in categories and lists, but these are minor issues. There are, however, some problems. Job numbers are not cumulative. Recipient reporting on jobs has not been rigorously enforced at the federal level, although improved standards and guidance has been issued. The federal government does not require information on race, gender or residence of job recipients, which makes it hard to tell who is getting helped in neighborhoods and communities. Policy recommendations include:

1. **We need neighborhood-level data on gender and race of people who get jobs or businesses that get loans, grants or contracts under the Recovery Act** to help understand impact and to permit benchmarking and evaluation. The federal government should review award protocol and mechanisms to ensure Recovery funds are reaching neighborhoods with the highest economic distress in the measure that they are needed.
2. **Ohio should keep an eye on the 1603 tax credit grant program has been low.** We expect to see increased awards in Ohio. To maximize benefit to the state, the federal government needs to extend this important program beyond December 2010.
3. **We need national climate and energy legislation.** Market demand and financing opportunities need national clarification, unification, organization and boundaries. Our trade competitors have national clean energy and manufacturing policies and we need the same. Lack of interest in some clean energy financing programs may be due to the patchwork quilt of state policies and procedures.
4. **The federal government must continue to invest in clean energy markets.** By 2020, clean energy will be one of the world's biggest industries, totaling as much as \$2.3 trillion. In the wake of the Great Recession, we cannot afford to let this job engine develop offshore.
5. **A national price must be levied on emissions.** The U.S. Congress must pass emissions legislation that charges for pollution of companies and utilities, and reinvest the capital in a new, efficient, clean energy industrial base that will generate jobs as well as clean energy.

## **Recovery Through Investment in Energy and the Environment: Use and distribution of Recovery Act awards in Ohio**

The American Recovery and Reinvestment Act of 2009 provided tax cuts to households and businesses, expanded safety net services for the millions of jobless, and pumped business investment into the local economy. It has been estimated that the \$787 billion appropriation, to be allocated over two to three years, has created between 1.3 and 3.4 million jobs.<sup>1</sup> This investment was necessary because the deregulated lending market had spawned a vast speculative housing bubble of inflated values and fraud which, when it burst, blew out the entire financial system, causing a swift and deep recession. Little was left unharmed. The federal stimulus was enacted to repair the damage. In this paper, we look at stimulus investment in a slender patch of economic resilience: clean energy and the environment.

Clean energy and environmental investments are related through outcomes. Cleaner energy reduces the air pollution that drives global warming and affects weather patterns, causing flooding and drought, which in turn require new land and water management techniques. In response to chaotic weather patterns and deteriorating ecosystems, nations around the world are working to reduce air pollution and halt global warming, largely through using cleaner sources of power for energy. As a result, the clean energy market is forecast to become one of the largest international markets in the world in the next decade.<sup>2</sup> The Great Recession of 2009 dampened demand, but the federal stimulus provided incentives to reignite the domestic market. According to Bloomberg New Energy Finance, government investment has lured private money back, with a record \$2.1 billion placed in U.S. clean-energy venture deals in the second quarter of 2010.<sup>3</sup>

The focus on conservation and clean energy makes sense for many reasons. These sectors are labor intensive and can put many back to work. Factories and buildings and homes in the United States are not energy efficient, which means we have become wasteful, spending far too much on energy. Fossil fuel energy resources are too often imported, sucking money out of the domestic economy. Retrofit of homes and workplaces and clean, renewable energy generation would bring that spending down, and bring it back home. Finally, our overheated planet cannot continue to tolerate the levels of carbon emissions that we currently emit – levels that would continue to rise without public action. Investing in conservation and clean energy would make our economy more sustainable, more prosperous, and less polluting.

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<sup>1</sup> Center for Budget and Policy Priorities, citing Congressional Budget Office figures, “The Legacy of the Great Recession,” at <http://www.cbpp.org/cms/index.cfm?fa=view&id=3252>; also, Mark Zandi and Alan Binder, “How the Great Recession was Brought to an End,” July 27, 2010; Scenario II (simulation of no fiscal stimulus) indicates the economy would have had 2.1 million jobs less without the stimulus package.

<sup>2</sup> Kate Gordon et. al., “Out of the Running?: Why the United States Risks Getting Left Behind on the Clean-Energy Race,” Center for American Progress, March 2010.

<sup>3</sup> Mike Dorning, Bloomberg.com, August 5 2010 at <http://www.bloomberg.com/news/2010-08-05/obama-plays-venture-capitalist-in-chief-with-bets-on-clean-energy-industry.html>

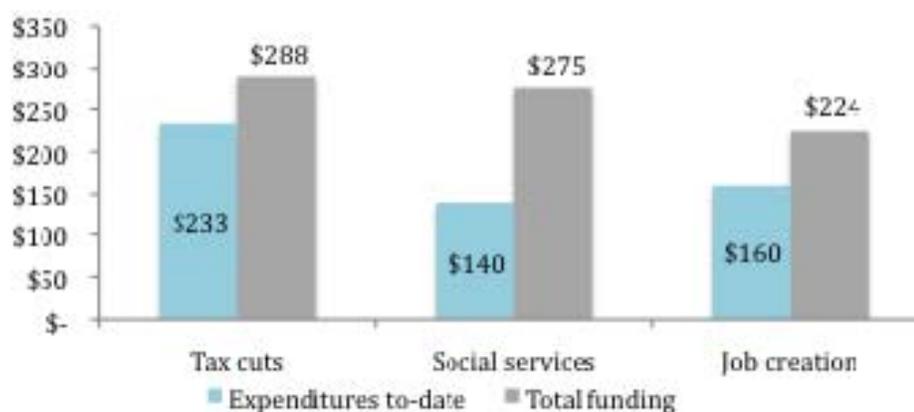
Targeted investment in clean energy and the environment works for the Ohio economy. Because of the size and diversity of Ohio's industrial base, Ohio has long been considered one of the top five states to benefit from the growth of clean energy. Between 1997 and 2007, jobs in clean energy grew by 7.3 percent in Ohio while other employment shrank by 2.2 percent.<sup>4</sup> Ohio chose clean and advanced energy as a focus for our own Bipartisan Jobs Stimulus initiative of 2008. By the second quarter of the stimulus, Ohio led the nation in number of green jobs created under ARRA funding, with over 3000 jobs.<sup>5</sup>

In this paper, we look at national commitment to energy and the environment under the American Recovery and Reinvestment Act of 2009 and examine state use of those funds to date. We examine total awards in these categories to counties to see if federal funds are flowing to places hit the hardest by the recession. We focus on the largest investment and tax credit programs supporting clean energy in Ohio.

## I. Overview of the American Reinvestment and Recovery Act of 2009

The American Recovery and Reinvestment Act of 2009 ("ARRA" or "Recovery Act") is a significant investment in the workers, families, companies, communities and states of America. From a high level perspective, the \$787 billion Recovery Act investment was used for three primary purposes: tax cuts for families and businesses; safety net services for the eight million who lost their jobs; and job creation (Figure 1).

**Figure 1: ARRA Total investment and expenditures to date (billions of dollars)**



Source: Policy Matters Ohio based on <http://www.recovery.gov/Pages/home.aspx>; 9/28/2010.

The federal website that reports on the distribution and use of stimulus funds indicates that close to \$7.9 billion has been awarded to Ohio and of that

<sup>4</sup> Pew Charitable Trust at <http://www.pewglobalwarming.org/cleanenergyeconomy/States.html>

<sup>5</sup><http://www.staterecovery.org/Websites/staterecovery/Images/Green%20Jobs%20Created%20or%20Saved%20Quarter%20%20National.pdf> (Council of State Governments)

funding, about \$2.5 billion has been spent. As a result, 25,894 direct jobs were created in Ohio in the fourth and most recent quarter (April through June of 2010). This tally is not complete, for a variety of reasons. Many funded projects have not yet been completed and will create more jobs later in the process. Enforcement guidelines on reporting have been only recently reiterated.<sup>6</sup> Recordkeeping from the state of Ohio is transparent and accessible, but reporting by recipients other than the state rolls up to the federal website, which is difficult to manipulate.<sup>7</sup> Reporting is not cumulative; total job count has not yet been rolled up into one figure. Importantly, the job counts on state recovery websites only count direct jobs, not “indirect jobs” created by procurement of goods and services supplied to ARRA-funded projects nor “induced jobs” in stores, restaurants and other commercial establishments as workers whose paychecks are supported by stimulus funds spend their wages. The President’s Council of Economic Advisors estimates the Recovery Act has underwritten 117,000 direct, indirect and induced jobs in Ohio.<sup>8</sup>

### **Clean Energy Investment in ARRA**

Investments in clean energy are intended to create jobs now and to build the job engine for the future. Energy investment saves money by making our economy more efficient: it reduces heating and cooling bills and reduces spending on foreign and polluting fuel, keeping more dollars at home for the recovery. It has a multiplier effect in several ways. People have been put back to work making homes and buildings more efficient, building wind farms and solar fields and manufacturing components for clean energy production. The economy has been strengthened by the revitalization of capital stock and development of new products.

Many countries, including Germany, Spain, China and India, have made significant investments to seize the economic opportunity presented by clean energy. Their investments were a result of intentional public policies, which provide a strong stimulus for public and private investment in clean-energy markets, infrastructure, and human resources.<sup>9</sup> In America, individual states have created programs to encourage the growth of clean energy markets, including Ohio’s Bipartisan Job Stimulus program of 2008, which reserved \$150 million of a \$1.57 billion dollar economic development initiative for advanced and clean energy projects. The United States as a nation, however, has not chosen to implement

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<sup>6</sup> On April 6, 2010, President Obama issued a memorandum titled “Combating Noncompliance with Recovery Act Reporting Requirements,” which called for more aggressive action by federal agencies; on September 24, 2010 a new guidance was issued, emphasizing that “[n]o rate of non-compliance is acceptable and each case of non-compliance will be addressed.”

<sup>7</sup> States for an Accountable Recovery is a coalition of state level organizations focused on federal stimulus accountability: <http://accountablerecovery.org/> See Phil Mattera, “ARRA job Reporting Problems Persist,” STAR website at <http://accountablerecovery.org/blog/arra-job-reporting-problems-persist>

<sup>8</sup> Executive Office of the President, Council of Economic Advisors, Economic Impact of the American Recovery and Reinvestment Act of 2009, Fourth Quarterly Report, July 14, 2010

<sup>9</sup> Kate Gordon et. al., “Out of the Running?: Why the United States Risks Getting Left Behind on the Clean-Energy Race,” Center for American Progress, March 2010.

policies to support domestic industries in specific markets. The Recovery Act has been the primary domestic policy lever to grow the clean energy market in the United States. Table 1 shows nearly three-dozen Recovery Act investment and loan guarantee programs, totaling \$63.3 billion dollars, which fund clean energy. Table 2 shows tax incentives under ARRA.

**Table 1: ARRA grant, loan and loan guarantee programs in clean energy**

| <b>Energy - Investment Programs</b>   | <b>(Millions of \$)</b> |
|---|-------------------------|
| Money for federal power marketing administrations in electric power transmission            | \$6,500                 |
| Energy efficiency grants to states and local governments                                    | \$6,300                 |
| Innovative Energy Loan Guarantee Programs   | \$6,000                 |
| Construction, repair and energy alterations to federal buildings and facilities             | \$5,550                 |
| Cleanup of former nuclear defense sites   | \$5,127                 |
| Home weatherization grants to low and middle-income families                                | \$5,000                 |
| Modernization of the electric grid  | \$4,400                 |
| Loan guarantees for standard renewables   | \$4,000                 |
| Research and development of renewable and efficient energy technology                       | \$2,500                 |
| Energy efficiency retrogrades to low-income housing: insulation, windows and furnaces       | \$2,250                 |
| Funds for building and rehabilitating low-income housing using green technology             | \$2,250                 |
| Advanced batteries manufacturing grants   | \$2,000                 |
| Transmission loan guarantees  | \$2,000                 |
| Physics research including high-energy physics, nuclear physics and fusion energy sciences  | \$1,600                 |
| Grants for industrial carbon capture and energy efficiency improvement projects             | \$1,520                 |
| Fossil energy research and development  | \$1,000                 |
| Renovations and energy efficiency improvements to veterans medical facilities               | \$1,000                 |
| Research into low-emission coal plants  | \$800                   |
| Grants to rehabilitate and improve energy efficiency on Native American housing programs    | \$510                   |
| Cleanup of former nuclear sites   | \$483                   |
| Transport electrification grants  | \$400                   |
| High-risk research into energy sources and energy efficiency                                | \$400                   |
| Uranium enrichment decontamination and decommissioning                                      | \$390                   |
| Purchase of fuel efficient vehicles for federal fleet                                       | \$300                   |
| Research and development of renewable energy generation for military                        | \$300                   |
| Funding for states and local governments to buy efficient alternative fuel buses and trucks | \$300                   |
| Defense energy conservation investments   | \$120                   |
| Training of electric grid workers   | \$100                   |
| Navy and Marine Corps energy conservation and alternative energy projects                   | \$100                   |
| Grants for identifying sites to store carbon dioxide emissions                              | \$50                    |
| Grants for training and research on safe storage of carbon emission                         | \$20                    |
| Oversight of Energy Department spending   | \$15                    |
| Administration of funding program   | \$10                    |
| Construction and repairs for federal marketing administration                               | \$10                    |
| <b>TOTAL</b>  | <b>\$63,305</b>         |

Source: Policy Matters Ohio, based on Wall Street Journal Online (2/17/09) at [http://online.wsj.com/public/resources/documents/STIMULUS\\_FINAL\\_0217.html](http://online.wsj.com/public/resources/documents/STIMULUS_FINAL_0217.html), New York Times (2/18/09) at <http://projects.nytimes.com/44th-president/stimulus> and US DOE (<http://www.energy.gov/additionaltaxbreaks.htm>)

There are many estimates of the full sum of Recovery Act investment in clean energy alone. White House estimates put it in the \$80 billion<sup>10</sup> to \$90 billion range.<sup>11</sup> Subjectivity plays a role in inclusion of programs on the list. For example, is the program for “Rehabilitation and energy efficiency in veterans’ medical facilities” a clean energy program or a veterans’ program? In addition, some programs have been reduced to fund new initiatives since the Recovery Act was passed in February of 2009: the ‘Cash for Clunkers’ program, which encouraged people to trade in old cars with low efficiency for new low-fuel models was funded out of the “Innovative Energy Loan Guarantee” line.

Table 2 shows thirteen additional clean energy programs associated with tax incentives (or otherwise funded from the U.S. Department of Treasury) totaling \$22.6 billion. In some cases, the programs are called tax credits but represent sources of funds in which the credit may be transferred into a cash grant. Regardless of the form, name or agency source, these programs all represent an investment of federal resources into an economy based on cleaner energy.

**Table 2: ARRA tax credits for clean energy**

| <b>Energy - Tax Credits</b>  | <b>(Millions of \$)</b> |
|--|-------------------------|
| Extending by three years the service date for renewable energy ("Production tax credit") | \$13,143                |
| Advanced Energy Manufacturing Tax Credit - 48(C)   | \$2,300                 |
| 30% cap on tax credit for energy efficiency purchases by homeowners, up to \$1500 per    | \$2,034                 |
| Tax credit for plug-in electric vehicle conversion                                       | \$2,002                 |
| \$2.4 billion extra qualified energy conservation bonds                                  | \$803                   |
| Removal of cap on tax credits for purchase of small wind systems                         | \$604                   |
| \$1.6 billion extra allocation of clean energy bonds                                     | \$578                   |
| Funding for Energy Star program offering tax credits for efficient appliances            | \$300                   |
| Investment credits in lieu of production credits for renewable energy purchases          | \$285                   |
| Credit for purchase of residential solar, geothermal, wind and fuel cells                | \$268                   |
| Equalization of parking and transit tax-free employer benefits at \$230 for 2009         | \$192                   |
| Grants to states for energy projects in lieu of credits                                  | \$69                    |
| 50% tax credit for purchase of alternative refueling stations                            | \$54                    |
| <b>TOTAL</b>   | <b>\$22,632</b>         |

Source: Policy Matters Ohio, see citation for Table 1.

Names of programs and content of categories may vary by list and publication. A query to the U.S. Treasury about total sum dedicated to the “1603 Grants-in-lieu of tax credits” program yielded this response: “There (are) unlimited

<sup>10</sup> Memorandum to the President from the Vice President, 12/15/2009, Progress Report: The Transformation to A Clean Energy Economy at <http://www.whitehouse.gov/administration/vice-president-biden/reports/progress-report-transformation-clean-energy-economy>

<sup>11</sup> The White House website lists \$80 billion at <http://www.whitehouse.gov/issues/energy-and-environment>; the \$90 billion figure was given in: Executive Office of the President, Council of Economic Advisors, Economic Impact of the American Recovery and Reinvestment Act of 2009, Supplement to the Third Quarterly Report, April, 2010

funds for this program.”<sup>12</sup> The *New York Times* broke out the major category on tax incentives for business in the category of energy as follows:

*“Expanded tax incentives for renewable energy facilities (funded at) \$14.0 billion; (this included) extend[ing] production tax credit for wind energy facilities through 2012 and other renewable energy facilities through 2013; allow[ing] renewable facilities to claim investment tax credit instead of production tax credit; remov[ing] cap on investment tax credit for small wind property; allow[ing] renewable energy producers to claim a 30 percent cash grant from the Treasury Department in lieu of the 30 percent investment tax credit.” (New York Times (2/18/09)*

[http://projects.nytimes.com/44th\\_president/stimulus](http://projects.nytimes.com/44th_president/stimulus)

The state of Ohio reports on clean energy stimulus funding jointly with environmental funding. The linkage is outcomes: carbon emissions affect the environment; clean energy almost always improves environmental outcomes. The impact of environmental programs on energy generation is less apparent (clean water programs, for example). Because they are reported together by the state, we include here a list of environmental programs included in the federal stimulus (Table 3).

**Table 3: ARRA spending on the Environment**

| <b>Environmental</b>   | <b>(Millions of \$)</b> |
|--|-------------------------|
| Loans to upgrade wastewater treatment & drinking water infrastructure            | \$6,400                 |
| Flood control and water management construction, regulation and investigations   | \$4,125                 |
| Water reclamation and reuse projects   | \$1,000                 |
| National Park Service deferred maintenance                                       | \$735                   |
| Renovation of forest roads, bridges and trails, remediation of abandoned mines,  | \$650                   |
| Cleanup of hazardous and toxic waste sites                                       | \$600                   |
| Fire hazard reduction on federal and state lands                                 | \$500                   |
| Repair of schools, detention centers, roads, bridges, on Indian reservations     | \$490                   |
| Mississippi River and tributary construction                                     | \$375                   |
| Wildlife refuge and fish hatchery construction, maintenance, visitors centers    | \$280                   |
| Cleanup of petroleum leaks from underground storage tanks                        | \$200                   |
| Priority road, bridge and trail repairs  | \$180                   |
| Repairing facilities and equipment for U.S. Geological Survey seismic activities | \$140                   |
| Deferred maintenance on federal lands  | \$125                   |
| Clean-up of 'brownfield' former industrial sites                                 | \$100                   |
| Environmental Protection Agency spending oversight                               | \$20                    |
| Wildland fire management   | \$15                    |
| Preservation grants for historically black colleges and universities             | \$15                    |
| Interior spending oversight  | \$15                    |
| Indian guaranteed loans  | \$10                    |
| <b>TOTAL</b>   | <b>\$15,975</b>         |

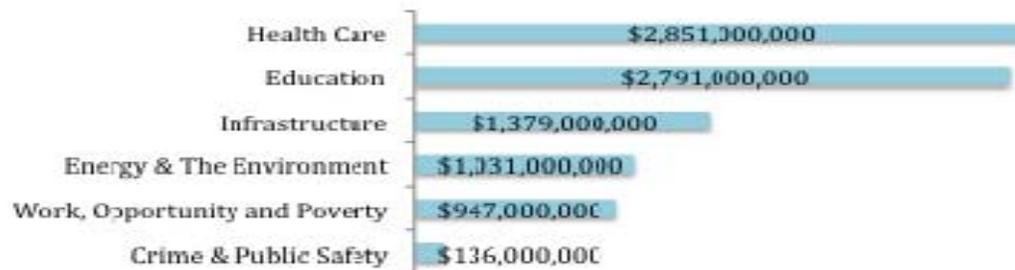
Source: Policy Matters Ohio, citation based on Table 1.

<sup>12</sup> 1603 Questions e-mail query, 9/18/2010.

## II. Recovery Act Funding in Energy and the Environment in Ohio

According to the state website on the federal stimulus (Ohio recovery.gov), investment in energy and the environment was one of the six basic funding components of the American Recovery and Reinvestment Act (Figure 2).

**Figure 2: Federal stimulus allocations for Ohio by major category**



Source: <http://recovery.ohio.gov/>, August 2009

Recovery Act funds administered by the state over the three-year time span is anticipated to be around \$10 billion; to-date, the state has been awarded \$7.9 billion.<sup>13</sup>

In addition to what the state receives, there are awards, loans, grants and contracts that go directly to companies, utilities, individuals, local governments, schools, universities, and other organizations. The state offers a county -by-county tally of publically announced Recovery awards and notifications (“Estimated Funding by County”).<sup>14</sup> This is the source we use here to examine where ARRA funds under clean energy and the environment are going across the Ohio landscape.

The Recovery Act sent funding out across the economy through hundreds of existing programs. Allocation and award protocols are not controlled by any one agency. Some allocations have been based on federal program rules that pre-date the Recovery Act. Others are based on state plans using ongoing protocol and formulas. Still others are competitively won. Some are tax credits that a private company receives with a certain type of investment. Some funding is related to

<sup>13</sup> Kristina Redgrave, Special Assistant , Federal Stimulus and Policy, Ohio Governors Office, e-mail dated 9/30/2010.

<sup>14</sup> <http://recovery.ohio.gov/accountability/counties/>. Reports include Recovery Act funds administered by or passed through the State of Ohio and funds not passed through the state but provided directly to other entities. An award announcement does not mean that a recipient has actually received or expended any funds and final recipient lists and award amounts may change after an announcement is made with out additional notification from the awarding agency. Information on place-of-performance may or may not be precise in the announcements.

specific sites, such as the contract for nuclear cleanup at the Piketon Nuclear Reservation.

The initial estimate was that \$1,031 billion dollars for energy and the environment would pass through the State of Ohio itself or be allocated under state reporting authority to local entities over the three years of the Recovery Act. Halfway through the program, *total* awards – to the state and other entities within the state - already tally up to almost one billion dollars. Table 4, below, shows estimated Recovery Act funding in energy and environment in 33 program areas. Of these 33 programs, 12 are administered or pass through the state of Ohio. The rest represent grants, contracts or loan received by local or private entities.

The top five programs include the clean water revolving loan fund, administered through the State of Ohio EPA and funding water and sewer infrastructure projects. Home weatherization is the second largest program with \$205 million awarded across the state as of the end of August. Contracts for nuclear site cleanup, at the Piketon Nuclear Reservation near Waverly and the Mound facility in Miamisburg, total about \$138 million. Renewable energy R&D (including research on carbon sequestration and a conversion of carbon dioxide to biofuels) and the energy efficiency conservation block grants, a diverse program described later in this report, round out the top five areas.

To illustrate the type and diversity of funds coming into any one county, a portrait of the awards to Cuyahoga County is presented in the Appendices on the webpage for this report. Taken from the county-by-county “Recovery Tracker” on the ProPublica website (<http://projects.propublica.org/recovery>), Appendix A illustrates how energy efficiency and clean water infrastructure have been the largest programs funding jobs to this point: Over half of the awards in Cuyahoga County (16 out of 30) are for energy efficiency and a third have to do with clean drinking water (9 out of 30 awards or allocations).

**Table 4: Recovery Act funds in clean energy and the economy awarded or allocated across the state as of the end of September, 2010**

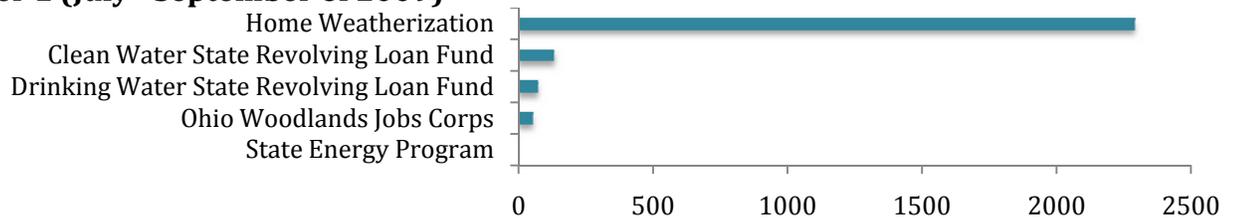
| <u>Program Name</u>  | <u>Announced<br/>Amount</u> | <u>State<br/>Administered?</u> |
|--|-----------------------------|--------------------------------|
| Clean Water State Revolving Fund (WPCLF)                                   | \$220,623,106               | Y                              |
| Home Weatherization  | \$205,644,252               | Y                              |
| Nuclear Cleanup Projects   | \$138,000,000               | N                              |
| Renewable Energy Research and Development                                  | \$89,236,099                | N                              |
| Energy Efficiency and Conservation Block Grant (federal)                   | \$59,203,700                | N                              |
| Energy Efficiency and Conservation Block Grant (state)                     | \$24,861,297                | Y                              |
| Drinking Water State Revolving Fund  | \$56,468,540                | Y                              |
| National Science Foundation Recovery Act Research Support                  | \$44,783,330                | N                              |
| Water and Waste Disposal Systems for Rural Communities                     | \$39,505,000                | N                              |
| Advanced Research Projects Agency-Energy                                   | \$27,414,388                | N                              |
| State Energy Program   | \$24,580,868                | Y                              |
| Conservation Research and Development                                      | \$14,381,736                | N                              |
| Community Development Block Grant (state)                                  | \$12,190,800                | Y                              |
| Section 1603 Payments for Specified Energy Property in Lieu of Tax Credits | \$3,213,563                 | N                              |
| Capital Improvements and Maintenance*                                      | \$14,345,000                | N                              |
| Invasive Species Job Corps   | \$4,419,000                 | Y                              |
| National Clean Diesel Funding Assistance Program                           | \$4,266,816                 | Y                              |
| National Clean Diesel Funding Assistance Program (federal)                 | \$1,080,000                 | N                              |
| Brownfields Assessment and Cleanup Cooperative Agreements                  | \$6,040,000                 | N                              |
| Wildland Fire Management*  | \$3,139,000                 | N                              |
| Industrial Carbon Capture and Storage                                      | \$3,000,000                 | N                              |
| Workforce Training for the Electric Power Sector                           | \$3,249,143                 | N                              |
| Habitat Enhancement, Restoration and Improvement                           | \$1,747,000                 | N                              |
| State Clean Diesel Grant Program   | \$1,271,668                 | Y                              |
| Water Quality Management Planning  | \$891,520                   | Y                              |
| Healthy Homes Demonstration Grants   | \$875,000                   | N                              |
| Brownfield Revolving Loan Fund   | \$797,500                   | Y                              |
| NASA Recovery Act Science Grants   | \$419,340                   | N                              |
| Fossil Energy Research and Development                                     | \$299,936                   | N                              |
| Energy Efficiency and Renewable Energy                                     | \$140,000                   | N                              |
| Emergency Watershed Protection Program                                     | \$125,640                   | N                              |
| Aquaculture Grants Program   | \$63,202                    | Y                              |

Source: <http://recovery.ohio.gov/accountability/counties/> September 30, 2010. Stars indicate that at least some portion of the award is shared with other states.

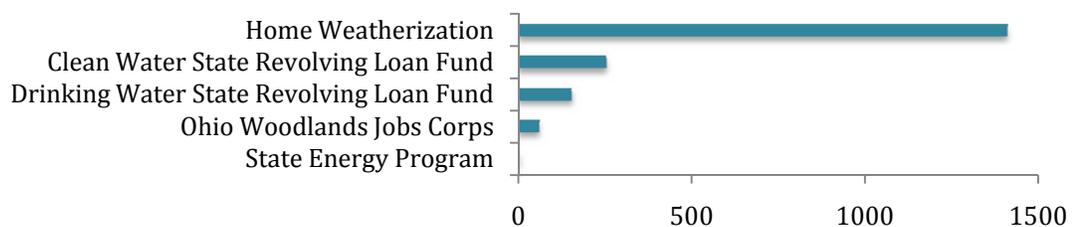
Figure 3 illustrates quarterly jobs creation in programs reported on by the state of Ohio in the categories of energy and the environment.<sup>15</sup>

**Figure 3: ARRA Job creation within Ohio - state-reported programs by quarter**

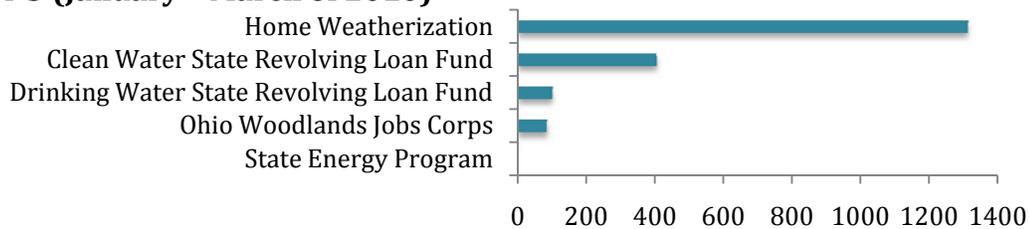
**Quarter 1 (July - September of 2009)**



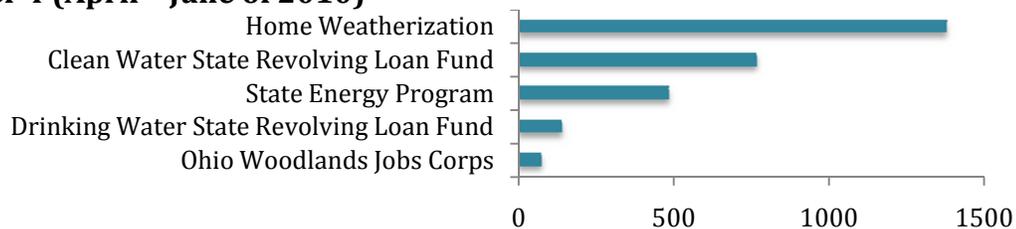
**Quarter 2 (October - December of 2009)**



**Quarter 3 (January - March of 2010)**



**Quarter 4 (April - June of 2010)**



Source: Policy Matters Ohio based on data provided at the Ohio Recovery Website (quarterly job reports)

Home weatherization and clean water programs have provided the most jobs, followed closely by jobs created in the Woodlands Job Corps, a training and employment program that benefits public parks and forests. As indicated in Figure 4, jobs created under the Clean Water Revolving Loan Program and the State Energy Program are increasing in number across the state.

<sup>15</sup> This list is taken from the Ohio Recovery website, but is not the full story; some job creating programs or project awards do not pass through the state and report separately to the federal government.

In the following sections, we examine Recovery Act funding in energy and the environment for each county in Ohio.<sup>16</sup> It is important to note that these are not necessarily completed programs (they may grow or be finished over the next year; the dollar amounts may change) nor are they necessarily programs funded by or even reported on by the state. We sort the counties into quartile by the relative strength or weakness of the economy, based on unemployment and poverty rates, to see if stimulus assistance in these categories was distributed equitably and if it addressed economic need, as mandated by the federal legislation. We then describe the largest clean energy programs to better illustrate the type of investment the Recovery Act is supporting across the state.

## A. Targeting Distress

To gauge if ARRA funding in the categories of energy and the environment is flowing to those most impacted by the recession, we divided the state's counties into four quartiles and ranked them using a distress indicator of unemployment plus poverty rates.<sup>17</sup> Higher rankings indicate greater distress. The unemployment indicator captures recent events, such as plant closures, while the poverty rate, which changes more slowly than the unemployment rate, gives a measure of historical economic condition. We then evaluated the level of Recovery Act funding<sup>18</sup> in energy and the environment based on relative distress. In sum, we found that on a per-capita basis, the poorest quartile of counties got almost twice the average of \$87 per person. Funding was well targeted to economic distress (Table 5).

**Table 5: ARRA energy and environment funding by county distress level**

| Economy type       | Clean energy & environ funding | Populaiton | Per-capita | Distress |
|--------------------|--------------------------------|------------|------------|----------|
| Lagging            | \$298,618,451.81               | 1,737,948  | \$172      | 30.5     |
| Moderately lagging | \$235,464,615.51               | 2,965,451  | \$79       | 25.7     |
| Moderately strong  | \$325,481,779.40               | 4,451,489  | \$73       | 22.7     |
| Strong             | \$140,276,153.28               | 2,331,022  | \$60       | 17.6     |

Source: Policy Matters Ohio, based on Tables 6-9, below.

### 1. Lagging economies

Table 6 shows that the quartile of Ohio counties with the weakest economies received almost \$300 million dollars in energy and environmental funding under the Recovery Act. The per-capita average was \$172, which is almost twice the state

<sup>16</sup> Multi-county grants are apportioned on a per-capita basis.

<sup>17</sup> 2008 poverty rates were used. Updated rates for counties with greater than 65,000 residents became available on September 28, 2010. Less than half of Ohio's counties fall into this category. We did not use these rates because of lack of consistent data for all counties.

<sup>18</sup> Data on Recovery Act funding by county was accessed from the Ohio Recovery website's table entitled "Estimated Funding by County" as of August 24, 2010.

per-capita average of \$87. These 22 counties have an average weighted distress indicator (unemployment plus poverty rates) of 30.5, which is 30 percent higher than the state distress indicator of 23.4. This indicates that Recovery Act funding in the categories of energy and the environment succeeded in reaching places where need is the greatest, as mandated in the legislation.

**Table 6: ARRA funding in energy or the environment in lagging economies**

| County    | Total            | Population | Per-Capita | Distress Indicator |
|-----------|------------------|------------|------------|--------------------|
| Athens    | \$14,359,424.66  | 63,255     | \$227      | 38.2               |
| Adams     | \$2,011,297.01   | 28,213     | \$71       | 36.3               |
| Vinton    | \$3,382,165.94   | 13,281     | \$255      | 36.1               |
| Morgan    | \$1,166,111.10   | 14,510     | \$80       | 35.6               |
| Meigs     | \$5,494,426.00   | 22,722     | \$242      | 34.9               |
| Pike      | \$121,224,009.82 | 27,967     | \$4,335    | 34.7               |
| Scioto    | \$6,523,608.70   | 76,587     | \$85       | 32.5               |
| Jackson   | \$3,319,467.66   | 33,270     | \$100      | 31.8               |
| Lucas     | \$43,110,000.00  | 440,456    | \$98       | 30.8               |
| Noble     | \$5,874,495.49   | 14,333     | \$410      | 30.8               |
| Jefferson | \$12,925,000.00  | 68,526     | \$189      | 30.0               |
| Gallia    | \$2,581,233.89   | 30,912     | \$84       | 29.7               |
| Muskingum | \$14,468,000.00  | 85,087     | \$170      | 29.4               |
| Trumbull  | \$9,750,000.00   | 211,317    | \$46       | 29.3               |
| Harrison  | \$339,785.72     | 15,387     | \$22       | 29.2               |
| Guernsey  | \$7,738,556.35   | 40,177     | \$193      | 29.1               |
| Huron     | \$2,161,982.86   | 59,659     | \$36       | 29.1               |
| Mahoning  | \$21,842,000.00  | 237,978    | \$92       | 29.1               |
| Perry     | \$4,204,018.51   | 35,241     | \$119      | 29.0               |
| Ashtabula | \$5,162,290.29   | 100,648    | \$51       | 28.9               |
| Ross      | \$2,196,631.50   | 76,073     | \$29       | 28.3               |
| Highland  | \$8,783,946.28   | 42,349     | \$207      | 28.2               |
| Total/Avg | \$298,618,451.81 | 1,737,948  | \$172      | 30.5               |

Source: Policy Matters Ohio, based on data from Ohio Recovery.gov, (August 24, 2010), American Community Survey (Poverty rates 2008) BLS county data (unemployment 2009) and ODOD (population 2009). Multi-county awards allocated on a per-capita basis across participating counties.

The \$298 million invested in energy and environmental projects in this quartile with lagging economies comprises the second largest allocation among the four quartiles, but the average per-capita amount is the highest. Even when the enormous investment in Pike County (which includes the contract for nuclear clean-up at the Piketon Nuclear Reservation) is taken out of the picture, the per-capita allocation to this quartile would have been 17 percent higher than the state average of \$87. Only one of the state's big cities, Toledo, is in a county on this list (Lucas County). Youngstown, now a smaller city but still among the state's top ten, is also on the list (Trumbull and Mahoning Counties).

This analysis highlights the role of the Recovery Act. The size of the investment is significant: nearly three hundred million dollars in energy and environmental spending pumped into these 22 counties with lagging economies. Unemployment and poverty have remained high, but damage like that of the Great Depression has been avoided. Interestingly, by the mid 1930s, similar intervention was implemented first by the State under the Civil Works Administration and the Works Progress Administration (WPA). The current intervention is much more heavily oriented to the private sector, but the purpose is the same: keep people working and families and communities intact until the private economy recovers.

## 2. Moderately lagging economies

The next quartile of Ohio counties, with an average distress indicator of 25.7, nine percent higher than the state average, received \$235.4 million dollars in energy and the environment stimulus spending (Table 7).

**Table 7: ARRA funding in counties with moderately lagging economies**

| County           | Total                   | Population       | Per-Capita  | Distress Indicator |
|------------------|-------------------------|------------------|-------------|--------------------|
| Marion           | \$4,862,468.98          | 65,768           | \$74        | 28.2               |
| Columbiana       | \$8,004,000.00          | 107,873          | \$74        | 27.7               |
| Monroe           | \$993,549.99            | 14,221           | \$70        | 27.6               |
| Richland         | \$5,468,977.84          | 124,999          | \$44        | 27.3               |
| Crawford         | \$5,107,531.02          | 43,696           | \$117       | 26.8               |
| Hardin           | \$5,759,577.19          | 31,948           | \$180       | 26.7               |
| Hocking          | \$4,568,773.21          | 28,975           | \$158       | 26.7               |
| Coshocton        | \$5,019,519.95          | 35,981           | \$140       | 26.5               |
| Montgomery       | \$39,264,895.73         | 534,626          | \$73        | 26.4               |
| Lawrence         | \$10,831,436.54         | 62,573           | \$173       | 26.3               |
| Washington       | \$4,827,046.76          | 61,567           | \$78        | 26.3               |
| Carroll          | \$1,158,008.46          | 28,439           | \$41        | 26.1               |
| Allen            | \$5,145,943.83          | 105,168          | \$49        | 25.9               |
| Brown            | \$2,010,074.44          | 43,960           | \$46        | 25.7               |
| Clinton          | \$3,059,382.22          | 43,200           | \$71        | 25.5               |
| Williams         | \$5,443,018.63          | 38,158           | \$143       | 25.4               |
| Belmont          | \$7,761,272.55          | 67,975           | \$114       | 25.2               |
| Cuyahoga         | \$99,216,000.00         | 1,283,925        | \$77        | 25.1               |
| Paulding         | \$8,895,308.65          | 19,096           | \$466       | 24.7               |
| Ashland          | \$2,076,211.73          | 55,125           | \$38        | 24.3               |
| Clark            | \$4,845,617.78          | 139,859          | \$35        | 24.2               |
| Fayette          | \$1,146,000.00          | 28,319           | \$40        | 24.1               |
| <b>Total/Avg</b> | <b>\$235,464,615.51</b> | <b>2,965,451</b> | <b>\$79</b> | <b>25.7</b>        |

Source: Policy Matters Ohio; see citation under Table 6.

The per-capita allocation is \$79, which is 10 percent less than the state average of \$87. This second quartile of counties hosts another two of Ohio's largest cities: Dayton and Cleveland, as well as three smaller cities: Lima, Mansfield and Springfield.

### 3. Moderately Strong Economies

The third quartile of counties, a grouping with moderately strong economies, includes counties with five of the state's largest cities. The total amount of Recovery Act funding in energy and the environment that was received by entities in this quartile, \$325 million, was the largest, but the per-capita share at \$73 was less than the state average (Table 8).

**Table 8: ARRA funding, energy & environment, moderately strong economies**

| County     | Total            | Population | Per-Capita | Distress Indicator |
|------------|------------------|------------|------------|--------------------|
| Defiance   | \$19,187,116.63  | 38,637     | \$497      | 23.8               |
| Seneca     | \$2,216,912.95   | 56,461     | \$39       | 23.7               |
| Stark      | \$13,374,000.00  | 379,214    | \$35       | 23.6               |
| Champaign  | \$664,338.63     | 39,650     | \$17       | 23.5               |
| Erie       | \$2,697,017.42   | 77,062     | \$35       | 23.5               |
| Franklin   | \$82,204,000.00  | 1,129,067  | \$73       | 23.4               |
| Pickaway   | \$1,247,000.00   | 54,544     | \$23       | 23.2               |
| Knox       | \$1,552,228.33   | 59,324     | \$26       | 22.8               |
| Van Wert   | \$1,965,000.00   | 28,748     | \$68       | 22.8               |
| Ottawa     | \$5,723,889.66   | 40,823     | \$140      | 22.7               |
| Shelby     | \$4,190,407.62   | 48,919     | \$86       | 22.7               |
| Hamilton   | \$32,541,000.00  | 851,494    | \$38       | 22.5               |
| Logan      | \$1,345,253.75   | 46,220     | \$29       | 22.5               |
| Tuscarawas | \$2,659,205.82   | 91,348     | \$29       | 22.5               |
| Lorain     | \$43,513,000.00  | 304,373    | \$143      | 22.4               |
| Summit     | \$32,077,000.00  | 542,562    | \$59       | 22.3               |
| Wyandot    | \$1,507,331.74   | 22,354     | \$67       | 22.3               |
| Morrow     | \$1,234,022.16   | 34,455     | \$36       | 22.0               |
| Sandusky   | \$8,141,720.02   | 60,637     | \$134      | 22.0               |
| Henry      | \$3,165,280.92   | 28,841     | \$110      | 21.9               |
| Portage    | \$11,872,000.00  | 155,991    | \$76       | 21.7               |
| Butler     | \$52,404,053.75  | 360,765    | \$145      | 21.3               |
| Total/Avg  | \$325,481,779.40 | 4,451,489  | \$73       | 22.7               |

Source: Policy Matters Ohio; see citation under Table 6.

Five of the state's largest cities (Cincinnati, Columbus, Akron, Canton and Lorain) are in this quartile. Some of Ohio's largest cities are very poor; three of them are counted among the 'top ten' poorest cities in the nation. However, their surrounding suburbs have economic strength.

#### 4. Strongest economies

The fourth quartile, with the strongest economies, had an average distress factor of 17.6 which is about 25 percent lower than the state average; the \$140 million in energy and environmental funding coming into these counties will benefit the 2.3 million residents (Table 9).

**Table 9: ARRA funding in energy and the environment in strong economies**

| County    | Total            | Population | Per-Capita | Distress Indicator |
|-----------|------------------|------------|------------|--------------------|
| Fulton    | \$6,775,275.16   | 42,485     | \$159      | 21.2               |
| Darke     | \$13,000,285.58  | 52,027     | \$250      | 21.0               |
| Wayne     | \$4,571,437.22   | 113,812    | \$40       | 21.0               |
| Wood      | \$23,580,511.29  | 125,340    | \$188      | 21.0               |
| Preble    | \$1,130,409.37   | 41,643     | \$27       | 20.5               |
| Madison   | \$1,020,258.37   | 41,861     | \$24       | 20.3               |
| Greene    | \$7,833,790.19   | 159,190    | \$49       | 20.3               |
| Hancock   | \$5,265,332.07   | 74,273     | \$71       | 20.1               |
| Miami     | \$7,626,565.38   | 101,085    | \$75       | 19.6               |
| Licking   | \$12,767,000.00  | 157,721    | \$81       | 19.5               |
| Holmes    | \$776,040.00     | 41,445     | \$19       | 18.5               |
| Clermont  | \$3,426,000.00   | 195,385    | \$18       | 18.4               |
| Auglaize  | \$2,037,131.59   | 46,576     | \$44       | 18.3               |
| Putnam    | \$413,118.25     | 34,543     | \$12       | 18.1               |
| Fairfield | \$13,612,000.00  | 142,223    | \$96       | 17.4               |
| Lake      | \$5,144,309.96   | 234,030    | \$22       | 17.0               |
| Mercer    | \$3,369,868.41   | 40,818     | \$83       | 16.0               |
| Union     | \$10,022,441.81  | 48,223     | \$208      | 15.5               |
| Warren    | \$9,735,000.00   | 207,353    | \$47       | 15.4               |
| Geauga    | \$2,775,516.03   | 94,753     | \$29       | 14.4               |
| Medina    | \$1,809,562.78   | 171,210    | \$11       | 14.1               |
| Delaware  | \$3,584,299.82   | 165,026    | \$22       | 11.8               |
| Total/Avg | \$140,276,153.28 | 2,331,022  | \$60       | 17.6               |

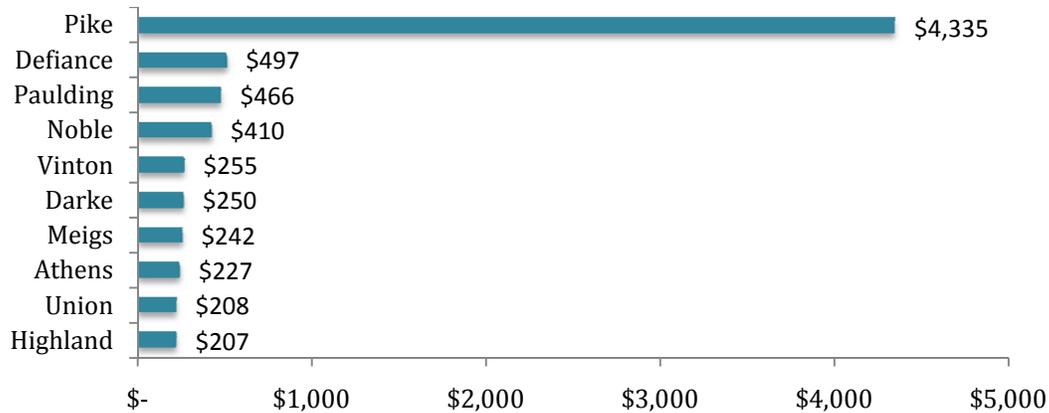
Source: Policy Matters Ohio; see citation under Table 9.

This quartile includes ten counties within MPOs, but none of the state's larger cities. The urban counties within this quartile are adjacent to large cities.

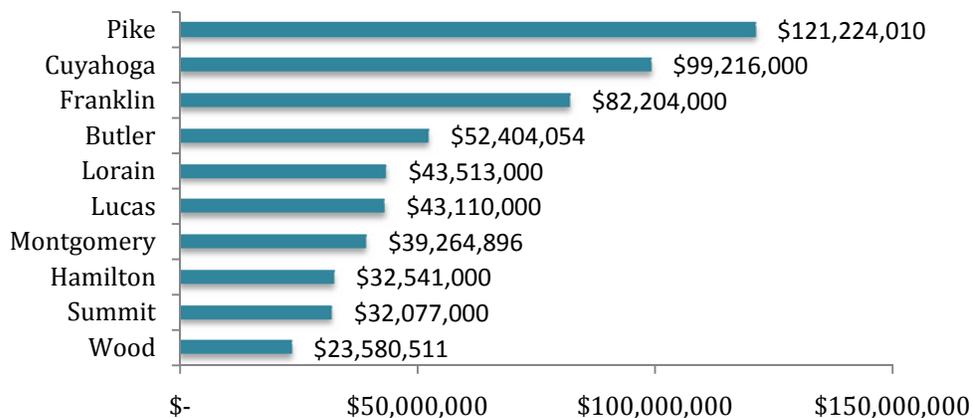
Overall, we found the greatest total funding is flowing to the quartile of counties with the largest populations and the greatest number of large cities (those with moderately strong economies). On a per-capita basis, however, the quartile of counties with sparse population but the highest need is receiving the largest amount of funding.

The top ten counties in terms of funding on a per capita basis were rural (Figure 4); top counties in total awards were urban (Figure 5).

**Figure 4: Top ten counties on a per-capita basis**



**Figure 5: Top ten – total awards**



Source: Policy Matters Ohio, based on data from Tables 4-7 above, Ohio Recovery.gov and Ohio Department of Development (population 2009)

We looked at per-capita funding in the ten counties that host the ten most populous cities in Ohio (Table 10). We found that on a per-capita basis, many of these counties received less than the state average. The Recovery Act is broad and the flow of funds diverse. As the Recovery Act continues to unfold, attention must be paid at all levels and within all programs to ensure recovery resources reach all areas of high economic need, urban and rural.

**Table 10: Recovery Act spending on energy and the environment in Ohio, counties with the largest cities**

| County                | Funding                 | Population     | Per-Capita  | Distress    |
|-----------------------|-------------------------|----------------|-------------|-------------|
| Stark                 | \$13,374,000.00         | 379,214        | \$35        | 23.6        |
| Hamilton              | \$32,541,000.00         | 851,494        | \$38        | 22.5        |
| Trumbull              | \$9,750,000.00          | 211,317        | \$46        | 29.3        |
| Summit                | \$32,077,000.00         | 542,562        | \$59        | 22.3        |
| Franklin              | \$82,204,000.00         | 1,129,067      | \$73        | 23.4        |
| Montgomery            | \$39,264,895.73         | 534,626        | \$73        | 26.4        |
| Cuyahoga              | \$99,216,000.00         | 1,283,925      | \$77        | 25.1        |
| Mahoning              | \$21,842,000.00         | 237,978        | \$92        | 29.1        |
| Lucas                 | \$43,110,000.00         | 440,456        | \$98        | 30.8        |
| Lorain                | \$43,513,000.00         | 304,373        | \$143       | 22.4        |
| <b>Urban Counties</b> | <b>\$416,891,895.73</b> | <b>5915012</b> | <b>\$70</b> | <b>24.7</b> |

Source: Policy Matters Ohio, based on tables 4-7, above.

In conclusion, Recovery Act allocations and awards in clean energy and the environment have reached all counties in the state and have met the mandate of targeting economic need. Receipt of this federal assistance in rural counties is noteworthy because economic distress of rural counties in the Ohio is very high. Ohio ranks the third among the states in number of rural jobs lost in this recession (86,695), behind only Michigan and North Carolina.<sup>19</sup> At the same time, Recovery Act funds are not flowing in the same per-capita measure to urban counties, which in Ohio contain some of the nation's poorest big cities. The federal government should look closely at program allocation and award formulas to ensure Recovery dollars are reaching places of the highest need, both urban and rural.

## B. Examples of clean energy programs funded under ARRA

The agency with the largest commitment to clean energy investment under the Recovery Act is the federal Department of Energy (DOE). Ohio's allocation of DOE funding in clean energy categories is shown in Figure 6. DOE awards to the state of Ohio total \$911.9 million as of September 10, 2010; the state's ranking was 12<sup>th</sup> among the states and territories (Appendix B).<sup>20</sup> Ohio ranks seventh in terms of population, so this is slightly less than proportional. New funding awards are made and reported upon weekly, however, and many sources other than the Department of Energy fund energy related projects. The state ranks seventh in expenditures, so we are doing a good job in spending the money we get.

<sup>19</sup> Daily Yonder: Keep it Rural website, September 15, 2010 at <http://www.dailyyonder.com/job-loss/2010/09/13/2935>

<sup>20</sup> United States Department of Energy website, data and financials, [DOE Recovery Act Awardees - September 10, 2010](#)

**Figure 6: Department of Energy Program Commitment to Ohio (Sept. 2010)\***



Source: US Department of Energy, [DOE Recovery Act Awardees - September 03, 2010](#) 4/9/2010

In this section, we provide an overview of some of the largest clean energy programs funded by the Recovery Act in Ohio. In terms of dollars allocated for clean energy investment in Ohio, the top five programs include energy efficiency (Home Weatherization, Energy Efficiency Conservation Program), nuclear clean up, the State Energy Program and the 'Smart Grid' program (Figure 7). We provide an overview of Ohio's allocation of these funds and lists or examples of projects supported under each program. The DOE also provides information on two of the Treasury's tax credit programs for clean energy: The 1603 tax credit/grant program under the United States Treasury Department, and the Advanced Energy Manufacturing Tax Credit, the 48(C) program. We provide overviews of these programs, as well as two bond programs providing access to capital.

This overview of selected programs is not a comprehensive overview of all federal stimulus funding in clean energy, or even of all the funding programs administered by the DOE under ARRA in the state. It is a sample that illustrates the federal government's use of policy levers to create jobs and markets for clean energy products in the United States and Ohio.

## **1. Energy Efficiency**

### **a) Home Weatherization**

Home weatherization entities in Ohio were allocated \$266.7 million for energy efficiency retrofits of residential properties under the stimulus. Ohio received the third largest allocation in the nation, exceeded only by Texas and New York.<sup>21</sup> This program retrofits homes of families earning up to 200% of poverty (\$44,100 annually for a family of four in 2009-10)<sup>22</sup> at no cost to the family. Improvements of up to \$6,500 for a home may include items such as new windows and doors, drywall, insulation, energy efficient lighting and furnaces. Ohio plans to weatherize 32,179 homes before March 31, 2012 with federal stimulus funds. According to the U.S. Department of Energy, Ohio weatherized 18,832 homes in 2009 and 2010 with Recovery and regular program funding and ranked first among the states in number of homes retrofitted for energy efficiency.<sup>23</sup> In the most recent quarter reported on, ending June 30, 2010, 1380 jobs were created through Home Weatherization. Ohio has been recognized as a leader in getting audits and retrofits out to low- and moderate-income families under the expanded ARRA programs.<sup>24</sup> At the same time, questions have been raised about quality of performance in some places.<sup>25</sup>

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<sup>21</sup> Alliance to Save energy at <http://ase.org/content/article/detail/5489>

<sup>22</sup> US HSS, Administration for Families and Children, Liheap Clearinghouse at <http://liheap.ncat.org/profiles/povertytables/FY2010/popstate.htm>

<sup>23</sup> [http://www.energy.gov/recovery/documents/Homes\\_Weatherized\\_by\\_State\\_Q2\\_2010.pdf](http://www.energy.gov/recovery/documents/Homes_Weatherized_by_State_Q2_2010.pdf)

<sup>24</sup> National association for state community services programs, <http://www.nascsp.org/Weatherization-News.aspx?id=21>, November 2, 2009; US DOE, Special Report: Progress in Implementing US DOE Special Assistance Program in Weatherization under ARRA, February 2010.

<sup>25</sup> Doug Caruso, "Broken Fixes: Inspectors find shoddy work in weatherization program, March 14, 2010 at <http://mobile.dispatch.com/topic/4809-Top%20Story/articles/196732099>

The Home Weatherization program is designed to have multiple impacts, which is typical of clean energy and energy efficiency work. The retrofits enhance the value of homes, boosting value for homeowners of modest means; thus building wealth among those who need wealth the most. It also enhances the household budget of families living in the homes by reducing energy bills. It creates construction jobs and stimulates markets in energy efficiency products, boosting manufacturing jobs in window and door factories, firms that make insulation, lighting, energy efficient furnaces and water heaters and related products.

The state receives Home Weatherization funds and allocates those funds to local administrators, mostly Community Action Programs. Appendix C, which may be accessed separately on the webpage, lists recipients and allocations included in the state plan for ARRA funds for 2009-10.

### **b) Energy efficiency conservation block grants**

Ohio's cities, towns and counties, universities, school districts and other jurisdictions were eligible for a total of \$84 million in the Energy Efficiency and Conservation Block Grant program. The Energy Efficiency and Conservation Block Grant (EECBG) Program was enacted in 2007 but funded for the first time under the Recovery Act. It is modeled after the Community Development Block Grant program and is intended to help cities, counties, states, territories, and Indian tribes to develop, promote, implement, and manage energy efficiency and conservation projects, reduce fossil fuel emissions, reduce the total energy use, improve energy efficiency in the transportation, building, and other sectors and create and retain jobs.<sup>26</sup> The U.S. Department of Energy has divided the program into two allocations.

- The first allocation is a \$59 million allocation directly from the Department of Energy to Ohio's ten largest counties and 33 largest cities. County and city governments interested in seeking this funding were required to file an energy strategy proposal with the federal government by June 25, 2009.
- The second allocation is a nearly \$25 million allocation to be split three ways:
  - \$15 million will be competitively sub-granted to the 78 counties and 114 cities not eligible to receive direct funding from DOE;
  - \$8.2 million will be administered by the Ohio Energy Office at the Ohio Department of Development; and
  - \$1.8 million will be used for technical assistance, outreach, grant administration, and reporting.

Upon U.S. Department of Energy plan approval, the state energy efficiency and conservation Block Grant funding will be made available to these applicants for

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<sup>26</sup> U.S. Department of Energy, Weatherization Assistance Program, Homes Weatherized By State through 06/30/2010 (Calendar Year) <http://www1.eere.energy.gov/wip/eeecbg.html>

eligible activities through competitive solicitations.<sup>27</sup>

Ohio's proposal for the Energy Efficiency and Conservation Block Grant was aimed at investments in programs and projects at local, state, and higher education facilities to lower energy bills, reduce emissions, and create jobs. Examples of the kinds of activities that will be undertaken under this program in smaller cities and counties includes:<sup>28</sup>

**City of Steubenville** (Traffic Signals and Street Lighting) - \$579,520 to upgrade its 25-year old city lighting system by replacing 340 street lights and 898 traffic signals with energy-efficient LED bulbs. The city estimates annual savings of \$96,847.

**City of Wilmington** (Renewable Energy Technologies) - \$352,600 for the installation of a 58.3kW solar electric system at their waste water treatment facility.

**Vinton County** (Energy Efficiency Retrofits) - \$542,498 to replace the existing boiler heating system in the courthouse with a new high efficiency variable refrigerant flow zone system.

**Wood County** (Energy Efficiency Retrofits) - \$173,097 to replace less efficient boilers at the county jail with condensing boilers, to maximize fuel efficiency.

**Bowling Green State University** (Wood County) - \$911,658 to upgrade the HVAC in Hayes Hall and Energy efficient lighting installed with a computer-based building management system to control lights and temperatures.

**Cleveland Institute of Art** (Cuyahoga County) - \$1.25 million to replace several heating, ventilation, and air-conditioning and mechanical systems at the historic McCullough Building, which is a former assembly plant for the Ford Motor Company.

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**Ohio Department of Transportation** (Ashtabula, Belmont and Wood Counties) - \$1,662,500 for the state's "America's Energy Gateway" initiative, which includes the installation of renewable energy and energy efficiency technologies: **The I-90 Gateway Rest Areas in Ashtabula and Wood Counties**☐ provided truck electrification systems at rest areas for "on-board" power to trucks to reduce the amount of trucks idling at the rest area, light-emitting diode (LED) and induction lighting for tourist info centers, 250 kW wind turbine and 15kw solar system for onsite electricity, a power management system and an educational kiosk for visitors; the **I-70 Gateway Rest Areas in Belmont County** put light-emitting diode (LED) and induction lighting into each tourist info center, as well as a 30kw solar electric system, electric vehicle charging equipment and an educational kiosk for visitors.

<sup>27</sup> Ohio Department of Development Press Release, "Patt-McDaniel, Shanahan announce Ohio energy efficiency and conservation block grant plan," July 29, 2009.

<sup>28</sup> Ohio Department of Development at <https://www.development.ohio.gov/recovery/EECBGAwards.htm>

Table 11 lists funding available under this the Energy Efficiency and Conservation Block Grant program to Ohio jurisdictions.

**Table 11: Recipients of the energy efficiency and conservation block grant**

| Grant Recipient   | Jurisdiction | Total Awarded       |
|-------------------|--------------|---------------------|
| Akron             | City         | \$2,048,800         |
| Beavercreek       | City         | \$164,700           |
| Butler            | County       | \$1,885,000         |
| Canton            | City         | \$803,000           |
| Cincinnati        | City         | \$3,520,600         |
| Clermont          | County       | \$783,700           |
| Cleveland         | City         | \$4,544,400         |
| Cleveland Heights | City         | \$182,300           |
| Columbus          | City         | \$7,403,500         |
| Cuyahoga          | County       | \$5,783,000         |
| Cuyahoga Falls    | City         | \$468,400           |
| Dayton            | City         | \$1,618,000         |
| Dublin            | City         | \$184,100           |
| Elyria            | City         | \$535,500           |
| Euclid            | City         | \$196,000           |
| Fairfield         | City         | \$187,500           |
| Findlay           | City         | \$172,600           |
| Franklin          | County       | \$3,053,000         |
| Hamilton          | City         | \$585,400           |
| Hamilton          | County       | \$4,841,600         |
| Huber Heights     | City         | \$152,900           |
| Kettering         | City         | \$520,500           |
| Lake              | County       | \$744,300           |
| Lakewood          | City         | \$447,200           |
| Lancaster         | City         | \$163,000           |
| Lima              | City         | \$171,200           |
| Lorain            | City         | \$649,500           |
| Mansfield         | City         | \$228,200           |
| Marion            | City         | \$153,500           |
| Mentor            | City         | \$512,200           |
| Middletown        | City         | \$490,600           |
| Montgomery        | County       | \$2,739,900         |
| Newark            | City         | \$203,900           |
| Parma             | City         | \$715,300           |
| Springfield       | City         | \$622,400           |
| Stark             | County       | \$2,788,400         |
| Strongsville      | City         | \$180,400           |
| Summit            | County       | \$2,698,800         |
| Toledo            | City         | \$3,083,600         |
| Warren            | County       | \$1,875,200         |
| Warren            | City         | \$196,700           |
| Westerville       | City         | \$160,100           |
| Youngstown        | City         | \$744,800           |
| State of Ohio     |              | \$24,979,600        |
| <b>TOTAL</b>      | -            | <b>\$84,183,300</b> |

Source: [http://www1.eere.energy.gov/wip/eebg\\_state\\_allocations.html](http://www1.eere.energy.gov/wip/eebg_state_allocations.html) Eecbg\_allocation\_oh-3.xls

## **B. Nuclear Clean-up projects in Ohio**

The second largest award under energy and the environment was in the area of nuclear clean-up. The Portsmouth Gaseous Diffusion Plant in Piketon received about \$118 million in Recovery Act funds to accelerate the plant's ongoing clean-up work. This is part of a ten-year, \$2.1 billion clean up program scheduled for the site.<sup>29</sup> Between 800 and 1,000 jobs are anticipated.<sup>30</sup> Another award of around \$20 million supported ongoing clean up of another nuclear site, the Mound site, in Miamisburg, Ohio. These expenditures create construction jobs, provide a public benefit of removing toxic waste from large sites while preparing them for other economic uses, and stimulate manufacturing jobs in factories that make products related to this type of clean-up.

## **C. State Energy Program (SEP)**

The State Energy Program (SEP) is a single program. Although the name of the program sounds like an overarching planning initiative, it is not; it is a source of flexible federal funds awarded for expenditure based on a state plan. The money flows through the state to companies and local entities as described below. The SEP is among the top five programs through which ARRA will invest funds in clean energy in Ohio.

Authorized in 2007, Ohio received \$3 million per year for this program in prior years, but federal stimulus authorization boosts that allocation to \$96 million. In the initial round, Ohio's plan for this funding source was targeted toward projects in renewables (solar photovoltaic, solar thermal and wind) and industrial efficiency. A climate strategy study was commissioned. The first round of approved projects is shown in Table 12.

For the next funding or "Phase 2 " projects, the Ohio application included three initiatives.<sup>31</sup> One initiative was reverse to in the plan as "Banking on New Energy Financing." Funding was set at \$30 million. The description was as a revolving loan program to improve access to capital for energy efficiency and renewable energy projects through a public-private partnership using ARRA's State Energy Program dollars in tandem with debt or equity investment participation. The funds for this program were approved in May of 2010; the fund, to be called the Gateway Fund, is in final phases of development.

The second initiative was described as "Deploying Renewable Energy in Ohio." Funding was set at 42.58 million. The write up described three programmatic prongs: Renewing manufacturing through deployment of

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<sup>29</sup> Columbus Business First, Piketon Plant to get \$2.1 billion for clean-up work, 08/18/2010

<sup>30</sup> Jonathan Riskind, US Offers clean-up jobs at ex-nuclear plant in Piketon, 7/28/2009

<sup>31</sup> US Department of Energy, Energy Efficiency and Renewable Energy, Weatherization and Intergovernmental Program, Ohio State Energy Program at [http://www1.eere.energy.gov/wip/pdfs/arra\\_sep\\_plan\\_oh\\_20100412.pdf](http://www1.eere.energy.gov/wip/pdfs/arra_sep_plan_oh_20100412.pdf)

**Table 12: Awards approved under ARRA’s First Round of Funding under the “State Energy Program” in Ohio****I. Renewable Energy (Initial Phase)**

| Recipient                                   | Purpose            | Amount              | County     |
|---|--------------------|---------------------|------------|
| Affinity Building Systems, Inc.             | Solar Photovoltaic | \$292,684           | Montgomery |
| City of Cincinnati                          | Solar Photovoltaic | \$252,937           | Hamilton   |
| City of Cincinnati Parks                    | Solar Photovoltaic | \$451,418           | Hamilton   |
| Forest City Residential Mgmt.               | Solar Photovoltaic | \$1,000,000         | Cuyahoga   |
| Greater Cincinnati Water Works              | Solar Photovoltaic | \$775,665           | Hamilton   |
| Hull & Associates, Inc.                     | Solar Photovoltaic | \$266,254           | Cuyahoga   |
| Hull & Associates, Inc.                     | Solar Photovoltaic | \$680,782           | Wood       |
| IGS Energy                                  | Solar Photovoltaic | \$261,089           | Franklin   |
| Jewish Community Federation of Cleveland    | Solar Photovoltaic | \$217,479           | Cuyahoga   |
| METRO Regional Transit Authority            | Solar Photovoltaic | \$1,000,000         | Summit     |
| Ohio Department of Mental Health            | Solar Photovoltaic | \$652,932           | Hamilton   |
| Solar Vision, LLC.                          | Solar Photovoltaic | \$631,637           | Athens     |
| Solar Vision LLC: Bexley Police             | Solar Photovoltaic | \$335,328           | Franklin   |
| Toledo Museum of Art                        | Solar Photovoltaic | \$282,264           | Lucas      |
| The Toledo Zoo                              | Solar Photovoltaic | \$306,837           | Lucas      |
| Great Lakes Brewing Company                 | Solar Thermal      | \$190,082           | Cuyahoga   |
| Parkway Local Schools                       | Solar Thermal      | \$16,080            | Mercer     |
| Archbold Area Local Schools                 | Wind               | \$750,000           | Fulton     |
| Cuyahoga County Commissioners               | Wind               | \$1,000,000         | Cuyahoga   |
| Green City Growers Cooperative              | Wind               | \$1,000,000         | Cuyahoga   |
| Huron-Wind LLC.                             | Wind               | \$280,500           | Erie       |
| Kenston Local School District               | Wind               | \$630,500           | Geauga     |
| Lincoln Electric Company                    | Wind               | \$1,000,000         | Cuyahoga   |
| Pettisville Local Schools                   | Wind               | \$750,000           | Fulton     |
| Toledo Electric Joint Apprentice & Training | Wind               | \$420,000           | Wood       |
| <b>TOTAL</b>                                |                    | <b>\$13,444,468</b> |            |

**II. Industrial efficiency**

| Recipient                        | Use                 | Award               | Location (County) |
|----------------------------------|---------------------|---------------------|-------------------|
| American Trim                    | Industry Efficiency | \$994,000           | Allen             |
| Clow Water Systems               | Industry Efficiency | \$515,844           | Coshocton         |
| Delphi Automotive Systems, LLC   | Industry Efficiency | \$979,000           | Trumbull          |
| Edge Plastic, Inc.               | Industry Efficiency | \$651,540           | Richland          |
| Empire Die Casting Company, Inc. | Industry Efficiency | \$835,000           | Summit            |
| General Motors                   | Industry Efficiency | \$518,233           | Defiance          |
| Green Bay Packaging, Inc.        | Industry Efficiency | \$911,936           | Hamilton          |
| Kovatch Casting, Inc.            | Industry Efficiency | \$1,000,000         | Stark             |
| Mansfield Plumbing Products, LLC | Industry Efficiency | \$732,589           | Ashland           |
| New Horizon Baking Company       | Industry Efficiency | \$1,000,000         | Huron             |
| Orlando Baking Company           | Industry Efficiency | \$486,807           | Cuyahoga          |
| Republic Storage Systems, LLC    | Industry Efficiency | \$550,000           | Stark             |
| Shearer's Foods, Inc.            | Industry Efficiency | \$291,879           | Stark             |
| SMART Papers Holdings, LLC       | Industry Efficiency | \$439,600           | Butler            |
| Thaler Machine Company           | Industry Efficiency | \$348,756           | Montgomery        |
| Timken Company                   | Industry Efficiency | \$1,175,000         | Stark             |
| WEK Industries, Inc.             | Industry Efficiency | \$250,000           | Ashtabula         |
| Wyandot, Inc.                    | Industry Efficiency | \$175,000           | Marion            |
| <b>TOTAL</b>                     |                     | <b>\$11,855,184</b> |                   |

### III. Climate studies:

| Recipient                                 | Use                            | Award            | Location  |
|---|--------------------------------|------------------|-----------|
| Ohio University/The Ohio State University | Climate Change Impact Analysis | \$500,000        | Statewide |
| <b>TOTAL</b>                              | <b>TOTAL</b>                   | <b>\$500,000</b> |           |

Source: Policy Matters Ohio, based on data from the Ohio Department of Development at <http://www.development.ohio.gov/recovery/StateEnergyProgram/Awards.htm#Targeting>

renewable energy projects; transforming waste to value; and advancing biofuels to beyond the basics.

The third initiative of the second phase of the Energy Efficiency and Conservation Bloc Grant program was called “Making efficiency work,” and funding was set at \$10.56 million. Goals for “Making Efficiency Work” include engaging Ohio manufacturers, retailers, builders, contractors, institutions and energy savings companies in the work of measurably improving the efficiency of Ohio's new and existing building stock through grants for commercial and residential building retrofits.

### D. Smart Grid

The Recovery Act of 2009 included \$4.5 billion to be administered by the Office of Electricity Delivery and Energy Reliability for electricity delivery and electric grid modernization such as funding for use of demand responsive equipment, enhancing security and reliability of the energy infrastructure, energy storage research, development, demonstration and deployment, facilitating recovery from disruptions to the energy supply, or implementation of programs authorized under Title XXIII of the Energy Independence and Security Act of 2007 (EISA).<sup>32</sup> According to DOE, Ohio has fared well compared to its neighbors in obtaining funding for electricity transmission, ranking third among Midwestern and adjacent states in total funding of \$96 million as of the end of August. Ohio was cited in a private report as being one of ten states “driving the smart grid of the future.”<sup>33</sup>

Many grants are multi-state grants for networks that spread across the service territory of a utility; when Governor Strickland announced the Smart Grid grants that impacted Ohio, he cited \$300 million, including awards for multi-state projects. The list of those projects includes:<sup>34</sup>

**FirstEnergy Service Company in Akron** was awarded \$57.4 million to modernize the grid and reduce peak energy demand by deploying different smart

<sup>32</sup> American Reinvestment and Recovery Act of 2009, HR1-24, Department of Energy Programs at [http://www.energy.gov/recovery/documents/RecoveryActCropped\\_24-34.pdf](http://www.energy.gov/recovery/documents/RecoveryActCropped_24-34.pdf)

<sup>33</sup> Andrew Nusca, Top Ten States Leading Smart Grid Deployment, SmartPlanet, July 28, 2010 at <http://www.smartplanet.com/business/blog/smart-takes/top-10-states-leading-us-smart-grid-deployment/9399/>

<sup>34</sup> Ohio Smart Grid Projects to Benefit from ARRA Funding AwardsOhio.gov Recovery at <http://recovery.ohio.gov/news/2009/10/>

grid technologies, including significant communication and information management systems, a smart meter network and automated distribution system.

**City of Wadsworth** was awarded \$5.4 million to deploy smart meters to more than 12,500 of the city's customers, implement two-way communications, automate distribution and substation operations, enhance cyber security systems, and prepare the grid for deployment of plug-in hybrid electric vehicle charging.

**City of Westerville** was awarded \$4.3 million for the conversion of 13,000 electricity and water meters to a smart grid network permitting two-way communications. The new meters will measure, store, send and receive consumption data, including costs and prices, facilitating time-of-day pricing.

**Duke Energy Business Services, LLC** was awarded \$200 million for a comprehensive grid modernization for Duke Energy's Midwest electric system encompassing Ohio, Indiana, and Kentucky. The project includes installing open, two-way communications networks, deploying smart meters for 1.4 million customers, automating advanced distribution applications, developing dynamic pricing programs, and supporting the deployment of plug-in electric vehicles.

**Midwest Independent Transmission System Operator** receives \$17.2 million to install, test, integrate and monitor 150 phasor measurement units on independent transmissions system operators to improve energy dispatching, system reliability and planning capability in Ohio, Iowa, Illinois, Michigan, Minnesota, Missouri, Montana, North Dakota, Pennsylvania, South Dakota, and Wisconsin.

**PJM Interconnection, LLC** receives \$13.7 million to deploy more than 90 phasor measurement units and other digital monitoring and analysis technologies across ten states that will provide real-time data on the operating conditions of the transmission system, improving reliability and reducing congestion.

## **2. Tax credit programs**

Approximately a third of the federal stimulus was devoted to tax credits and tax reductions. While much of this went to households, substantial tax subsidy was provided to jump start clean energy activities. Two of the most important programs for clean energy generation and manufacturing for clean energy markets are referred to as the 'Section 1603 Treasury Credit' and the '48(c) Advanced Energy Manufacturing Tax Credit.'

### **a. Section 1603 Treasury Credits for Renewable Energy and Transmission**

The Section 1603 clean energy incentive provides for eligible applicants to obtain cash grants under Section 1603 of the ARRA. The grants, which are available in lieu of traditional renewable energy production or investment tax credits, are intended to incentivize businesses to move forward with renewable energy projects

in 2009 and 2010 in spite of the economic downturn.<sup>35</sup> Twenty-nine Ohio firms have applied for and received this tax incentive. (Table 13).

**Table 13: Ohio companies utilizing the 1603 program**

|    | Company                                 | State | Use               | Award              |
|----|---|-------|-------------------|--------------------|
| 1  | Smart Papers Holdings LLC               | Ohio  | Co-gen power      | \$2,523,754        |
| 2  | Renewable Energy Services of Ohio, LLC  | Ohio  | Landfill Gas      | \$822,555          |
| 3  | Witterhaven Marina and Campground       | Ohio  | Small Wind        | \$69,154           |
| 4  | Hunstman Trucking Inc                   | Ohio  | Small Wind        | \$67,496           |
| 5  | Bauders Farm                            | Ohio  | Small Wind        | \$6,300            |
| 6  | Shepherd's Shoreline Cosntruction, Inc. | Ohio  | Small Wind        | \$65,190           |
| 7  | Eagle Creek Wholesale                   | Ohio  | Small Wind        | \$65,041           |
| 8  | Encore Industries, Inc.                 | Ohio  | Small Wind        | \$82,116           |
| 9  | Ohio Cooperative Solar                  | Ohio  | Solar Electricity | \$149,309          |
| 10 | Scioto Valley Solar Two, LLC            | Ohio  | Solar Electricity | \$168,044          |
| 11 | Scioto Valley Solar One, LLC            | Ohio  | Solar Electricity | \$93,761           |
| 12 | Herb's Body Shop, Inc.                  | Ohio  | Solar Electricity | \$88,002           |
| 13 | Dull Homestead, Inc.                    | Ohio  | Solar Electricity | \$45,697           |
| 14 | Brazees Street Studios                  | Ohio  | Solar Electricity | \$72,694           |
| 15 | Worthington Solar Project 1             | Ohio  | Solar Electricity | \$149,588          |
| 16 | Carbon Vision, LLC                      | Ohio  | Solar Electricity | \$11,544           |
| 17 | purely american                         | Ohio  | Solar Electricity | \$53,469           |
| 18 | Peter S. Yoder / Mary Ette Kramer       | Ohio  | Solar Electricity | \$24,840           |
| 19 | JP Equipment Leasing LLC                | Ohio  | Solar Electricity | \$117,764          |
| 20 | Horizons Companies                      | Ohio  | Solar Electricity | \$77,409           |
| 21 | Recto Molded Products Inc               | Ohio  | Solar Electricity | \$78,579           |
| 22 | McCarthy Systems Co., Inc.              | Ohio  | Solar Electricity | \$24,000           |
| 23 | Solaris Blackstone Energy LLC           | Ohio  | Solar Electricity | \$21,907           |
| 24 | Buckeye Biogas LLC                      | Ohio  | Trash Facility    | \$1,595,580        |
| 25 | ONU Wind, LLC                           | Ohio  | Wind              | \$861,848          |
| 26 | Conneaut City Wind, LLC                 | Ohio  | Wind              | \$347,309          |
| 27 | Conneaut Schools Wind, LLC              | Ohio  | Wind              | \$490,964          |
| 28 | Pearl Road Auto Wrecking and Salvage    | Ohio  | Wind              | \$99,987           |
| 29 | Scioto Valley Wind LLC                  | Ohio  | Wind              | \$252,989          |
|    | <b>Total</b>                            |       |                   | <b>\$8,526,890</b> |

Source: Policy Matters Ohio, based on data from the U.S. Treasury website for the 1603 program at <http://www.ustreas.gov/recovery/1603.shtml>, accessed September 28, 2010

Ohio has a larger number of projects under this program than some other neighboring states (Table 14). The projects are, on the average, relatively small and the portfolio is more diverse than the nation as a whole. Some of Ohio's neighboring states have robust wind resources and have seen significant investment in wind

<sup>35</sup> U.S. Treasury Department, Payments for Specified Energy Property in Lieu of Tax Credits under the American Recovery and Reinvestment Act of 2009, July 2009/ revised March 2010 at <http://www.ustreas.gov/recovery/docs/guidance.pdf>

generation. Participation in many of the Recovery Act energy and environmental programs may be affected by unique circumstances of geography, natural resources, historical economic base and even utility company strategies.

**Table 14: Midwestern and adjacent states utilization of 1603 tax credit grants**

| State        | Number of Projects | Awards for Projects       | Awards as % of total Midwest Funding | Average size of Award |
|--------------|--------------------|---------------------------|--------------------------------------|-----------------------|
| Kentucky     | 2                  | \$26,362.00               | 0.00%                                | \$13,181.00           |
| Wisconsin    | 32                 | \$5,562,454.00            | 0.33%                                | \$173,826.69          |
| Ohio         | 29                 | \$8,526,890.00            | 0.50%                                | \$294,030.69          |
| Michigan     | 11                 | \$21,101,473.00           | 1.24%                                | \$1,918,315.73        |
| Minnesota    | 12                 | \$31,841,530.00           | 1.88%                                | \$2,653,460.83        |
| South Dakota | 2                  | \$54,550,254.00           | 3.22%                                | \$27,275,127.00       |
| North Dakota | 3                  | \$103,285,790.00          | 6.09%                                | \$34,428,596.67       |
| Indiana      | 6                  | \$182,805,298.00          | 10.78%                               | \$30,467,549.67       |
| Missouri     | 6                  | \$195,488,159.00          | 11.53%                               | \$32,581,359.83       |
| Pennsylvania | 75                 | \$251,970,217.00          | 14.86%                               | \$3,359,602.89        |
| Iowa         | 25                 | \$275,828,430.00          | 16.27%                               | \$11,033,137.20       |
| Illinois     | 14                 | \$564,515,475.00          | 33.30%                               | \$40,322,533.93       |
| <b>Total</b> | <b>217</b>         | <b>\$1,695,475,970.00</b> |                                      | <b>\$7,813,253.32</b> |

Source: Policy Matters Ohio, based on data from the U.S. Treasury website for the 1603 program at <http://www.ustreas.gov/recovery/1603.shtml> Accessed September 29, 2010.

The number of projects initiated in Ohio is robust but the average size of project is modest compared to some neighboring states. This profile has been attributed to a variety of factors, ranging from the newness of legislation, rules and tax policies for advanced energy generation (a new tax provision encouraging clean energy generation was signed into law just at the end of September, 2010) to the power siting process of a densely populated state. Strickland Administration energy chief Mark Shanahan expects the share of this subsidy going to Ohio facilities to reach up to \$300 million by the end of the year.

#### **b. Advanced Energy Manufacturing Tax Credit (48C tax credits)**

One third of the total federal stimulus was devoted to tax credits for individuals and companies. An important job creation tax credit program was the 48 (c) tax credit for advanced energy manufacturing, funded at \$2.3 billion and provided to firms on a competitive basis. Ohio manufacturers were awarded \$124 million in these tax credits through a competitive process (Table 15).

**Table 15: Ohio plants awarded advanced energy manufacturing tax credits**

| Applicant name                   | Request              | Purpose       | Location    |
|----------------------------------|----------------------|---------------|-------------|
| First Solar, Inc.                | \$16,320,000         | Solar PV      | Perrysberg  |
| E.I. du Pont de Nemours & Co.    | \$50,730,000         | Solar PV      | Circleville |
| Cardinal Fastener & Specialty Co | \$480,000            | Wind Turbines | Bedford     |
| AcuTemp                          | \$900,000            | Buildings     | Dayton      |
| General Electric Lighting, Inc   | \$19,831,680         | Buildings     | Bucyrus     |
| The Dow Chemical Company         | \$2,220,000          | Solar PV      | Findlay     |
| Xunlight Corporation             | \$34,500,000         | Solar PV      | Toledo      |
| <b>Total</b>                     | <b>\$124,981,680</b> |               |             |

Source: Policy Matters Ohio, based on “48C selection 011310\_1” spreadsheet downloaded from White House Press Release January 8, 2010 at <http://www.whitehouse.gov/the-press-office/president-obama-awards-23-billion-new-clean-tech-manufacturing-jobs>

Ohio firms were aggressive in pursuing the opportunity: Ohio was fourth among the fifty states in garnering these highly competitive tax credits (Table 16),<sup>36</sup> accounting for 7 percent of the allocation in this program.

**Table 16: Top 10 advanced energy manufacturing tax credits (48C)**

|    | Applicant Name | Tax Credit Requested | % of total ask |
|----|----------------|----------------------|----------------|
| 1  | California     | \$235,500,989        | 14.4%          |
| 2  | Michigan       | \$225,801,351        | 13.8%          |
| 3  | Tennessee      | \$200,390,169        | 12.2%          |
| 4  | Ohio           | \$124,981,680        | 7.6%           |
| 5  | Connecticut    | \$120,911,520        | 7.4%           |
| 6  | Oregon         | \$87,243,801         | 5.3%           |
| 7  | Colorado       | \$75,239,310         | 4.6%           |
| 8  | Texas          | \$68,504,131         | 4.2%           |
| 9  | South Carolina | \$53,653,500         | 3.3%           |
| 10 | Kentucky       | \$53,364,900         | 3.3%           |

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This program is particularly helpful in encouraging domestic production of advanced energy products. The Apollo Alliance found that of the recipients of 48(c) tax credits involved in wind or solar projects, \$458 million went to 23 firms that are also investing and creating jobs in low wage countries. Thus, they can chose in what country to manufacture.<sup>37</sup> This program provides an incentive for companies to produce in America rather than in offshore sites. This highlights the need for the federal government to provide broad climate legislation that encourages domestic production and provides a venue for addressing leakage of jobs and emissions overseas. The 48(c) program is especially useful, because it incentivizes domestic

<sup>36</sup> Analysis based on “48C selection 011310\_1” spreadsheet downloaded from White House Press Release, “President Obama Awards \$2.3 Billion for new Clean Tech Manufacturing Jobs,” January 8, 2010 at <http://www.whitehouse.gov/the-press-office/president-obama-awards-23-billion-new-clean-tech-manufacturing-jobs>

<sup>37</sup> Apollo Alliance and Good Jobs First, “Winning the race: How America can lead the global clean energy economy,” p.10, March 2010

production. More is needed, however, to ensure clean energy products developed in America are also produced domestically.

### **c. Qualified Energy Conservation Bonds and Clean Renewable Energy Bonds**

The ARRA provided a set of bond programs to allow access to subsidized capital for a variety of purposes: Build America Bonds, Recovery Zone Economic Development Bonds, Qualified Zone Academy Bonds, Qualified School Construction Bonds, Qualified Energy Conservation Bonds and New Clean Renewable Energy Bonds. According to Ohio's recovery website, 158 Ohio entities, from schools to companies to local governments, have been allocated nearly a billion dollars to build infrastructure and other projects under Recovery Zone bond programs, but there was not a listing on the Ohio recovery website about issuances of the clean energy bonds.

The clean renewable energy bond (CREB) program and the qualified energy conservation bond (QECB) program, were among the eighteen tax subsidy programs funded in the Emergency Stabilization Act of 2008 and were expanded in the American Recovery and Reinvestment Act of 2009. The CREB program was expanded to total \$2.4 billion and the QECB program to \$3.2 billion: In total, \$5.6 billion in tax-subsidized debt financing was made available to upgrade facilities, underwrite clean energy production, create jobs or lower energy bills. In these bond programs, the subsidy payment is equal to the lesser of either the interest paid by the issuer on each interest payment date; or 70% of the amount of interest that would have been payable had the issuer selected the tax credit option (and such interest was determined using the applicable tax credit rate).<sup>38</sup> Under the QECB program, the investor may elect to receive an up-front payment instead of tax credits.

The activity in these programs has been sporadic. According to the Security Industries and Financial Markets Association (SIFMA), \$94.3 million in CREBs and \$21.6 million QECBs were issued across the nation in the second quarter of 2010, up from no issuances in the first quarter.<sup>39</sup> The described quarterly activity represents about 4 percent of total allocations in CREBs and about .7 percent of the QECBs. Ohio had no issuances listed under either bond program for the second quarter of 2010 in the SIFMA quarterly report on the municipal bond market, but there has been participation in the past. In the 2009 allocation under the CERB program, AMP Ohio, the umbrella organization serving rural electric co-ops, was allocated \$20 million for a hydropower project adjacent to Gallipolis on the Ohio River.<sup>40</sup> According to the Federal Stimulus Policy office within the Governors Office, three

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<sup>38</sup> Clean Energy States Alliance webinar, McGuire Woods, Clean Renewable Energy Bonds and Qualified Energy Conservation Bonds: Opportunities and Challenges, March 26, 2010.

<sup>39</sup> Securities Industry and Financial Markets Association, Municipal Bond Markets 2Q 2010, p.

<sup>40</sup> IRS.gov, "IRS announces clean renewable energy bonds" at [http://www.irs.gov/pub/irs-tege/ncrebs\\_2009\\_allocations\\_v1.1.pdf](http://www.irs.gov/pub/irs-tege/ncrebs_2009_allocations_v1.1.pdf)

projects have been approved under the QECBs program and two have been closed for a total of \$5,297,130 in QECB allocations and a total of \$7,594,261 financed through OAQDA.

“We are currently working with other counties {with financing under these programs} which could be over \$14,000,000 in QECB’s with a total financing of close to \$30,000,000. All bonds are expected to close by the end of 2013,” writes Special Assistant Kristina Redgrave in an e-mail of September 30, 2010.

A webinar held by the Clean Energy States Alliance on March 26 of 2010 suggested a list of factors limiting momentum in these programs:<sup>41</sup>

- Overcoming negative myths of programs, such as lack of use and unsuitability
- Education and politics
- Small allocations relative to the cost of developing utility-scale clean energy resources
- Structuring deals: Marrying tax credit bonds with other sources of financing
- QECBs: State application process instead of uniform national application.

## Conclusion

The energy-related federal stimulus funding allocated to Ohio through the American Recovery and Reinvestment Act of 2009 represented a sizable investment in tomorrow’s economy. Over a billion dollars have been or will be made available in expenditures that run through state programs, leveraging additional public and private investment. Hundreds of millions of additional aid in federal subsidies allocated through competitive grant programs and tax credits stimulate construction, technology development and manufacturing. Significant tax subsidized bond financing programs provide opportunity for further public and private development.

Programs to build and rebuild clean water infrastructure have created many jobs already. Woodland and wildfire management programs were utilized immediately to create jobs and improve parklands and other wild terrain across the state. Ohio is a leader in retrofitting homes for energy efficiency, lowering electric bills for consumers, reducing Ohio’s carbon footprint and creating jobs across the state. As spending in energy-related programs begins to yield jobs, benefits accrue to the construction and manufacturing sectors.

Some details about the impact of the Recovery Act in clean energy will not be known definitively for a number of years. The stimulus acted as a policy lever to help create new markets for domestic and exportable goods and to build jobs around a sector that has a bright future internationally. A statement like this sounds theoretical, but in this report, we have documented specific examples of what this

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<sup>41</sup> See footnote #32, above.

policy has accomplished in Ohio: close to 19,000 homes have been retrofitted and more than 2000 jobs created in the Home Weatherization program. In Pike County, 200 are already at work cleaning up the Piketon nuclear reservation, a number that will increase to as many as 800 or 1000. In Wilmington, a \$352,600 grant to install a 58.3 kilowatt solar electric system at the wastewater treatment facility will cut costs and lower water bills. In Wood County, a grant of \$173,097 will replace less efficient boilers at the county jail with condensing boilers to maximize fuel efficiency. Local people will install these facilities. Their wages will be underwritten with the grant money, freeing up funds to pay others. Long-term energy savings will benefit citizens. First Solar, AcuTemp and Dow Chemical will invest in Perrysburg, Dayton and Findlay, entering clean energy markets and creating jobs. Smart Paper Holding and JP Leasing will generate electricity on-site, cutting their costs of operations over the long term. First Energy Service Company in Akron will modernize its grid, increasing reliability and efficiency for its customers, employing electricians who will install new smart meters in homes and pushing demand out through American firms that make the smart meters. The examples provided here are just a sample of what is multiplied many times over across the 88 Ohio counties.

This is how a stimulus works – people who would not otherwise be employed have jobs. The work they do benefits the community. The demand for the projects they build or the products they install will pulse through the economy, helping manufacturers recover and grow. As demand spirals back up, firm will find new customers and new markets, tax revenue will expand, people will be re-hired and the Ohio economy should begin to recover.

### **Policy Recommendations:**

**Ohio did a good job of targeting energy and environmental spending toward communities with high levels of need.** These smart priorities should be maintained and other states should be encouraged to learn from this approach. Sub-county analysis of funding patterns should be undertaken. Program funding formulas should be reviewed to ensure Recovery Act resources are reaching all economically distressed areas.

**Ohio should examine why the use of the 1603 tax credit grant program is low.** Midwestern states have accessed significant shares of the lucrative 1603 tax credit/grant funds, but Ohio's use of funds has favored small manufacturers and smaller projects. Is this the result of timing or other structural barriers? What might be done to improve access of Ohio firms to this important federal incentive?

If Ohio's share of this resource does not accelerate as anticipated, a through examination of factors limiting installation of renewable energy generation capacity in the state should be undertaken.

Of course, this is a useful investment program that is set to expire in December. Extension of the program would make it more likely that states with Ohio, with recent legislation encouraging clean energy, could benefit from federal incentives.

**The market for larger sources of capital such as the clean energy bond programs needs to be unified nationally and reinforced by the federal government.** At present, utilities and other clean energy power generation entities face fifty different energy markets, with differing state rules overlaid by various regional entities. The lack of a unified national market hampers demand. Fragmented sources of capital also do not foster emergence of a mature investment system.

The national government has a role to play in America, similar to the roles of our trade competitors, in fostering clean energy markets and nurturing a network or economic cluster to drive job creation in these important domestic and international markets.

**The federal government must continue to create policies to support and grow clean energy markets.** The market for clean energy investment is staggeringly large. By 2020, clean energy will be one of the world's biggest industries, totaling as much as \$2.3 trillion. America has both domestic and international models upon which it could draw to develop and nurture clean energy generation and a domestic manufacturing base to build and maintain it. In the wake of the Great Recession, we can hardly afford not to undertake systematic maintenance of our economy.

The federal government must place a strategic focus on manufacturing, especially in the area of clean energy and environmental production.

**A national price must be levied on emissions to provide the economic basis for continued expansion of clean and advanced energy.** Without an economic impetus, America will not establish a robust domestic market for clean energy. This would leave us out of one of the biggest areas for economic and labor market growth. We can't afford that. At the same time, we need to do our part to reduce American contribution to climate change which is causing floods in Pakistan and Iowa, droughts in Africa and Arizona, tropical storms in Indonesia and New Orleans. The U.S. Congress should pass emissions legislation, regulating pollution and using the proceeds to rebuild our industrial base.

The federal government must charge for pollution and use the proceeds from regulation emissions for incentives for domestic energy generation and production and renewal of the American manufacturer.

**Federal and state reporting on ARRA should both enforce and enhance transparency and accountability on all aspects of legislated outcomes.**

The reporting on expenditures under ARRA is extensive. The federal

government's recovery website provides extensive information and links. Ohio alone has at least 390 pages of densely packed spreadsheets of total recipient reporting information on the federal government's Recovery.gov website. For those so inclined, individual contracts may be tracked down to subcontractors and vendors. Award and expenditure data is available by recipient, granting agency, state, county, city and zip code. Each federal agency and many individual programs also provide tallies of awards and expenditures, frequently on sortable spreadsheets so comparisons can be made with activity in other states. Information is also available at the state level. In Ohio, two interactive maps on the Ohio Recovery website allow citizens to view awards that have come to their counties. Despite all this data, the question is often posed: "What did the \$800 billion stimulus buy? What did that money go for?"

The problem is not a lack of data; it is, perhaps, in understanding, organizing and analyzing the data. At present Recovery Act recipients are required to report on what they are doing, where they are doing it and number of jobs created – but strong enforcement guidelines have emerged within the past six months, and were reinforced only recently.<sup>42</sup> According to Phil Mattera of the States for a Transparent and Accountable Recovery (STAR) coalition:

*“Of the 73,000 grant and contract recipients providing employment numbers, 67,000 report fewer than 100 jobs. Scrolling through the spreadsheets, one is confronted with the dismaying sight of thousands of recipients reporting trivial numbers of jobs. Nearly 15,000 recipients report only a fraction of one job, down to the absurd listings for .01 jobs.”* - Phil Mattera, “ARRA job Reporting Problems Persist,” STAR website at <http://accountablerecovery.org/blog/arra-job-reporting-problems-persist>

The STAR coalition has proposed that state level record keeping be expanded to provide the following information for the largest job creating programs:

- The race, gender, and nine-digit residential ZIP code of workers performing Recovery Act work; and
- The wages and benefit levels (especially whether employer-paid health care is provided) of those jobs.

This record keeping is recommended for seven Recovery Act programs that are known to be creating large numbers of new jobs:

- Highway Infrastructure Investment

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<sup>42</sup> On April 6, 2010 President Obama issued a Memorandum titled “Combating noncompliance with Recovery Act Reporting Requirements,” which called for more aggressive action by federal agencies in addressing recipient non-compliance. Moreover, the White House office of management and budget issued new guidance on September 24, 2010 reiterating that “no rate of non-compliance is acceptable and each case of non-compliance will be addressed,” and citing earlier OMB guidance requiring agencies to take additional steps beyond existing policies and procedures for more aggressive action in addressing recipient non-compliance.

- Transit Capital Assistance
- Weatherization Assistance Program
- State Energy Program
- Energy Efficiency and Conservation Block Grants
- Clean Water and Drinking Water State Revolving Funds
- Recovery Zone Facility Bonds

*While the record keeping, tracking and accountability systems associated with the Recovery Act are extensive, improvements should be made to facilitate impact analysis at the neighborhood level and to allow better benchmarking on equity metrics.*

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